

**DOCKET**

**08-AFC-5**

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RECD. MAY 17 2010

## Applicant's Submittal of Testimony Compilation

### Application for Certification (08-AFC-5) Imperial Valley Solar, LLC

**Submitted to:**  
**Bureau of Land Management**  
1661 S. 4th Street, El Centro, CA 92243



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



**Submitted by:**  
**Imperial Valley Solar, LLC**  
4800 N. Scottsdale Road, Suite 5500, Scottsdale, AZ 85251



With Support From:  
URS Corporation

May 2010



May 17, 2010

Mr. Christopher Meyer  
Project Manager  
Attn: Docket No. 08-AFC-5  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814-5512

Subject: Imperial Valley Solar (formerly Solar Two) (08-AFC-5)  
Applicant's Submittal of Testimony Compilation

Dear Mr. Meyer:

On behalf of Imperial Valley Solar (formerly Solar Two), LLC, URS Corporation Americas (URS) hereby submits the Applicant's Testimony Compilation.

This submittal includes exhibits that have not previously been docketed. Additionally, a cd containing electronic copies of all exhibits in both Format 1 and Format 2 is provided for reference.

I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge. I also certify that I am authorized to submit on behalf of Imperial Valley Solar, LLC.

Sincerely,

A handwritten signature in black ink, appearing to read "Angela Leiba". The signature is written in a cursive style.

Angela Leiba  
Project Manager

AL: ml

Applicant's Exhibit List – Exhibits 1 through 48

Updated 5/17/2010

<u>Exhibit</u>	<u>Description</u>	<u>Docket Date</u>
1	Application for Certification, Volume I and II	June 6, 2008
2	Air Quality Information for Data Adequacy	July 25, 2008
3	Responses to Imperial County questions	September 3, 2008
4	E-mail regarding school impact fees	September 10, 2008
5	E-mail regarding property taxes	September 10, 2008
6	Data Adequacy Supplement	September 26, 2008
7	CEC/BLM DR Responses 1-52	December 8, 2008
8	SES Alternatives and Cumulative Impacts	February 8, 2009
9	CEC/BLM DR Responses 1-3, 5-10, 14-15, 24-26, 31-32, 36-38, 44, 111-127	March 19, 2009
10	CEC/BLM DR Responses 53-110	March 26, 2009
11	Supplemental Cumulative Analysis	April 29, 2009
12	CEC/BLM DR Responses 128-141	June 5, 2009
13	CURE DR Responses 1-143	June 6, 2009
14	Supplement to AFC	June 12, 2009
15	CEC/BLM DR Responses 31-32	July 2, 2009
16	CEC/BLM DR Responses 151-155	July 7, 2009
17	CURE DR Responses 143-178	August 5, 2009
18	Additional Supportive Materials, Biology & Water	September 23, 2009
19	CEC/BLM DR Response 142-150	October 17, 2009
20	Current Project Acreage	October 28, 2009
21	Supplemental Biology and Water Information	October 30, 2009
22	Revised page 300-1 of SWPP	December 21, 2009
23	Corridor Conflict Analysis	January 8, 2010
24	San Diego MTS Agreement	January 8, 2010
25	Glint and Glare Study	April 28, 2010
26	Juan Batista de Anza Historic Trail Visual Impact Analysis	January 22, 2010
27	Additional Information Related to SWWTF Improvements	February 26, 2010
28	Applicant's Comments in the SA/DEIS	March 12, 2010
29	Modeling Analysis for the Federal NO2 1-Hour Standard	March 31, 2010
30	Imperial Valley Solar Sediment Transport Analysis	April 26, 2010
31	Early Spring 2010 Botanical Surveys	April 26, 2010
32	Supplement to the AFC	May 5, 2010
33	Overview of the SWWTF Project Limits	May 10, 2010
34	Revised Project Wash Avoidance Site Plan	May 10, 2010
35	Letters of Project Support	May 10, 2010
36	Peninsular Big Horn Sheep Locations and Critical Habitat	May 10, 2010

37	Project Footprint Evolution	May 17, 2010
38	Applicant's Proposed Revisions to Conditions of Certification	May 17, 2010
39	Preliminary Greenhouse Gas Emissions from SWWTF Improvements	May 17, 2010
40	Independent Technical Review by Dr. Eric LaBolle	May 17, 2010
41	Existing Edge Effects Onsite	May 17, 2010
42	USFWS final rule on PBS Designated Critical Habitat	May 17, 2010
43	Harwood's Milk-Vetch CNDDDB Records	May 17, 2010
44	Brown Turbans CNDDDB Records	May 17, 2010
45	Wiggin's Croton CNDDDB Records	May 17, 2010
46	Dr. Chang's Response to Comments from CURE	May 17, 2010
47	Maricopa Solar – Noise Survey and Analysis	May 17, 2010
48	Rain Event Site Visit	May 17, 2010

SUPPLEMENTAL PREPARED AND REBUTTAL TESTIMONY  
OF  
MARC VAN PATTEN  
**Project Description  
Alternatives**

1. Q. Are you the same Marc Van Patten that submitted testimony in this proceeding on March 15, 2010, and May 10, 2010?

Yes. My resume submitted in Applicant's Prehearing Conference statement is still valid.

2. Q. Are you sponsoring any additional exhibits in this proceeding?

Yes, I am sponsoring exhibit 37, a figure showing the evolution of the project footprint, and exhibit 38 a compilation of the Applicant's requested changes to conditions of certification.

3. Q. How has the Project footprint changed throughout the permitting process?

In both an effort to reduce Project impacts and due to circumstances beyond the Applicant's control, the Project has evolved in the past three years. The original project filed with the BLM was proposed to generate 900 MW and included an additional approximately 2,000 acres. The Applicant eliminated acreage to avoid impacts to environmentally-sensitive areas and consequently proposed a Project that would generate 750 MW of renewable energy. It should be noted that development of the Proposed Project at 750 MW also limited the number of roads proposed on the Project site, changed the water source to use reclaimed water, etc. in an effort to reduce further impacts.

Please note that we have been working with the EPA and the US Army Corps of Engineers, the Applicant on their 404 B 1 process so they can make a determination on the Least Environmentally Damaging Practicable Alternative (LEDPA). In response to their requests, we have provided "The Applicants' Wash Avoidance Site Plan" (exhibit 34). If approved by the EPA and U.S. Army Corps of Engineers, this configuration which would reduce impacts to jurisdictional waters of the US and associated environmental impacts. It would allow for the generation of 709 MW of utility grade electricity. Since the 404 B 1 process is still in progress, these federal agencies may require additional modifications to this proposal. At present, we expect a final determination on the LEDPA about June 13, 2010. This will be submitted immediately to both the CEC and BLM.

3. Q. Why is the Applicant proposing revisions to the Conditions of Certification as written in the SA/DEIS?

The Applicant has previously provided comments on the SA/DEIS (exhibit 28) and requested additional changes in our Prehearing Conference statement. The Applicant's requested changes will still mitigate Project impacts, but have eliminated conditions or portions of conditions which may be impracticable or unnecessary. Additional explanation is provided in exhibit 38.

4. Q. With regard to the assertions contained in the May 14<sup>th</sup> letter written by Mr. Budlong, do you have any comments?

In regard to Mr. Budlong's questions on the hydrogen system, its description, and where hydrogen will be used, I offer the following. The centralized hydrogen system will be comprised of a set of two tanks that are separate from the SunCatchers where one will act as the high pressure tank (for supply) and one will act as the low pressure tank (for storage, dump or surge), depending on whether the hydrogen is going in or out of the SunCatcher to maintain optimum efficiency of the unit. The cycle starts with hydrogen in the low pressure tank, it then goes through a compressor and then goes to the high pressure tank. From the high pressure tank, the hydrogen is supplied to each SunCatcher and from there it returns to the low pressure tank where it goes through the compression cycle once again. All hydrogen on the site will be used in the Stirling engine that is part of the SunCatcher's Power Conversion Unit (PCU). As described elsewhere in the AFC, the Stirling engine uses the focused energy of the sun through the concentrating mirrors to heat the hydrogen in the heater head of the PCU (its working fluid) and expand it, thereby driving an engine that in turn drives an electric generator.

As mentioned in previous rebuttal testimony to the CEC on 5/10/10, when the SunCatchers were constructed at Maricopa, the SunCatchers were modified from a distributed system to a centralized system supplying all the SunCatchers with hydrogen from a single location. As a result, the initial hydrogen fill amounts increased. Now, the amount of hydrogen stored for each SunCatcher will be increased from 3.4 to 11 standard cubic feet (scf). Additionally, the hydrogen replenishment system was adjusted (provides more hydrogen pressure sooner) to reduce the cyclic heat loading on the heater head of the SunCatcher's power conversion unit, thereby increasing the longevity of the heater head. This adjustment had the effect of increasing the hydrogen use from 195 scf to approximately 600 scf per SunCatcher per year.

In regard to the units of measure in the electrolysis process (p.2.15-2), I want to clarify that the units should have been "watt-hours/scf" (not watts/scf) and "kilowatt-hours per day" (not kilowatts per day).

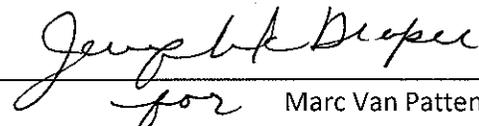
6. Q. How long do you expect to use the Dan Boyer Water Company as the Project's water supply source?

The Project intends to use the Dan Boyer Water Company water supply source for the period in time that starts with Project construction and ends with the completion of the Seeley Waste Water Treatment Facility (SWWTF) upgrades. We anticipate starting Project construction in October of 2010 and we further anticipate the SWWTF upgrades starting construction in December 2010 and lasting approximately 10 months. Therefore, the Project anticipates needing the Dan Bower Water Company water supply source for approximately 12 months.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 17, 2010

\_\_\_\_\_  
Date

  
\_\_\_\_\_  
for Marc Van Patten

SUPPLEMENTAL PREPARED TESTIMONY  
OF  
JULIE MITCHELL  
**Air Quality**  
**Public Health**

1. Q. Are you the same Julie Mitchell that submitted testimony in this proceeding on March 15, 2010 and May 10, 2010?

Yes, and my resume submitted in Applicant's Prehearing Conference statement is still valid.

2. Q. What is the purpose of your testimony?

My testimony provides an analysis on the greenhouse gas emissions calculations for the Seeley Wastewater Treatment Facility upgrade project including a discussion of applicable plans, policies and regulations, existing conditions, identification and justification of significance thresholds, and a determination of whether greenhouse gas emissions impacts are considered significant from a CEQA perspective or other applicable standard.

3. Q. Are you sponsoring any exhibits in this supplemental testimony?

Yes, I am sponsoring exhibit 39, Greenhouse Gas Emissions for the SWWTF Improvements. This report was performed by Brian Grover and David Deckman of DUDEK. I have reviewed the analysis and concur in the methodology and conclusions. Due to file size, summaries are provided within this submittal, while the emissions calculations are provided electronically, within the Applicant's submittal of all exhibits.

4. Q. Are the greenhouse gas emissions impacts from the construction and operation of the SWWTF upgrades considered significant from a CEQA perspective or other applicable standard?

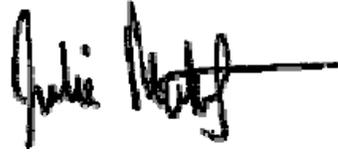
The proposed project would result in GHG emissions of 90 MTCO<sub>2</sub>E during project construction in 2010, 140 MTCO<sub>2</sub>E during project construction in 2011, and 144 MTCO<sub>2</sub>E per year during operation. California's current Renewables Portfolio Standard (RPS) is intended to increase the share of renewable energy to 20% by the end of 2010. Based on Governor Schwarzenegger's call for a statewide 33% RPS, the Climate Change Scoping Plan anticipates that California will have 33% of its electricity provided by renewable resources by 2020. Additionally, AB 32 calls for a reduction in GHG emissions to 1990 levels by 2020. The proposed project would assist in the attainment of the state's goals by supplying recycled water to the proposed Imperial Valley Solar Two Project, thereby expediting the generation of renewable energy in California in place of a typical fossil-fuel-fired power plant. Excess reclaimed water may also be available for other reclaimed uses within the Seeley CWD service area to conserve the use of potable water. Additionally, the proposed project would utilize premium efficiency motors to conserve energy associated with operation of the upgraded SWWRF. The project would therefore be consistent with state initiatives aimed at reducing GHG emissions, and impacts with respect to GHG emissions and climate change would be less than significant.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 17, 2010

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Date

A handwritten signature in black ink, appearing to read "Julie Mitchell", with a long horizontal stroke extending to the right.

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Julie Mitchell

PREPARED REBUTTAL TESTIMONY OF  
MATT MOORE  
**Water Resources**

1. Q. Are you the same Matt Moore that submitted prepared testimony in this proceeding on March 15, 2010 and March 10, 2010?

Yes. My resume, submitted in Applicant's Prehearing Conference Statement, remains valid.

2. Q. What is the purpose of your testimony in this proceeding?

I am providing rebuttal testimony to the opening testimony prepared by CURE's witnesses, Dr. Chris Bowles and Mr. Chris Campbell.

3. Q. Are you sponsoring any exhibits?

Yes, I am sponsoring exhibit 48, Rain Event Site Visit, provided within this submittal.

4. Q. With regard to the assertions contained in the testimony of CURE witness Dr. Bowles and Mr. Campbell, do you have any comments?

Yes. It is my professional opinion that the hydrology and hydraulic analyses and erosion calculations performed for this project on behalf of the Applicant and CEC staff provide a sufficient level of detail to allow the Commission to evaluate the potential impacts to surface water resources and to determine whether implementation of the Soil&Water Conditions specified in the SA/DEIS will mitigate potential impacts to surface water resources to a less than significant level.

To determine whether the project as proposed would impact surface water resources, the Applicant conducted hydrology, hydraulic, scour and erosion analyses. The analyses utilized documented methods for ascertaining estimated flow rates, flood widths, scour, and erosion potential. The Applicant's engineers prepared the hydrology analyses focusing on regional and site specific attributes. The annual average rainfall for this area is approximately 2.5-3 inches. Scour analyses were performed to determine adequate design and sustainability of the SunCatcher foundations during flooding events. To verify the analysis, the applicant also performed field surveys during this spring to see the results of a ten-year rainfall event. Those survey results are provided as exhibit 48.

There are a variety of different hydrologic methods to calculate estimated runoff flow rates and volumes from a particular site. Each method will produce different results based upon the model assumptions and parameters selected. The analysis completed by the Applicant and provided in the SA/DEIS is appropriate and provides adequate information to make a reasonable determination of potential project impacts. Modifications to the modeling approach and parameters may produce

different results in terms of predicted flow rates for the washes, however, the analyses utilized provide reasonable estimations of the peak flows through the washes to evaluate potential project impacts.

In terms of soil erosion potential a number of different assumptions can be made in regard to pre and post construction conditions to estimate erosion potential (i.e. inclusion of desert pavement/cryptobiotic soils for existing conditions). Desert pavement and cryptobiotic soils do not cover the entire site. The goal of the soil erosion modeling was to demonstrate that with implementation of Best Management Practices (BMPs) including erosion and sediment control (with maintenance) during construction and with implementation of BMPs that the Project will minimize sediment transport downstream and be in compliance with all applicable laws, ordinances, regulations, and standards and to mitigate all impacts to a less than significant level.

The information presented by the Applicant in relation to hydrology and hydraulics was focused on Project site impacts, this analysis showed that implementation of the proposed Project elements including sediment and erosion control BMPs as well as proper operation and maintenance of the facility will ensure that there are no adverse impacts to surface water resources upstream and downstream of the Project site. Given these results, further detailed analysis of upstream and downstream conditions was not required.. Additionally the analyses used available historic climate information to provide calculations and conclusions. The analyses did not use speculative information regarding potential future climate change information to analyze project impacts.

It should be noted that the distributed onsite desilting/sedimentation basins were removed from the Project with the exception near the Site Facilities area where stormwater detention facilities will be installed.

Conditions of Certification **SOIL&WATER-1**, **SOIL&WATER-5**, and **SOIL&WATER-7** have been identified in the SA/DEIS that require development of best management practices and monitoring and reporting procedures to mitigate impacts related to flooding, erosion, sedimentation, and stream morphological changes. Based on my professional judgment, I conclude that these measures will be sufficient to mitigate impacts to surface water resources to a less than significant level.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 17, 2010

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Date



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Matt Moore

REBUTTAL TESTIMONY  
OF  
ROBERT K. SCOTT  
**Water Resources**

1. Q. Are you the same Robert Scott that submitted testimony in this proceeding on May 10, 2010?

Yes, and my resume submitted in Applicant's Supplemental and Rebuttal Testimony, filed on May 10 is still valid.

2. Q. What is the purpose of your testimony?

My testimony provides a rebuttal to the testimony provided by Mr. Tom Budlong's witness Ms. Edie Harmon.

3. Q. Are you sponsoring any exhibits in this supplemental testimony?

Yes, I am sponsoring exhibit 40, a letter stating the results of an Independent Technical Review performed by Dr. Eric LaBolle of the analysis provided on the Dan Boyer Company water source.

4. Q. With regard to the assertions contained in the testimony of Mr. Budlong's witness Ms. Harmon, do you have any comments?

Tessera Solar proposes to use groundwater from the Boyer Well (State Well No. 16S/9E-36G4) as a temporary water supply during construction of the Imperial Valley Solar project (the Project). Under a Conditional Use Permit (CUP) from Imperial County, the well is currently permitted to extract 40 acre-feet per year (afy) with limits on daily pumping of 41,775 gallons per day, 6 days per week. Water from the well is currently used for drinking water supply and industrial purposes. The proposed use of the water for this Project is consistent with the current water uses from this well.

Aquifer Testing indicates that Pumping will not have a Significant Affect on the Aquifer. An aquifer test of the proposed pumping well was conducted to evaluate the cone of depression and zone of influence that will result from the proposed pumping. Results of the aquifer test indicate that at the daily pumping rate specified in the CUP (approximately 29 gallons per minute [gpm]), the results of the analysis indicate a zone of influence (ZOI) of approximately 85 ft after one year of pumping at 25 gpm. Continuous pumping at this rate for a period of two and three years results in estimated ZOIs of approximately 120 and 140 feet, respectively. The results indicate that after three years the ZOI is only 140 feet. There are no wells or other activities within that distance that could be affected by the proposed pumping. Dr. Eric LaBolle, an independent technical review, has written a letter concurring with the methods and conclusions presented. This letter is submitted as exhibit 40 and is provided within this submittal.

The Project will not contaminate the Sole Source Aquifer. As stated in the URS report on aquifer testing and sampling of the Boyer Well, dated May 4, 2010, under the Sole Source Aquifer program of the Safe Drinking Water Act, no commitment for federal funds may be made for any project which the EPA regional "administrator determines may contaminate [a designated] aquifer through a recharge zone so as to create a significant hazard to public health." Safe Drinking Water Act § 14224(e). As

stated in U.S. EPA, "Sole Source Aquifer Designations", dated June 2000, if a project has the potential to contaminate a sole source aquifer, the project should be modified to reduce or eliminate the risk of contamination. The U.S EPA document also notes that the sole source aquifer designation cannot "delay or stop development of landfills, roads, publicly owned wastewater works or other facilities".

The Imperial Valley Solar Project is in compliance with the Sole Source Aquifer program because it would not contaminate the aquifer. First, the Project construction footprint lies entirely outside of the designated recharge zone of the aquifer, but within the groundwater basin as designated by the Regional Water Quality Control Board. Second, although the project would use water from State Well No. 16S/9E-36G4 located in the basin, this activity also would introduce no contaminants into the aquifer or affect water quality at the pumping well.

The Proposed Groundwater Extraction will comply with the Existing Conditional Use Permit. Imperial County has enacted a Groundwater Ordinance (Title 9 of the Imperial County Land Use Ordinance) which regulates the extraction and export of groundwater within Imperial County. County Code section 92203.01 generally prohibits export of water outside the basin without a permit. A permit would issue only upon a showing that "there is an excess supply of water that can be withdrawn without resulting in or aggravating conditions of overdraft." County Code §§ 92203.03 & 99201.04.

As noted above, State Well No. 16S/9E-36G4 operates under an existing CUP and is permitted for the extraction of water. Water from that well would be delivered to a point inside the basin and used for a Project that lies primarily over the basin, so that no export permit is required. Moreover, even if the small portion along the eastern edge of Phase II of the project, which overlies the neighboring groundwater basin, were deemed to constitute a separate location that required an export permit, the permit should issue. The incremental amount of water demanded for that portion is so small as to provide no reasonable scientific basis for concluding that it would cause or exacerbate any overdraft. The temporary nature of the use, which would last only until water is made available from the Seeley Waste Water Treatment Facility, confirms this conclusion.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 17, 2010

\_\_\_\_\_  
Date



\_\_\_\_\_  
Robert K. Scott

PREPARED REBUTTAL TESTIMONY  
OF  
PATRICK MOCK  
**Biological Resources**

1. Q. Are you the same Patrick Mock that submitted testimony in this proceeding on March 15, 2010 and May 10, 2010?

Yes, and my resume submitted in Applicant's Prehearing Conference statement is still valid.

2. Q. What is the purpose of your testimony?

My testimony provides comments to rebut aspects of the testimony prepared by CURE's witnesses, Mr. Scott Cashen and Dr. Vernon Bleich.

3. Q. Are you sponsoring any exhibits in this rebuttal testimony?

Yes, I am sponsoring exhibit 41, Existing Edge Effects onsite, and exhibit 42, USFWS final rule on Peninsular Bighorn Sheep Designated Critical Habitat.

4. Q. With regard to the assertions contained in the testimony of CURE witness Mr. Cashen, do you have any comments?

Yes. The Applicant appreciates Mr. Cashen's testimony, however would like to correct the following statements from this opening testimony:

On page 8 of Mr. Cashen's testimony, he discusses impacts to the FTHL Population. The actual population size of FTHL associated with the proposed Solar Two site cannot be determined with certainty; however, surveys can provide an estimate of the probable FTHL population size. FTHL protocol FTHL surveys were conducted on 332 4-ha plots throughout the project site and linear components of the project in 2007. Additional transect surveys along the linear components were conducted in 2008 at the request of BLM and CEC. This survey effort resulted in a total of four FTHL detections. One additional incidental sighting was made along the eastern project boundary. The plot survey coverage was 40%. Assuming 2-3 detections at the 6500-acre site and a detection rate of 25%, results in a population estimate 20-30 individuals. Assuming a 5% detection rate results in an estimate of 150 individuals. While we concur that the surveys do not provide certainty as to the numbers of FTHL that may utilize the site, we believe that these surveys do provide a good and reasonable estimate as to the relative abundance of use. Further, incidental take based on loss of suitable habitat is approximately 6,500 acres, which represents about 0.66 percent of documented suitable habitat in California (FTHL ICC 2003).

The potential impacts from edge effects of the Project on FTHL are discussed by Mr. Cashen on page 9 of his testimony. Also, Mr. Cashen fails to acknowledge that there are existing areas of the site that are currently edge-affected. This includes the habitat adjacent to existing transportation infrastructure (Interstate 8 [I-8], Evan Hewes Highway, UPRR/SDMTS railroad, Dunaway Road) and existing development (Plaster City factory). Additionally, most of the designated-open dirt roads onsite are open to OHV activity that is a chronic activity throughout the year, especially on weekends. Exhibit 41 was developed using Mr. Cashen's 450 meter edge buffer around existing designated roads. The figure shows about 91% of the site already edge affected. It should be noted that only designated roads were used in the development of areas impacted by edge effect. Other un-designated roads are present onsite and would further increase the percentage of the site currently edge affected.

Mr. Cashen discusses the loss of connectivity between reserves on page 10 of his opening testimony. In an inventory of culverts submitted to the BLM in February 2010, only one of the culverts onsite associated with I-8 was deemed accessible to FTHL use. I-8 is considered a substantial barrier to FTHL movement along the southern boundary of the site. There is a likely movement corridor associated with the bridge crossing of Coyote Wash west of the project site. This bridge crossing provides a habitat linkage between the two BLM Management Areas in the Project vicinity. FTHL successfully crossing a major interstate highway would likely be a rare occurrence. I-8 is an effective barrier to FTHL movement at the project location.

Beginning on page 33 of his opening testimony, Mr. Cashen discusses impacts from construction noise, but fails to account for the fact that the preconstruction mitigations and activities will remove most sensitive receptors out of the immediate vicinity of construction, the mitigation measures for noise will reduce the noise surrounding the construction site, and the intermittent nature of noise impacts.

First, preconstruction mitigations will remove most sensitive animals from the vicinity of the construction site. FTHL would be translocated from disturbance areas prior to initiation of construction and a biological monitor would be present to relocate any individuals detected during construction. Likewise, burrowing owl, if present, would also be passively relocated prior to initiation of disturbance activities. Potential burrowing owl burrows would be checked for occupancy and unoccupied burrows would be collapsed during the non-breeding season. Le Conte's thrasher, loggerhead shrike, and other bird species of concern that may nest in shrubs or on the ground, would likely be displaced away from active construction sites where the hourly Leq may chronically exceed 60 dB during the breeding season. Bighorn sheep, if present, would avoid active construction sites.

Second, construction noise impacts to common wildlife and non-listed species of concern is considered less than significant because of to the temporary nature of the impact and expected low effect on species demography. Temporary noise barriers having sufficient height with respect to grade, composed of properly assembled solid materials, and appropriately placed to reduce the noise levels at the burrow may be appropriate if nesting burrowing owls are detected within 250 feet of active construction (e.g., a single dozer or other large piece of equipment) and the noise levels at the burrow entrance exceed 60 dB Leq hourly. Currently, no burrowing owls are known to be present on the project site. The burrowing owl detections were associated with the agricultural fields east of the project site.

Finally, because construction typically occurs intermittently over the course of an hour or day, sound levels will vary greatly over those time periods, depending on the ongoing activity, thus influencing the measured dB hourly  $L_{eq}$ . Additionally, the amount of suitable habitat onsite would be reduced due to the pre-construction clearing of vegetation accomplished during the bird non-breeding season. Species would likely avoid the area during construction activities due to the reduced vegetation and the physical disturbance of people and equipment, thereby reducing the potential for noise impacts due the absence of the potential sensitive receptors. Therefore, it is likely that noise from construction may result in a temporary displacement of some wildlife over the course of the construction period.

Mr. Cashen also discusses impacts from operation noise on Page 34 of his opening testimony. After construction is completed, the project will have operating SunCatchers, power transformers, collector GSUs, and mobile maintenance/service trucks creating noise over the entire project area. Aggregate operational noise from the first three of these (i.e., the ones having fixed locations) is expected to range, depending on time of day, from 63-74 dBA hourly Leq over vegetated strips of land between rows of SunCatchers. [Note: The citation of 84 dB in the Calico SA/EIS was in error. The correct maximum noise level is 74 dBA hourly Leq]. The noise from service trucks will depend on frequency of pass-by and distance with respect to a receiver location. For instance, a pick-up truck (85 dBA at 50') passing a sensitive receptor 4 times in an hour, with each pass-by taking no more than 30 seconds and

at a distance of no closer than 150', would result in an hourly Leq of less than 60 dBA. Operational noise levels would exceed the 60 dBA Leq impact threshold for the vegetation that is left undisturbed post-construction. This includes about 177 acres of vegetation along the eastern boundary of the site that is not currently impacted by highway noise. The use of noise impacted vegetation by wildlife will depend on each species' tolerance to noise and their ability to adapt to the louder noise environment. AFC Section 5.6.2.1 concluded that "only common species with small vegetated area requirements (e.g., house finch [*Carpodacus mexicanus*], lizards, and snakes) are expected to continue to utilize these strips of vegetation." The added effect of increased noise does not substantially change this conclusion.

FTHL translocation is a requirement of the agency approved and implemented FTHL Management Strategy that BLM and USFWS are signatory to. The goal is to minimize the loss of individual lizards where practicable. The species' genetic resources onsite will be conserved through the translocation process.

**Burrowing Owls:** Burrowing owls were detected during the project surveys, but they are all located outside the project disturbance areas. URS expects that perhaps one or two owl territories may be discovered during the pre-construction surveys. This is not a substantial number given the Imperial County burrowing owl population is estimated at over 5,000 pairs and is concentrated in the agricultural areas of the region. The burrowing owl population is not considered to be under severe threat of extirpation from the region. The FTHL habitat mitigation lands is likely to support burrowing owl.

**Yellow Bat:** The western yellow bat is uncommon in California, known only in Riverside, Imperial, and San Diego cos. south to the Mexican border. This species has been recorded below 600 m (2000 ft) in valley foothill riparian, desert riparian, desert wash, and palm oasis habitats. California records occur only in spring, summer, and fall. California breeding status is uncertain; lack of data. Barbour and Davis (1969) suggested that this species may be increasing in range and abundance in the U.S. They are known to occur in a number of palm oases, but are also believed to be expanding their range with the increased usage of ornamental palms in landscaping. Yellow bats occurs up to approximately 2,000 m in the mountains in Arizona. In California, this solitary foliage-roosting species appears to roost exclusively in the skirts of palm trees, and to be limited in its distribution by the availability of palm habitat, which is lacking on the project site.

5. Q. With regard to the assertions contained in the testimony of CURE witness Dr. Bleich, do you have any comment?

Many of Dr. Bleich's concerns are addressed in the USFWS Designated Critical Habitat program, as described in the exhibit 42, provided within this submittal. The project site is not in a geographical location that is critical for the recovery of the species. Prior to the 2009 sighting on the project, there had been no detections of this species in the project vicinity and is still considered to be an anomalous occurrence. There are substantial areas of potential winter/early spring forage habitat more closely associated with the core habitats, designated critical habitats of this species as shown in exhibit 36. No documented primary movement routes will be constrained by the project.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.



May 17, 2010

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Date

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Pat Mock

REBUTTAL TESTIMONY  
OF  
Michael Wood  
**Biological Resources - Special-Status Plants**

1. Q. Are you the same Michael Wood that submitted testimony in this proceeding on May 10, 2010?

Yes, and my resume submitted in Applicant's Supplemental and Rebuttal Testimony is still valid.

2. Q. What is the purpose of your testimony?

My testimony will rebut assertions made in the opening testimony prepared by CURE's witness, Mr. Scott Cashen.

3. Q. Are you sponsoring any exhibits in this rebuttal testimony?

Yes, I am sponsoring exhibits 43 – 45 which each show the distribution of Harwood's milk-vetch, Brown turbans, and Wiggins' croton, respectively.

4. Q. With regard to the assertions contained in the testimony of CURE witness Mr. Cashen that The Project Would Result in Potentially Significant, Unmitigated Impacts to Special-Status Plants, do you have any comments?

Mr. Cashen states that the applicant's surveys were not adequate to assess the presence of special-status plants within the project area. As mentioned in my prepared testimony and the supplemental prepared testimony of Dr. Patrick Mock, rainfall in the area for 2007 was 10% of normal rainfall and for 2008 it was only 49% of normal. For this very reason, surveys were repeated in 2010. Rainfall in the 2009-2010 rainy season was 118% of normal<sup>1</sup>. Based on the observations of team members that participated in the 2008 surveys and those in 2010, there was a substantially greater wildflower display at the IVS site in 2010.

Although the public has not yet had the opportunity to review the summary report for the second round spring 2010 floristic surveys (the first round has been provided as exhibit 31), they were performed in conformance to not only the requirements of the CEC and BLM, but in complete fulfillment of the published guidelines of the California Department of Fish and Game (CDFG 2009)<sup>2</sup>, California Native Plant Society (CNPS 2001)<sup>3</sup> and U.S. Fish and Wildlife Service (USFWS 2000)<sup>4</sup>. The surveys were

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<sup>1</sup> Average annual precipitation at El Centro is 2.96"; total rainfall recorded at Imperial between 6/1/2009 and 5/14/2010 was 3.51". Source: [www.weatherunderground.com](http://www.weatherunderground.com).

<sup>2</sup> California Department of Fish and Game (CDFG). 2009. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. November 24. Available online at [http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols\\_for\\_Surveying\\_and\\_Evaluating\\_Impacts.pdf](http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf)

<sup>3</sup> California Native Plant Society (CNPS). 2001. *Botanical Survey Guidelines*. Revised June 2. Available on line at [http://www.cnps.org/cnps/rareplants/pdf/cnps\\_survey\\_guidelines.pdf](http://www.cnps.org/cnps/rareplants/pdf/cnps_survey_guidelines.pdf)

<sup>4</sup> United States Fish and Wildlife Service (USFWS). 2000. *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed and Candidate Plants*. January. Available online at [http://www.fws.gov/ventura/speciesinfo/protocols\\_guidelines/docs/botanicalinventories.pdf](http://www.fws.gov/ventura/speciesinfo/protocols_guidelines/docs/botanicalinventories.pdf)

performed to the highest standards by a coherent team of highly qualified botanists experienced with the local desert flora. The 2010 surveys provided very intensive coverage and were carefully timed to coincide with the optimal blooming periods. A summary of biological and botanical surveys performed to date is provided in Table 1. Reference populations were visited to check on plant phenology and to give each surveyor a fresh mental picture of each species before commencing the surveys. All plants were identified to the appropriate taxonomic level and any ambiguities were resolved. Once the scheduled fall surveys have been completed, we will have a very high degree of confidence that all special-status plant species occurring on site will have been identified, counted, and mapped, permitting a full accounting of all potentially significant impacts on plant species. Even without the 2007 and 2008 surveys, the 2010 data stands alone as a fully defensible floristic survey and could stand alone in support of a CEQA impact assessment.

**Table 1.  
Summary of Biological And Botanical Surveys Performed at the IVS Site**

<b>Year</b>	<b>Survey Type</b>	<b>Person-Days</b>	<b>Person-Hours</b>
2007	FTHL/Botany	130	1,300
2008	FTHL/Botany <sup>5</sup>	100	1,000
2010	Botany	237	2,370
<b>Total</b>		<b>467</b>	<b>4,670</b>

It is worthwhile noting that the IVS site has a long history of disturbance, a fact that no doubt had a part in its exclusion from the 40,000-acre Yuha Desert Area of Critical Environmental Concern (ACEC) and the Yuha Desert Management Area, an area designated for special management due to the presence of abundant archeological sites and core habitat for the flat-tailed horned lizard. Many large tracts of land on the site were scraped historically by miners. There are numerous sand and gravel pits, and actively used OHV race courses bisect the property. And while there are certainly displays of native annual wildflowers to be seen, overall, the floristic diversity of the site is relatively low. The spring 2010 botanical surveys, which totaled 230 person-days (2,300 person-hours) yielded only 133 species of native plants over the entire 8,000-acre survey area. In contrast, surveys of a 220-acre site near Salton City at the edge of the Anza Borrego Desert conducted during the same period yielded a total of 93 native plant species.

Regarding Mr. Cashen’s statement that the proposed mitigation for listed species is unproven, it is important to point out that no impacts to any federally or state-listed plant species would occur as a result of project implementation. CEQA does not require that mitigation measures be proven, merely that they ameliorate impacts to a level that is deemed less than significant to the satisfaction of the lead agency. Regarding impacts to CNPS List 2 species, complete avoidance is not mandated under CEQA and alternate measures of mitigation are both commonly incorporated into projects and appropriate, given the level of threat to the species and the extent of the impacts proposed. Mitigation Measure BIO-19 specifies that either an appropriate no-build buffer would be designated surround populations of special-status species or that occupied habitat off-site be acquired and preserved.

We agree that maintaining “islands of plants within a disturbance matrix” has questionable merits as a conservation measure, especially in the midst of a site that would be developed as proposed.

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<sup>5</sup> The majority of the field effort in 2008 was devoted to botanical surveys.

For that very reason, the acquisition and preservation of occupied habitat off site is a preferred measure to compensate for the unavoidable impacts to Harwood's milk-vetch and brown turbans. The BLM has undertaken an extensive assessment of privately owned in-holdings surrounded by public lands in both the Yuha Management Area and West Mesa Management Area near the project and the applicant is willing to conduct focused surveys to ensure the requisite species and area of occupied habitat are present on acquired mitigation lands.

Table 1 of Mr. Cashen's testimony is misleading as he presents CNDDDB data as an indication of the extent of all populations of the special-status species, instead of a summary of the populations that have been documented. [However, as Mr. Cashen notes, CDFG "cannot and do[es] not portray the CNDDDB as an exhaustive and comprehensive inventory of all rare species and natural communities statewide" such that "the lack of data should not be used as verification that the species does not exist in a given location."<sup>6</sup>] Knowledge of the occurrence of special-status species on private property is typically sparse compared to public lands, except when environmental review is being undertaken in support of some development proposal; this paucity of information does not provide proof of absence. Based on our experience, the more opportunity botanists have to examine suitable habitat, the more likely we are to expand the ranges and occurrences of the species, as we have demonstrated on the IVS site. It is our professional opinion that surveys of suitable habitats in the western Sonoran Desert are very likely to yield positive results. Given the amount of habitat acquisition that will occur in association with this project, we are very confident that rare plant resources will be sufficiently mitigated to comply with CEQA.

Mr. Cashen also states that the Strategy for Mitigating Impacts to Non-Listed Plant Species is Unenforceable. However, there are a limited number of special-status species at the project site, and those that do occur would be subject to limited impacts. As discussed above, appropriately timed floristic surveys have been completed for the entire project site with the exception of fall surveys for two CNPS List 2 species, Abram's spurge and curly herissantia. Based on the spring 2010 floristic surveys, the locations and population sizes of all special-status species have been documented, and all significant impacts to CEQA- special-status species have been calculated. To date, three CNPS List 2 species (Harwood's milk-vetch, brown turbans and Wiggins's croton), and two CNPS List 4 species (Utah vine milkweed and Thurber's pilostyles) have been recorded on site. The final evaluation of the potential for occurrence of 33 target special-status species indicate that none of the remaining target species has any potential to occur on site.

The proposed mitigation for impacts to Harwood's milk-vetch and brown turbans is appropriate given the status of these taxa and the extent of the proposed impacts. The California Native Plant Society's List 2 includes plants that are rare, threatened, or endangered in California, but more common elsewhere<sup>7</sup>. All of the plants constituting List 2 are considered by the CNPS to meet the definitions of the Native Plant Protection Act (NPPA<sup>8</sup>) or the California Endangered Species Act (CESA<sup>9</sup>), and are eligible for state listing.

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<sup>6</sup> Opening Testimony of Scott Cashen, Docket No. 08-AFC-5, at 7 (quoting California Natural Diversity Database Info [Internet]. Sacramento: California Department of Fish and Game; [cited 2010 Apr 29]. Available from: [http://www.dfg.ca.gov/biogeodata/cnddb/cnddb\\_info.asp](http://www.dfg.ca.gov/biogeodata/cnddb/cnddb_info.asp). and Bureau of Land Management. 2009. Survey Protocols Required for NEPA/ESA Compliance for BLM Special Status Plant Species.

<sup>7</sup> <http://www.cnps.org/cnps/rareplants/ranking.php>

<sup>8</sup> Sec. 1901, Chapter 10

<sup>9</sup> Secs. 2062 and 2067 of the California Department of Fish and Game Code

Although Harwood's milk-vetch, brown turbans and Wiggins' croton are considered to meet the criteria for state listing, they are not in imminent threat of extinction or extirpation in California. The BLM has designated very large areas of suitable habitat in the project vicinity as conservation resource areas (e.g., Areas of Critical Environmental Concern, Management Areas, Wilderness Study Areas, Wilderness Areas); such areas also conserve these rare plant resources.

According to the CNDDDB, Harwood's milk-vetch is recorded from 43 records statewide, eight of which are from Imperial County (see exhibit 43). Most of the CNDDDB locations in the project vicinity are on conserved public lands managed for their biological resource values. The variety is also known from Riverside, San Bernardino and San Diego counties, Arizona, and Sonora, Mexico. The nearest population of Harwood's milk-vetch is at Painted Gorge, approximately five miles to the WNW of Plaster City.

Brown turbans is recorded from nine records statewide, six of which are from Imperial County (see exhibit 44). The species is also known from San Diego County and Baja California, Mexico. The nearest population of brown turbans is at Painted Gorge, approximately five miles to the WNW of Plaster City. The majority of these CNDDDB locations are on conserved public lands managed for their biological resource values. The presence of so few, widely scattered individuals of this diminutive annual plant restricted to the southern boundary of the IVS site is a strong indication that these plants are wind-dispersed individuals and unlikely to represent viable populations. The year 2010 was considered to be a fairly good year for the species, as it was found in very large numbers at reference populations in Painted Gorge and Fish Creek (M. Balk, pers. comm.)

Wiggins' croton is recorded from six records statewide, all of which are from the Algodones Dunes in eastern Imperial County (see exhibit 45). The majority of these CNDDDB locations are on conserved public lands managed for their biological resource values. The species is also known from Arizona and Sonora, Mexico. The nearest recorded population of Wiggins croton is at Holtville, approximately 32 miles east of Plaster City. The presence of this species on the roadside near the entrance to the Plaster City Off-Highway Vehicle Open Area is likely due to the incidental transport of seeds from the Imperial Sand Dunes Recreation Area, as no extensive area of dune sand occurs in the vicinity.

Given the context of the site and project design requirements, impacts to CNPS List 2 plant species are unavoidable. Construction of the water line in Evan-Hewes Highway can be accomplished with no impacts to Wiggins' croton, which was found growing in the roadside survey area, setback from the road by 60 feet, between the road and railroad. However, project implementation would result in impacts to as many as 35 individuals of Harwood's milk-vetch and ten individuals of brown turbans.

We agree with the issues Mr. Cashen raises regarding the use of certain terms as well as the need to understand the scale of analysis for impacts and compensation. In response, we offer the following:

- a) Population: in the context of the project site, our use of the term population corresponds to that as is commonly used by vegetation ecologist, and is defined as a "group of individuals of the same species occupying a habitat small enough to permit interbreeding among all members of the

group<sup>10</sup>". Based on this definition, the widely spaced individuals of brown turbans are not likely to represent viable populations on the subject property, while the three stands of Harwood's milk-vetch are suspect in terms of potential long-term viability due to the small population (35 individuals) onsite.

b) Sensitivity: we agree that the term is ill-defined and propose using the more standard term "special-status". As defined by the CDFG<sup>11</sup>, special-status plants include all plant species that meet one or more of the following criteria:

- Listed or proposed for listing as threatened or endangered under ESA or candidates for possible future listing as threatened or endangered under the ESA (50 CFR §17.12).
- Listed or candidates for listing by the State of California as threatened or endangered under CESA (Fish and Game Code §2050 *et seq.*). A species, subspecies, or variety of plant is **endangered** when the prospects of its survival and reproduction in the wild are in immediate jeopardy from one or more causes, including loss of habitat, change in habitat, over-exploitation, predation, competition, disease, or other factors (Fish and Game Code §2062). A plant is **threatened** when it is likely to become endangered in the foreseeable future in the absence of special protection and management measures (Fish and Game Code §2067).
- Listed as rare under the California Native Plant Protection Act (Fish and Game Code §1900 *et seq.*). A plant is **rare** when, although not presently threatened with extinction, the species, subspecies, or variety is found in such small numbers throughout its range that it may be endangered if its environment worsens (Fish and Game Code §1901).
- Meet the definition of rare or endangered under CEQA §15380(b) and (d). Species that may meet the definition of rare or endangered include the following:
  - Species considered by the California Native Plant Society (CNPS) to be "rare, threatened or endangered in California" (Lists 1A, 1B and 2);
  - Species that may warrant consideration on the basis of local significance or recent biological information;
  - Some species included on the California Natural Diversity Database's (CNDDB) *Special Plants, Bryophytes, and Lichens List* (California Department of Fish and Game 2008).
- Considered a **locally significant species**, that is, a species that is not rare from a statewide perspective but is rare or uncommon in a local context such as within a county or region (CEQA §15125 (c)) or is so designated in local or regional plans, policies, or ordinances (CEQA Guidelines, Appendix G). Examples include a species at the outer limits of its known range or a species occurring on an uncommon soil type.

c) For purposes of the SA/DEIS, scale for analysis of impacts uses the number of individuals in a population. The scale for determining compensation is based on an ecological assessment of the habitat occupied by the population. In the case of Harwood's milk-vetch, all populations on site were found to occur on thin, sandy soils in micro-swales on desert pavement. The surrounding

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<sup>10</sup> Page 5 in Barbour, M. and J. Major. 1988. *Terrestrial Vegetation of California*. California Native Plant Society, Special Publ. No. 9, Sacramento. 1020 pp.

<sup>11</sup> California Department of Fish and Game (CDFG). 2009. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. November 24. Available online at [http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols\\_for\\_Surveying\\_and\\_Evaluating\\_Impacts.pdf](http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf).

land or buffer presumed necessary to sustain these small populations includes the water- and wind-shed in the immediate vicinity of the population. Within the survey area, the greatest concentration of rare plants occurs in the southwestern corner of the IVS site. This area supports 32 out of 35 plants (91.4%) of Harwood's milk-vetch and 5 out of 10 plants (50%) of brown turbans occurring on the site. Combined, the total area of occupied habitat is estimated to be 20 acres. Based on the proposed 2:1 mitigation ratio, 40 acres of occupied habitat would be acquired for conservation.

Mr. Cashen states that Fall Surveys are Required to Establish the Environmental Setting. However, based on a review of the target special-status species approved by the CEC and BLM at the time surveys were initiated in 2007, no target species were identified that would not have been recognizable during spring surveys. Since then the target list has been expanded to include only one special-status species that blooms only in the fall. Abram's spurge (*Chamasyce abramsiana*; CNPS List 2.2) is an annual herb that would not have been recognizable during the spring surveys. One additional species, curly herissantia (*Herissantia crispa*; CNPS List 2.3), is an annual or perennial that blooms in the fall and occasionally during the spring; it also might not have been recognizable during the spring surveys. A third species, desert unicorn-plant (*Proboscidea althaeifolia*; CNPS List 4.3) is a perennial species that flowers May-August. As a perennial, it would have been in a vegetative state during spring surveys and would have been identifiable at least to genus. Because no unidentified members of the genus were detected, it is presumed absent from the site.

Mr. Cashen cites as an example of species that would not have been in flower at the time of the surveys Thurber's pilostyles, which flowers in January. However, the presence of flowers is not essential for the detection of the species, as fruits are readily apparent throughout the year. This species was detected during both rounds of surveys in 2010.

The applicant agrees that fall surveys are warranted in order to conform to the published survey protocol, however it seems like an extraordinary requirement to complete fall surveys for a single species whose likelihood of being present onsite is moderate.

The compilation of the original target species list was not based solely on an examination of records in the CNDDDB. A nine-quad search of the California Native Plant Society's Online Inventory was also performed. The CEC and BLM provided input and ultimately approved the target species list. As discussed above, the target species list was further expanded prior to the performance of floristic surveys in 2010. Of the species included in Mr. Cashen's testimony, several were included on the updated target species list; those that do not appear on the updated list have no potential to occur on site based on their required habitats or the elevations at which they occur. The purpose of conducting a floristic survey, that is, one in which all plant taxa are identified to the lowest possible taxonomic level, is that the resultant inventory may be cross-checked by the regulatory agencies and the public with any published list of special-status species not included on the target list. No other such species are listed in the inventory.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 17, 2010

Date

A handwritten signature in black ink that reads "Michael Wood". The signature is written in a cursive, flowing style.

Michael Wood

REBUTTAL TESTIMONY  
OF  
MIKE FITZGERALD  
**Biology – Aquatic Resources**

1. Q. Are you the same Mike Fitzgerald that submitted testimony in this proceeding on May 10, 2010?

Yes, and my resume submitted in Applicant's Supplemental and Rebuttal Testimony is still valid.

2. Q. What is the purpose of your testimony?

The purpose of my testimony is to address issues raised by Dr. Chris Bowles and Chris Campbell on behalf of CURE on water and soil resources (May 10, 2010). Specifically issues raised in sections 4.2 through 4.6 of their testimony related to stream hydraulics, sediment transport and scour.

3. Q. What exhibits are you sponsoring in this proceeding?

I am sponsoring Exhibit 46, which was prepared by Dr. Chang at my request to address the concerns raised by CURE. I discussed the issue with Dr. Chang, reviewed his response and understand the conclusions he reached.

4. Q. Please describe Dr. Chang's response to the CURE testimony.

Dr. Chang addressed all points raised by CURE that implied or stated that Dr. Chang's study underestimated sediment transfer and downstream geomorphic effects. In every case Dr. Chang explained why what he did was the correct methodology and consequently the correct impact assessment result. Dr. Chang's response clearly reiterated the main results of his original sediment study:

- 1.) The modeling study for sediment has shown that, with the sediment basins removed, the solar energy project as proposed will not change the sediment flow and sediment delivery toward areas downstream of the project site.
- 2.) The project will not change the flow or sediment flow to the offsite areas; therefore, there should be no impacts to the offsite fluvial morphology.
- 3.) The potential impacts of the project to the receiving waters downstream of the project site are governed by the water and sediment flow to the downstream receiving waters. Since the water and sediment flow to the offsite areas will not be changed by the project, there is no need to extend the study further downstream.

5. Q. Did Dr. Chang concur with any of the issues raised by CURE as it related to sediment transfer?

Yes. Dr. Chang agreed that the removal of all sediment basins is warranted and in fact his conclusions have always been based on the assumption that TSNA would comply with his sediment study recommendations. As I pointed out in my May 10<sup>th</sup> testimony, TSNA has complied with all of Dr. Chang's recommendations to reduce and further minimize the already very minor project impacts associated with sediment transfer and downstream geomorphology.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 17, 2010

\_\_\_\_\_  
Date



\_\_\_\_\_  
Mike Fitzgerald

REBUTTAL AND SUPPLEMENTAL PREPARED TESTIMONY  
OF  
MARK STORM  
**Noise and Vibration**

1. Q. Are you the same Mark Storm that submitted testimony in this proceeding on March 15, 2010?

Yes. My resume, submitted in Applicant's Prehearing Conference Statement, remains valid.

2. Q. What is the purpose of your rebuttal testimony?

My testimony responds to noise level measurements quoted by CURE in their opening testimony filed May 10, 2010.

3. Q. Are you sponsoring any exhibits?

Yes, I am sponsoring exhibit 47, Maricopa Solar – Site Noise Measurement Survey & Data Analysis, provided within this submittal. This technical memorandum describes the results of a sound measurement survey conducted March 17, 2010 within the site boundaries of the Maricopa Solar project, a pilot project developed by Tessera Solar near Peoria, Arizona. This memo also compares selected measurement data with the results of a noise prediction model representing the sum of sixty (60) operating SunCatchers at the Maricopa Solar project site, for the intended purpose of validating input parameters used in similar noise prediction models for other Tessera Solar projects (e.g., Imperial Valley Solar).

4. Q. With regard to the assertions contained on page 34 of the testimony provide by CURE's witness Scott Cashen that Project noise levels are inconsistent, do you have any comments?

Yes. Mr. Cashen appears to have quoted an error published in the SA/DEIS prepared for the Calico Solar Project misquoting SunCatcher generation noise levels at 85 dBA Leq at approximately 50 feet. Noise measurements performed during a field survey of nominally operating SunCatchers at Maricopa Solar suggest this metric should be on the order of 74 dBA Leq, as is demonstrated in exhibit 47. It should be noted that the analysis contained in exhibit 47 supports the analysis provided in exhibit 1, Section 5.12, Noise, of the AFC.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

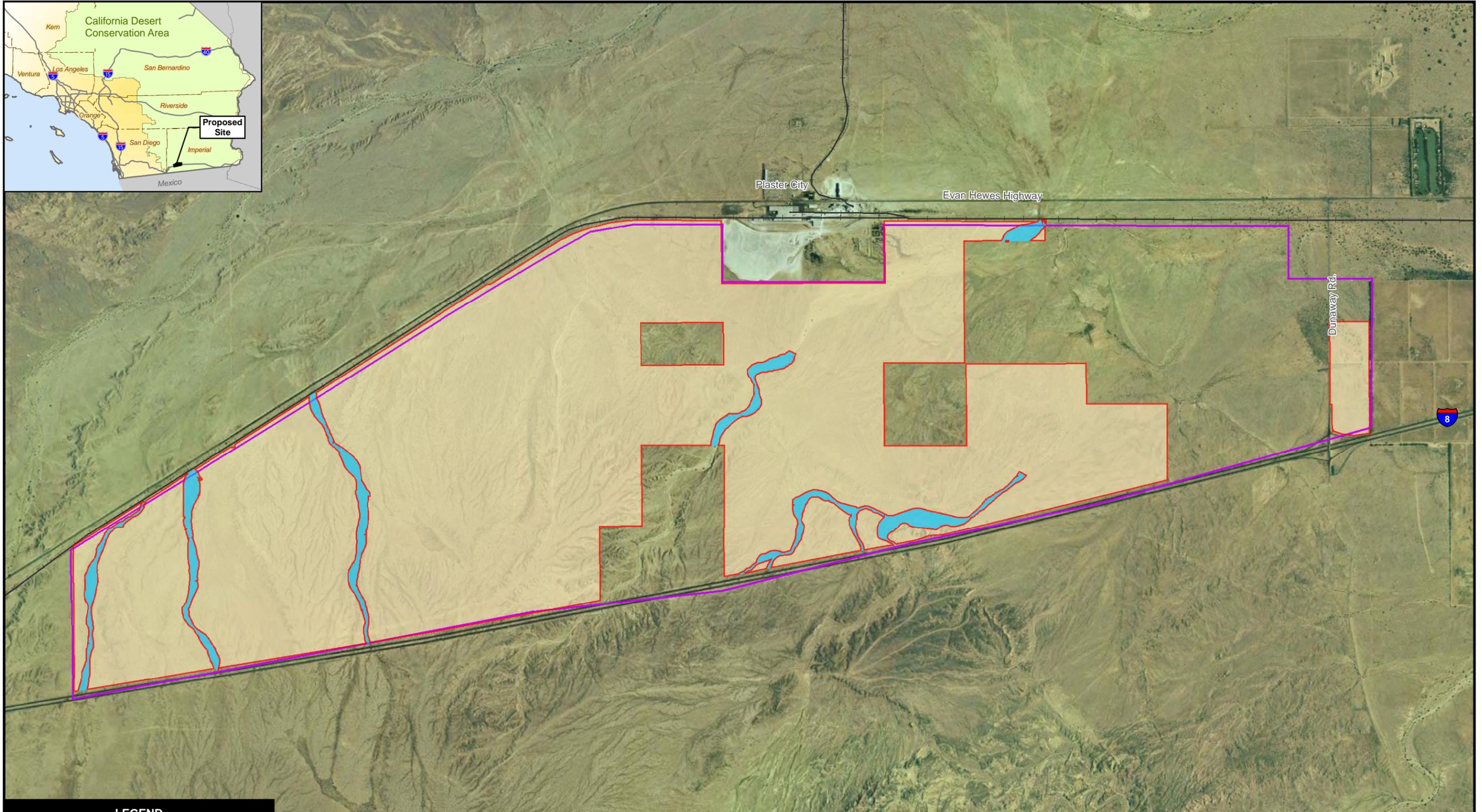
May 17, 2010

\_\_\_\_\_  
Date



\_\_\_\_\_  
Mark Storm

Exhibit 37



**LEGEND**

	709 MW Project Wash Avoidance Siteplan (6265 acres)
	LEDPA Avoided Drainages (200 acres)
	750 MW Boundary (6465 acres)
	900 MW Boundary (7093 acres)

**PROJECT FOOTPRINT EVOLUTION  
IMPERIAL VALLEY SOLAR**

SOURCES: Following layers from Stantec 30% Design, Feb. 2009 (project boundary); Aerial Imagery (NAIP, 2005).

**URS**

1500 0 1500 3000 Feet

SCALE: 1" = 3000 Feet (1:36,000)  
SCALE CORRECT WHEN PRINTED AT 11X17

CREATED BY: CL	DATE: 5-17-10	FIG. NO:
PM: AL	PROJ. NO: 27657103.00100	1

Exhibit 38

## **AQ-SC-02**

### **CEC Condition:**

Air Quality Construction Mitigation Plan (AQCMP): The project owner shall provide an AQCMP, for approval, which details the steps that will be taken and the reporting requirements necessary to ensure compliance with Conditions of Certification AQ-SC3, AQ-SC4, and AQ-SC5.

### **CEC Verification:**

At least 60 days prior to the start of any ground disturbance, the project owner shall submit the AQCMP to the BLM's Authorized Officer and CPM for approval. The AQCMP shall include effectiveness and environmental data for the proposed soil stabilizer. The BLM's Authorized Officer or CPM will notify the project owner of any necessary modifications to the plan within 30 days from the date of receipt.

### **Applicant's Proposed Verification:**

Comment: Applicant requests that verification of the condition be revised from 60 days to 30 days.

## **AQ-SC-04**

### **CEC Condition:**

Dust Plume Response Requirement: The AQCMM or AQCMM Delegate shall monitor all construction activities for visible dust plumes. Observations of visible dust plumes that have the potential to be transported (A) off the project site and within 400 ft upwind of any regularly occupied structures not owned by the project owner or (B) 200 ft beyond the centerline of the construction of linear facilities indicate that existing mitigation measures are not resulting in effective mitigation. The AQCMP shall include a section detailing how the additional mitigation measures will be accomplished within the time limits specified. The AQCMM or Delegate shall implement the following procedures for additional mitigation measures in the event that such visible dust plumes are observed: Step 1 Direct more intensive application of the existing mitigation methods within 15 min. of making such a determination. Step 2 Direct implementation of additional methods of dust suppression if Step 1 fails to result in adequate mitigation within 30 min. of original determination. Step 3 Direct a temporary shutdown of activity causing emissions...(see SA/DEIS for further details)

### **CEC Verification:**

The AQCMM shall provide the BLM's Authorized Officer and the CPM a Monthly Compliance Report (COMPLIANCE-7) to include:

- A. a summary of all actions taken to maintain compliance with this condition;
- B. copies of any complaints filed with the District in relation to project construction; and
- C. any other documentation deemed necessary by the CPM and AQCMM to verify compliance with this condition. Such information

**Applicant's Proposed Verification:**

Comment: The Applicant requests, that because of the specific nature of this language that it be presented as verification for Condition AQSC-4 rather than as part of the condition itself.

**AQ-SC-06**

**CEC Condition:**

The project owner, when obtaining dedicated on-road or off-road vehicles for mirror washing activities and other facility maintenance activities, shall only obtain new model year vehicles that meet California on-road vehicle emission standards or appropriate U.S.EPA/California off-road engine emission standards for the model year when obtained.

**CEC Verification:**

At least 60 days prior to the start of commercial operation, the project owner shall submit to the CPM a copy of the plan that identifies the size and type of the on-site vehicle and equipment fleet and the vehicle and equipment purchase orders and contracts and/or purchase schedule.

**Applicant's Proposed Condition:**

Comment: Applicant proposes the following revisions: The project owner, when obtaining dedicated on-road or off-road vehicles for mirror washing activities and other facility maintenance activities, shall only obtain ~~new~~ model year vehicles that meet California on-road vehicle emission standards or appropriate U.S.EPA/California off-road engine emission standards for the model year when obtained.

**AQ-SC-07**

**CEC Condition:**

The project owner shall provide a site Operations Dust Control Plan (ODCP), including all applicable fugitive dust control measures identified in the verification of AQ-SC3 that would be applicable to reducing fugitive dust from ongoing operations; that: A. describes the active operations and wind erosion control techniques...; and B. identifies the location of signs throughout the facility that will limit traveling on unpaved portion of roadways to solar equipment maintenance vehicles only. In addition, vehicle speed shall be limited to no more than 10 mph on these unpaved roadways, with the exception that vehicles may travel up to 25 mph on stabilized unpaved roads as long as such speeds do not create visible dust emissions. The site ODCP shall include the use of durable non-toxic soil stabilizers...and shall include the inspection & maintenance procedures that will be undertaken to ensure the unpaved roads remain stabilized...The performance requirements of AQ-SC4 shall also be included in the ODCP. (see SA/DEIS for further details)

**CEC Verification:**

At least 60 days prior to the start of commercial operation, the project owner shall submit to the BLM's Authorized Officer and the CPM for review and approval a copy of the site Operations Dust Control Plan that identifies the dust and erosion control procedures, including effectiveness and environmental data for the proposed soil stabilizer, that will be used during operation of the project and that identifies all locations of the speed limit signs.

**Applicant's Proposed Verification:**

Comment: Applicant requests that submittal date of the condition be revised from 60 days to 30 days prior to the start of commercial operation.

**AQ-01**

**CEC Condition:**

General Conditions - Emergency Generator Engine, driven by a Cummins, QSL9\_GNR3, 335 hp, T2 diesel engine/5000 gallon above ground fuel storage tank: Operation of this equipment shall be in compliance with all data and specifications submitted with the application on August 11th, 2008 (FR#574708) under which this permit is issued unless otherwise noted.

**CEC Verification:**

During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**Applicant's Proposed Condition:**

Comment: The Applicant request that one manufacturer not be specified, however, and the general type of diesel engine should instead be listed.

**AQ-02**

**CEC Condition:**

General Conditions - Emergency Generator Engine, driven by a Cummins, QSL9\_GNR3, 335 hp, T2 diesel engine/5000 gallon above ground fuel storage tank: Operation of the described equipment shall be in compliance with all applicable Imperial County Air Pollution Control District Rules and Regulations.

**CEC Verification:**

During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**Applicant's Proposed Condition:**

Comment: The Applicant request that one manufacturer not be specified, however, and the general type of diesel engine should instead be listed.

### **AQ-03**

#### **CEC Condition:**

General Conditions - Emergency Generator Engine, driven by a Cummins, QSL9\_GNR3, 335 hp, T2 diesel engine/5000 gallon above ground fuel storage tank: This Permit does not authorize the emissions of air contaminants in excess of those allowed by U.S.EPA (Title 40 of the Code of Federal Regulations), the State of California Division 26, Part 24, Chapter 3 of the Health and Safety Code, or the APCD (Rules and Regulations).

#### **CEC Verification:**

During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

#### **Applicant's Proposed Condition:**

Comment: The Applicant request that one manufacturer not be specified, however, and the general type of diesel engine should instead be listed.

### **AQ-04**

#### **CEC Condition:**

General Conditions - Emergency Generator Engine, driven by a Cummins, QSL9\_GNR3, 335 hp, T2 diesel engine/5000 gallon above ground fuel storage tank: This permit cannot be considered permission to violate applicable existing laws, regulations, rules, or statutes of other governmental agencies.

#### **CEC Verification:**

Not necessary.

#### **Applicant's Proposed Condition:**

Comment: The Applicant request that one manufacturer not be specified, however, and the general type of diesel engine should instead be listed.

### **AQ-05**

#### **CEC Condition:**

General Conditions - Emergency Generator Engine, driven by a Cummins, QSL9\_GNR3, 335 hp, T2 diesel engine/5000 gallon above ground fuel storage tank: No air contaminant shall be released into the atmosphere which causes a public nuisance, caused by permitted operation.

#### **CEC Verification:**

During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**Applicant's Proposed Condition:**

Comment: The Applicant request that one manufacturer not be specified, however, and the general type of diesel engine should instead be listed.

**AQ-12**

**CEC Condition:**

Emergency Generator Engine: A log shall be maintained on the premises showing hours of operation and routine repairs of emergency generator engine. This log shall be made available for inspection by the ICAPCD.

**CEC Verification:**

During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**Applicant's Proposed Condition:**

Comment: One manufacturer should not be specified, however, so the general type of diesel engine should instead be listed.

**AQ-13**

**CEC Condition:**

Emergency Generator Engine: The emergency generator engine shall be restricted to operate a total of 50 hours per year for non-emergency testing and maintenance purposes.

**CEC Verification:**

During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**Applicant's Proposed Condition:**

Comment: One manufacturer should not be specified, however, so the general type of diesel engine should instead be listed.

**AQ-14**

**CEC Condition:**

Emergency Generator Engine: The project owner shall submit to the ICAPCD an annual report by the end of February of each operating year containing the monthly fuel consumption and hours operated per month for the unit.

**CEC Verification:**

As part of the Annual Compliance Report, the project owner shall include the monthly fuel consumption and hour operated records required by this condition, including a photograph showing the annual reading of engine hours.

**Applicant's Proposed Condition:**

Comment: One manufacturer should not be specified, however, so the general type of diesel engine should instead be listed.

**AQ-15**

**CEC Condition:**

Emergency Generator Engine: The emergency generator shall not be used to provide power to sources other than the SES Solar Two Power Plant.

**CEC Verification:**

During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**Applicant's Proposed Condition:**

Comment: One manufacturer should not be specified, however, so the general type of diesel engine should instead be listed.

**AQ-16**

**CEC Condition:**

Emergency Generator Engine: The diesel engine shall not discharge into the atmosphere any visible air contaminant other than uncombined water vapor, for a period or periods aggregating more than three minutes in any one hour, which is 20% opacity or greater.

**CEC Verification:**

During site inspection, the project owner shall make all records and reports available to the District, ARB, U.S.EPA or CEC staff.

**Applicant's Proposed Condition:**

Comment: One manufacturer should not be specified, however, so the general type of diesel engine should instead be listed.

**AQ-17**

**CEC Condition:**

Emergency Generator Engine: Hour Meter, with a minimum display capability of 9,999 hours, shall be installed and maintained to proper working condition for the unit.

**CEC Verification:**

At least thirty (30) days prior to the installation of the engine, the project owner shall provide the District and the CPM the specification of the hour timer.

**Applicant's Proposed Condition:**

Comment: One manufacturer should not be specified, however, so the general type of diesel engine should instead be listed.

## **AQ-18**

### **CEC Condition:**

Emergency Generator Engine: Emergency generator set's diesel is subject to New Source Performance Standards (NSPS) Subpart IIII and shall meet Tier 3 emissions standards (40 CFR 60.4205 (b)).

### **CEC Verification:**

The project owner shall submit the emergency engine specifications to the District and the CPM for review and approval at least 30 days prior to purchasing the engine.

### **Applicant's Proposed Condition:**

Comment: One manufacturer should not be specified, however, so the general type of diesel engine should instead be listed.

## **BIO-01**

### **CEC Condition:**

N/A

### **CEC Verification:**

If a Designated Biologist needs to be replaced, the specified information of the proposed replacement must be submitted to the CPM and BLM's Authorized Officer at least ten working days prior to the termination or release of the preceding Designated Biologist. In an emergency, the project owner shall immediately notify the CPM and BLM's Authorized Officer to discuss the qualifications and approval of a short-term replacement while a permanent Designated Biologist is proposed to the CPM and BLM's Authorized Officer for consideration.

### **Applicant's Proposed Verification:**

Comment: Applicant will need more time than stated in the condition to replace a Designated Biologist should the need arise. Applicant requests that the condition be revised from "ten working days prior to termination or release" to "as soon as possible."

## **BIO-02**

### **CEC Condition:**

The project owner shall ensure that the Designated Biologist performs the following during any site (or related facilities) mobilization, ground disturbance, grading, construction, operation, closure, and restoration activities. The Designated Biologist may be assisted by the approved Biological Monitor(s) but remains the contact for the project owner, BLM's Authorized Officer, and CPM. The Designated Biologist Duties shall include the following: (see SA/DEIS for further details)

### **CEC Verification:**

The Designated Biologist shall submit in the Monthly Compliance Report to the BLM's Authorized Officer and the CPM copies of all written reports and summaries that document construction activities that have the potential to affect biological resources.

### **Applicant's Proposed Condition:**

Comment: Applicant would like to know if it is possible to train other workers through WEAP for the daily inspection activities in the Active Construction Area. Applicant suggests revising condition to state that other workers trained through WEAP may make the daily inspection activities and report to the Designated Biologist.

## **BIO-03**

### **CEC Condition:**

N/A

**CEC Verification:**

If additional biological monitors are needed during construction, the specified information shall be submitted to BLM's Authorized Officer and the CPM for approval at least ten days prior to their first day of monitoring activities.

**Applicant's Proposed Verification:**

Comment: Applicant would like to revise the condition from submitting information ten days prior to the first day of monitoring activities to five days prior.

**BIO-06**

**CEC Condition:**

The project owner shall develop and implement SES Solar Two-specific Worker Environmental Awareness Program (WEAP) and shall secure approval for the WEAP from BLM's Authorized Officer, USFWS, CDFG, and the CPM. The WEAP shall be administered to all onsite personnel including surveyors, construction engineers, employees, contractors, contractor's employees, supervisors, inspectors, subcontractors, and delivery personnel. The WEAP shall be implemented during site mobilization, ground disturbance, grading, construction, operation, and closure. The WEAP shall:... (see SA/DEIS for further information). The specific program can be administered by a competent individual(s) acceptable to the Designated Biologist.

**CEC Verification:**

At least 60 days prior to the start of any project-related site disturbance activities, the project owner shall provide to BLM's Authorized Officer and the CPM a copy of the draft WEAP and all supporting written materials and electronic media prepared or reviewed by the Designated Biologist and a resume of the person(s) administering the program. *(to include preparation of hardhat sticker or certificate)*

**Applicant's Proposed Verification:**

Comment: Applicant requests that verification of the condition be revised from 60 days to 30 days.

**BIO-07**

**CEC Condition:**

The project owner shall develop a BRMIMP and submit two copies of the proposed BRMIMP to BLM's Authorized Officer and the CPM (for review and approval) and shall implement the measures identified in the approved BRMIMP. The BRMIMP shall incorporate avoidance and minimization measures described in final versions of the Raven Management Plan, the USFWS Biological Opinion, Burrowing Owl Mitigation and Monitoring Plan, and the Noxious Weed Management Plan, and the Closure Plan. The BRMIMP shall be prepared in consultation with the Designated Biologist and shall and shall include the following:...(see SA/DEIS for further information)

**CEC Verification:**

The project owner shall submit the BRMIMP to the BLM’s Authorized Officer and the CPM at least 60 days prior to start of any project-related site disturbance activities. The BRMIMP shall contain all of the required measures included in all biological conditions of certification. No ground disturbance may occur prior to approval of the final BRMIMP by BLM’s Authorized Officer and the CPM. The BLM’s Authorized Officer and the CPM, in consultation with other appropriate agencies, would determine the BRMIMP’s acceptability within 45 days of receipt.

**Applicant’s Proposed Condition:**

Comment: The Applicant assumes the Closure Plan identified in BIO-7 is the Decommissioning and Reclamation Plan.

**Applicant’s Proposed Verification:**

Comment: Applicant requests that verification of the condition be revised from 60 days to 30 days.

**BIO-07**

**CEC Condition:**

The BRMIMP shall be prepared in consultation with the Designated Biologist and shall and shall include the following:....A Frac-Out Contingency plan approved by CDFG and the CPM prior to commencement of construction of the reclaimed water pipeline for horizontal directional drilling under the waterways

**CEC Verification:**

N/A

**Applicant’s Proposed Verification:**

Comment: Applicant requests that the submittal date of the condition be revised from 60 days to 30 days.

**BIO-07**

**CEC Condition:**

The BRMIMP shall incorporate avoidance and minimization measures described in final versions of ... the USFWS Biological Opinion, ...

**CEC Verification:**

N/A

**Applicant’s Proposed Verification:**

Comment: Applicant requests that the submittal date of the condition be revised from 60 days to 30 days.

## **BIO-08**

### **CEC Condition:**

The project owner shall undertake the following measures to manage the construction site and related facilities in a manner to avoid or minimize impacts to biological resources during construction and operation: **(see SA/DEIS for further information)**

### **CEC Verification:**

All mitigation measures and their implementation methods shall be included in the BRMIMP and implemented.

### **Applicant's Proposed Condition:**

Comment: Typically 20-25 mph is the limit set by the USFWS. CEC needs to provide a rationale for this lower speed.

## **BIO-08**

### **CEC Condition:**

The project owner shall undertake the following measures to manage the construction site and related facilities in a manner to avoid or minimize impacts to biological resources during construction and operation: **(see SA/DEIS for further information)**

### **CEC Verification:**

Implementation of the measures would be reported in the Monthly Compliance Reports by the Designated Biologist.

### **Applicant's Proposed Condition:**

Comment: Applicant needs clarification for the bulleted condition regarding who is allowed to perform hourly inspections. Are workers trained under WEAP allowed to make inspections, or must they be completed by a Biological Monitor?

## **BIO-09**

### **CEC Condition:**

The project owner shall undertake measures to manage construction at the plant site and linear facilities in a manner to avoid or minimize impacts to FTHL consistent with those described in the Flat-tailed Horned Lizard Rangewide Management Strategy by the FTHL Interagency Coordinating Committee (FTHL ICC 2003) or more current guidance provided by the FTHL ICC. These measures include, but are not limited to, the following: FTHL Removal Protocol: Removal surveys shall be conducted prior to construction activities. Surveys shall follow the guidelines described in Appendix 6 of the Flat-tailed Horned Lizard Rangewide Management Strategy (FTHL ICC 2003). Removal surveys would be conducted by experienced biological monitors only during appropriate survey conditions. The surveys shall be conducted from April 1 through September 30 when air temperatures are between 25 and 37°C (75 and 100°F)...Horned Lizard

Observation Data Sheet and a Project Reporting Form are to be used...(see SA/DEIS for further information)

**CEC Verification:**

N/A

**Applicant's Proposed Condition:**

Additionally, the Applicant requests the following edits be made to the first bulleted measure:

- Removal surveys would be conducted by experienced biological monitors only during appropriate survey conditions unless other times are approved by the CPM. The surveys can be conducted from April 1 through September 30 when air temperatures are between 25 and 37°C (75 and 100°F) or if approved by the CPM, at other times of the year when these conditions exist. Surveys would not be conducted during inclement weather conditions (e.g., rain, high winds) that could affect the movement of FTHLs. FTHL removal from the area could continue outside of protocol survey periods since the intent is to move animals from harm's way.

**Applicant's Proposed Verification:**

The Applicant requests the bullet points outlining the specific measures be presented as verification rather than in the condition itself.

**BIO-11**

**CEC Condition:**

The Designated Biologist shall do all of the following: • Immediately notify BLM's Authorized Officer and the CPM in writing if the project owner is not in compliance with any conditions of certification, including but not limited to any actual or anticipated failure to implement mitigation measures within the time periods specified in the conditions of certification.

**CEC Verification:**

N/A

**Applicant's Proposed Condition:**

Comment: Applicant requests that the condition be modified to allow a Designated Biological Monitor to be responsible for performing the duties in the condition. Applicant requests that the condition be modified to change the verification of the above from two calendar days to five calendar days.

**BIO-11**

**CEC Condition:**

The Designated Biologist shall do all of the following: • Remain onsite daily while grubbing and grading are taking place to avoid or minimize take of special status species, to check for compliance with all impact avoidance and minimization measures, and to

check all FTHL clearance areas to ensure that signs, stakes, and fencing are intact and that human activities are restricted in these protective zones. Conduct compliance inspections at a minimum of once per month after clearing, grubbing, and grading are completed and submit a monthly compliance report to BLM's Authorized Officer and the CPM...Ensure that all observations of FTHL and their sign during construction project activities are reported to the Designated Biologist for inclusion in the monthly compliance report.

**CEC Verification:**

N/A

**Applicant's Proposed Condition:**

Comment: Applicant requests a change in the condition that will allow a Designated Bio-Monitor to perform the specified duties as necessary.

**BIO-17**

**CEC Condition:**

Acquire Off-Site Desert Ephemeral Wash: For purposes of the CDFG Lake and Streambed Agreement requirements, compensation land purchased in Sonoran creosote scrub habitat would include ephemeral washes with at least 840 acres of jurisdictional state waters, mitigated at a 1:1 ratio. The terms and conditions of this acquisition or easement of the desert ephemeral wash mitigation lands shall meet the following criteria: 1) include at least 312 acres of jurisdictional state waters; 2) be characterized by similar soil permeability, hydrological and biological functions as the impacted drainages; and 3) located in the Colorado Desert. The compensation lands shall have = or greater acreage than the jurisdictional state waters impacted by the project. The acquisition of jurisdictional state waters can be included with the FTHL mitigation lands for only one year under the FTHL mitigation requirements. After one yr, the acquisition of any remaining ephemeral wash acreage up to a total of at least 312 acres, would be acquired independent of the FTHL mitigation. Acquired mitigation lands shall be approved by the CPM, in consultation w/ CDFG.

**CEC Verification:**

No less than 90 days prior to acquisition of the parcel(s) containing no less than 312 acres of jurisdictional state waters, the project owner, or a third-party approved by the CPM, in consultation with CDFG, shall submit a formal acquisition proposal to the CPM and CDFG describing the parcel(s) intended for purchase.

**Applicant's Proposed Condition:**

Comment: Please confirm that any mitigation to satisfy CWA 404 requirements can also be applied toward meeting 1602 mitigation requirements.

**Applicant's Proposed Verification:**

Comment: Applicant requests that the submittal time period be revised from 90 days to at the time of CEC decision/BLM ROD.

## **BIO-17**

### **CEC Condition:**

Security for Implementation of Mitigation: A security in the form of an irrevocable letter of credit, pledged savings account, or certificate of deposit for the amount of all mitigation measures pursuant to this condition of certification shall be submitted to, and approved by the CPM, in consultation with CDFG, prior to commencing project activities within areas of CDFG jurisdiction. This amount shall be based on a cost estimate produced by a PAR or PAR-like process, which shall be submitted to CDFG for review and to the CPM for approval within 60 days of the Energy Commission Decision's publication and prior to commencing project activities within areas of CDFG jurisdiction. The security shall be approved by the CPM, in consultation with CDFG's legal advisors, prior to its execution, and shall allow the CPM at its discretion to recover funds immediately if the CPM, in consultation with CDFG, determines there has been a default.

### **CEC Verification:**

N/A

### **Applicant's Proposed Condition:**

Comment: Applicant requests that the submittal time period be revised from "prior to commencing project activities" to "at the time of CEC decision and BLM ROD."

## **BIO-17**

### **CEC Condition:**

- BMPs: The applicant shall also comply with the following conditions:
  - o The owner shall minimize [*activities*] within ephemeral drainages to the extent feasible.
  - o The project owner shall not allow water containing...pollutants from grading, aggregate washing, or other activities to enter a lake or flowing stream or be placed in locations that may be subjected to high storm flows.
  - o The project owner shall comply with all litter and pollution laws.
  - o Spoil sites shall not be located within drainages or locations that may be subjected to high storm flows...o ...Any other substances which could be hazardous... resulting from project related activities shall be prevented from contaminating the soil and/or entering waters of the state.
  - o No...organic or earthen material from any construction...shall be allowed to enter into...waters of the state.
  - o When operations are completed, any excess materials or debris shall be removed from the work area... o No equipment maintenance shall be done within 150 feet of any ephemeral drainage... . o The project owner must have a Frac-Out Contingency Plan (**see SA/DEIS for further information**)

### **CEC Verification:**

No fewer than 30 days prior to the start of work potentially affecting jurisdictional state waters, the project owner shall provide written verification (i.e., through incorporation into the BRMIMP) to the CPM that the above best management practices will be implemented...

**Applicant's Proposed Verification:**

The Applicant notes that written verification that BMPs will be implemented is due 30 days prior to commencing activities within areas of CDFG jurisdiction; however, the verification implies that this written verification occur through incorporation into the BRMIMP (and the draft BRMIMP is due 60 days prior to start of ground disturbance).

**BIO-19**

**CEC Condition:**

To avoid impacts to State and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate or CNPS List 1A, 1B, 2, 3, or 4 plants that might occur on the SES Solar Two site or along the proposed transmission line and proposed reclaimed water pipeline alignments, pre-construction surveys shall be conducted in these areas in spring...2010. If special status plant species are detected within 100 ft of the project footprint, a qualified botanist shall prepare a Sensitive Plant Protection Plan to be implemented to avoid direct and indirect impacts. The project owner shall implement the following measures: • Pre-Construction Floristic Surveys. A qualified botanist shall conduct floristic surveys on the project site and along linear facilities in all areas subject to ground-disturbing activity.... Surveys shall be conducted within 100 ft of all surface-disturbing activities at the appropriate time of year and according to guidelines from the BLM (2009), CDFG (CDFG 2009b) and the CNPS (CNPS 2001). (see SA/DEIS for further information)

**CEC Verification:**

N/A

**Applicant's Proposed Condition:**

Applicant requests that condition BIO-19 be revised as follows:

To avoid impacts to state and federally listed Threatened and Endangered, Proposed, Petitioned, and Candidate or California Rare Plant Society List 1A, 1B, or 2 plants that might occur on the SES Solar Two site or along the proposed auxiliary features, pre-construction surveys shall be conducted in these areas in spring ~~and fall~~ 2010.

Verification surveys will be conducted in fall 2010 to verify the presence of any fall blooming species likely to be found on the site but that may not have been detected during spring surveys. If special status plant species are detected within 100 feet of the project footprint, a qualified botanist shall prepare a Sensitive Plant Protection Plan to be implemented to avoid direct and indirect impacts.

**BIO-19**

**CEC Condition:**

N/A

**CEC Verification:**

The project owner shall submit two reports: ) no later than July 31, 2010 describing the results of the spring floristic surveys and, 2) October 31, 2010 describing the results of

the fall floristic surveys conducted on the SES Solar Two power plant site and along the proposed transmission line and reclaimed water pipeline alignments. The report shall be submitted to BLM's authorized Officer, the CPM, USFWS, and CDFG and shall describe qualifications of the surveyor, survey methods, dates and times, a discussion of visits to reference sites, figures depicting the area(s) surveyed, figures depicting the locations of any special status plants observed, and a list of all plant species detected.

**Applicant's Proposed Verification:**

Applicant requests that the portion of the verification be revised to read as follows: The project owner shall submit two or more reports : 1) no later than July 31, 2010 describing the results of the spring floristic surveys and 2) no later than October 31, 2010 describing the results of the fall floristic surveys conducted on the SES Solar Two power plant site and along the proposed auxiliary features. The reports shall be submitted to BLM's Authorized Officer, the CPM, USFWS, and CDFG and shall describe qualifications of the surveyor, survey methods, dates and times, a discussion of visits to reference sites, figures depicting the area(s) surveyed, figures depicting the locations of any special status plants observed, and a list of all plant species detected.

**BIO-19**

**CEC Condition:**

Special Status Plant Protection Plan. If special status plant species are detected during pre-construction surveys, a qualified botanist shall prepare a Sensitive Plant Protection Plan (Plan). Populations of rare plants shall be flagged and mapped prior to any ground disturbance...The Plan shall include measures for avoiding direct impacts and accidental impacts during construction by identifying the plant occurrence location and establishing an appropriately sized buffer...The Plan shall also include a discussion of monitoring and reporting requirements during and after construction...Review and Submittal of Plan: The project owner shall submit to the CPM, USFWS, BLM's Authorized Officer, and CDFG a draft Sensitive Plant Protection Plan. Prior to any ground-disturbing activities within 100 feet of the sensitive plant occurrences detected during the pre-construction floristic surveys, the project owner shall submit to BLM's Authorized Officer and the CPM a final Plan that reflects review and approval by Energy Commission staff and BLM in consultation with CDFG and USFWS.

**CEC Verification:**

If special status plant species were detected during the 2010 surveys the project owner shall submit to BLM's Authorized Officer, the CPM, USFWS, and CDFG a Sensitive Plant Protection Plan (Plan) at least 60 days prior to the start of any ground-disturbing activities. The BLM's Authorized Officer and the CPM would determine the Plan's acceptability in consultation with BLM, Energy Commission staff, CDFG, and USFWS within 15 days of receipt of the Plan.

**Applicant's Proposed Verification:**

The Applicant requests that the portion of the second paragraph of the verification be revised as follows:

If special status plant species were detected during the 2010 surveys the project owner shall submit to BLM's Authorized Officer, the CPM, USFWS, and CDFG a Sensitive Plant Protection Plan (Plan) at least ~~30~~60 days prior to the start of any ground-disturbing activities. The BLM's Authorized Officer and the CPM would determine the Plan's acceptability in consultation with BLM, Energy Commission staff, CDFG, and USFWS within 15 days of receipt of the Plan. Any modifications to the approved Plan shall be made only after approval by Energy Commission staff and BLM in consultation with CDFG and USFWS.

## **BIO-20**

### **CEC Condition:**

Upon project closure the project owner shall implement a final Decommissioning and Reclamation Plan to remove all structures from the project site and fill from Waters of the U.S. and restore the natural topography, hydrology and vegetation/wildlife habitat. The Decommissioning and Reclamation Plan shall include a cost estimate for implementing the proposed decommissioning and reclamation activities, and shall be consistent with the guidelines in BLM's 43 CFR 3809.550 et seq., subject to review and revisions from BLM's Authorized Officer and the CPM in consultation with USFWS, USACE, and CDFG.

### **CEC Verification:**

No less than 30 days from publication of the Energy Commission Decision or the Record of Decision, whichever comes first, the project owner shall provide to BLM's Authorized Officer and the CPM a draft Decommissioning and Reclamation Plan.

### **Applicant's Proposed Verification:**

**Comment:** the Draft is due no less than 30 days from Decision or ROD (whichever comes first), but the Final is due 60 days prior to construction. This is a potential conflict with the Applicant's proposed initiation of construction activities.

## **BIO-20**

### **CEC Condition:**

Upon project closure the project owner shall implement a final Decommissioning and Reclamation Plan to remove all structures from the project site and fill from Waters of the U.S. and restore the natural topography, hydrology and vegetation/wildlife habitat. The Decommissioning and Reclamation Plan shall include a cost estimate for implementing the proposed decommissioning and reclamation activities, and shall be consistent with the guidelines in BLM's 43 CFR 3809.550 et seq., subject to review and revisions from BLM's Authorized Officer and the CPM in consultation with USFWS, USACE, and CDFG.

### **CEC Verification:**

No more than 60 days prior to start of any project-related ground disturbance activities, the project owner shall provide BLM's Authorized Officer and the CPM with the final

version of a Decommissioning and Reclamation Plan that has been reviewed and approved by BLM's Authorized Officer and the CPM, in consultation with USFWS, and CDFG. All modifications to the approved Channel Decommissioning Plan shall be made only after approval from BLM's Authorized Officer and the CPM, in consultation with USFWS, USACE, and CDFG.

**Applicant's Proposed Verification:**

**Comment:** BIO-20 refers to the Decommissioning and Reclamation Plan in the header and in the condition. The verification mentions a Channel Decommissioning Plan which does not seem applicable.

## **CUL-01**

### **CEC Condition:**

The applicant shall be bound to abide, in total, to the terms of the programmatic agreement that the BLM is to execute under 36 CFR § 800.14(b)(3) for the proposed action. If for any reason, any party to the programmatic agreement were to terminate that document and it were to have no further force or effect for the purpose of compliance with Section 106 of the National Historic Preservation Act, the applicant would continue to be bound to the terms of that original agreement for the purpose of compliance with CEQA until such time as a successor agreement had been negotiated and executed with the participation and approval of Energy Commission staff.

### **CEC Verification:**

Under the terms of the programmatic agreement, the applicant shall submit all documentation required by the agreement to the Compliance Project Manager (CPM) for review and approval.

### **Applicant's Proposed Verification:**

The Applicant is concerned that the SA/DEIS relies on the PA to resolve adverse effects/significant impacts, but it does not consistently show how and when this will occur. Please revise CUL-1 as follows: BLM will consult with SHPO, ACHP, and invited and concurring parties to execute a PA under 36 CFR 800.14(b)(3) prior to the ROD. The PA will specify that the applicant will prepare a Historic Properties Treatment Plan (HPTP) subject to BLM and CEC review and approval. Minimally, the HPTP will include (1) additional cultural resources inventory and evaluation procedures, (2) procedure to avoid or reduce impacts to significant archaeological, historical, and ethnographic sites, (3) measures to treat sites where impacts cannot be avoided, and (4) an unanticipated discoveries plan. If, at its option, BLM proceeds with another approach to Section 106 requirements, the HPTP will remain a required mitigation measure.

## **PAL-02**

### **CEC Condition:**

Before work commences on affected power plants, the project owner shall notify the PRS, BLM's Authorized Officer and CPM of any construction phase scheduling changes.

### **CEC Verification:**

If there are changes to the scheduling of the construction phases of each power plant, the project owner shall submit a letter to BLM's AO and the CPM within 5 days of identifying the changes.

### **Applicant's Proposed Condition:**

Comment: Please remove reference to ISEGS and replace with Solar Two. Additionally, while the Project will be built in two phases, each phase is only a portion of the power plant as a whole and should not be referred to individual power plants.

## **PAL-04**

### **CEC Condition:**

Worker training shall consist of an initial in-person PRS training during the project kick-off, for those mentioned... Following initial training, a CPM-approved video or in-person training may be used for new employees. The training program may be combined with other training programs prepared for cultural and biological resources, hazardous materials, or other areas of interest or concern. No ground disturbance shall occur prior to BLM's Authorized Officer and CPM approval of the Worker Environmental Awareness Program (WEAP), unless specifically approved by the CPM. The WEAP shall address the possibility of encountering paleontological resources in the field, the sensitivity and importance of these resources, and legal obligations to preserve and protect those resources. The training shall include: 1. applicable laws; 2. photographs; 3. PRS or PRM has the authority to halt or redirect construction; 4. employees are to halt or redirect work; 5. brochure; 6. WEAP certification of completion form signed; and 7. sticker on hard hats... (see SA/DEIS for further information)

### **CEC Verification:**

At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP, including the brochure, with the set of reporting procedures for workers to follow.

### **Applicant's Proposed Verification:**

Condition PAL-4, as written, does not have verification.

Comment: The Applicant requests that the following language, currently inserted into condition PAL-4, be used as the verification: (1) At least 30 days prior to ground disturbance, the project owner shall submit the proposed WEAP, including the brochure, with the set of reporting procedures for workers to follow...(4) In the monthly compliance report (MCR, the project owner shall provide copies of the WEAP certification of completion forms with the names of those trained and the trainer or type of training (in-

person or video) offered that month. The MCR shall also include a running total of all persons who have completed the training to date.

## **HAZ-04**

### **CEC Condition:**

At least thirty (30) days prior to commencing construction, a site-specific Construction Site Security Plan for the construction phase shall be prepared and made available to BLM's authorized officer and the CPM for review and approval. The Construction Security Plan shall include the following: 1. Perimeter security consisting of fencing enclosing the construction area; 2. Security guards; 3. Site access control consisting of a check-in procedure or tag system for construction personnel and visitors; 4. Written standard procedures for employees, contractors and vendors when encountering suspicious objects or packages on-site or off-site; 5. Protocol for contacting law enforcement and the CPM in the event of suspicious activity or emergency; and 6. Evacuation procedures.

### **CEC Verification:**

At least thirty (30) days prior to commencing construction, the project owner shall notify BLM's authorized officer and the CPM that a site-specific Construction Security Plan is available for review and approval.

### **Applicant's Proposed Condition:**

Comment: The Applicant would like to verify that construction may commence before establishing a perimeter fence for security. Applicant would like to revise the condition to state that construction may begin before establishing a perimeter for security. Site will be secure due to presence of construction activity.

## **HAZ-05**

### **CEC Condition:**

The project owner shall prepare a site-specific Security Plan for the operational phase and shall be made available to BLM's authorized officer and the CPM for review and approval. The project owner shall implement site security measures addressing physical site security and hazardous materials storage. The level of security to be implemented shall not be less than that described below (as per NERC 2002). The Operation Security Plan shall include the following:...The project owner shall fully implement the security plans and obtain BLM's authorized officer and CPM approval of any substantive modifications to the security plans. BLM's authorized officer and the CPM may authorize modifications to these measures, or may require additional measures, such as protective barriers for critical power plant components...depending on circumstances unique to the facility or in response to industry-related standards, security concerns, or additional guidance provided by the U.S. Department of Homeland Security, the U.S. Department of Energy, or the North American Electrical Reliability Council, after consultation with appropriate law enforcement agencies and the applicant. **(see SA/DEIS for further information)**

### **CEC Verification:**

At least 30 days prior to the initial receipt of hazardous materials onsite, the project owner shall notify BLM's authorized officer and the CPM that a sitespecific Operations Site Security Plan is available for review and approval.

**Applicant's Proposed Condition:**

Comment: Applicant believes that this requirement may be unduly onerous, especially during peak construction periods where Project personnel could number as much as over 700 people, and requests that background investigations shall be conducted on any Project personnel who comes into contact with hydrogen or hazardous materials and planned operations personnel. This will be adequate to ensure that the necessary safety measures are in place.

## **SOIL&WATER-01**

### **CEC Condition:**

Prior to site mobilization, the project owner shall obtain both BLM's AO and the CPM approval for a site specific DESCP that ensures protection of water quality and soil resources...for both the construction and operation phases of the project. This plan shall address appropriate methods and actions...for the protection of water quality and soil resources, demonstrate no increase in offsite flooding or sedimentation potential, and identify all monitoring and maintenance activities. The project owner shall complete all necessary engineering plans, reports, and documents necessary for both the AO and CPM to conduct a review of the proposed project and provide a written evaluation as to whether the proposed grading, drainage improvements, sediment control measures, and flood management activities comply with all requirements...The plan shall contain the following: Vicinity Map, Site Delineation, Drainage, Watercourses and Critical Areas, Clearing and Grading, Soil Wind and Water Erosion Control, Project Schedule, BMPs, Erosion Control Drawings, Agency Comments, Monitoring Plan (see SA/DEIS for further information)

### **CEC Verification:**

No later than ninety (90) days prior to start of site mobilization, the project owner shall submit a copy of the DESCP to the County of Imperial, the RWQCB, the AO, and CPM for review and comment. Both the AO and CPM shall consider comments received from Imperial County and RWQCB.

### **Applicant's Proposed Verification:**

Comment: Request to revise submission of the final DESCP from 90 days to 60 days prior to start of construction.

## **SOIL&WATER-02**

### **CEC Condition:**

Prior to the use of recycled wastewater for operation of the SES Solar Two Project, the project owner shall install and maintain metering devices as part of the water supply and distribution system to monitor and record in gallons per day the volume of water supplied to the SES Solar Two Project. The metering devices shall be operational for the life of the project.

### **CEC Verification:**

At least 60 days prior to use of any water source for SES Solar Two Project operation, the project owner shall submit to the AO and CPM evidence that metering devices have been installed and are operational on all water pipelines serving the project.

### **Applicant's Proposed Verification:**

Comment: Applicant requests that the verification of installed and operational meters be modified from 60 days prior to use of any water source to the time when the water system would be used.

## **SOIL&WATER-07**

### **CEC Condition:**

The project owner shall prepare a detailed drainage map for existing conditions showing the location of all watercourses on the site, including those not mapped in Soil and Water Resources Figure 3 of this report, recognizing that site areas with visible evidence of past flows are subject to future flows. The drainage map may be based on a geomorphic evaluation based on aerial photographs, topographic maps, site visits, and other relevant factors, and may be supplemented by a two-dimensional flow analysis at the discretion of the project owner.

### **CEC Verification:**

At least 90 days prior to the start of site mobilization, the project owner shall submit the final drainage map, the Foundation Depth and Stability Report, and the Storm Water Damage Monitoring and Response Plan, with supporting analysis, to the AO and CPM for review and approval.

### **Applicant's Proposed Verification:**

**Comment:** Can the requested drainage plan in Soil and Water 7 be submitted with the DESCP?

## **SOIL&WATER-07**

### **CEC Condition:**

The project owner shall ensure that all SunCatchers within flow areas as identified in the above-referenced drainage map are designed to withstand 100-year storm water scour as estimated by a SunCatcher Foundation Depth and Stability Report to be completed by the project owner. The report shall include estimates of hydraulic conditions at each location where SunCatchers are to be located in flood hazard areas and relevant scour calculations for each location. Scour calculations shall be developed by a registered civil engineer competent in scour calculation and include all relevant scour components including pier scour, general scour, antidune trough depth, bend scour, and long-term degradation. An assessment shall be made whether foundation widths should be increased for debris production.

### **CEC Verification:**

At least 90 days prior to the start of site mobilization, the project owner shall submit the final drainage map, the Foundation Depth and Stability Report, and the Storm Water Damage Monitoring and Response Plan, with supporting analysis, to the AO and CPM for review and approval.

### **Applicant's Proposed Condition:**

**Comment:** Not clear on the statement: "an assessment shall be made to determine if foundation widths should be increased to account for debris production"?

**Applicant’s Proposed Verification:**

Comment: Is the intent of the scour analysis to provide scour estimates on a reach by reach basis or for each individual SunCatcher unit?

**SOIL&WATER-07**

**CEC Condition:**

The project owner shall also develop a Storm Water Damage Monitoring and Response Plan (SWDMRP) to evaluate potential impacts from storm water, including SunCatchers that fail due to storm water flow or otherwise break and scatter mirror debris on to the ground surface. The SWDMRP shall include the following elements: • Detailed maps showing the installed location of all SunCatchers. • Each SunCatcher shall be identified by a unique ID number marked to show initial ground surface at its base and the depth of the pylon below ground. • Minimum Depth Stability Threshold to be maintained of pylons to meet long-term stability for applicable wind, water, and debris loading effects. • Above and below ground construction details of a typical installed SunCatcher. • BMPs to be employed to minimize the potential impact of broken mirrors to soil resources. • Methods and response time of mirror cleanup and measures that may be used to mitigate further impact to soil resources from broken mirror fragments. • Monitoring, documenting, and restoring the soil surface when impacted by sedimentation or broken mirror shards.

**CEC Verification:**

At least 90 days prior to the start of site mobilization, the project owner shall submit the final drainage map, the Foundation Depth and Stability Report, and the Storm Water Damage Monitoring and Response Plan, with supporting analysis, to the AO and CPM for review and approval.

**Applicant’s Proposed Verification:**

Comment: Request to revise submission of the Stormwater Damage Monitoring and Response Plan from 90 days to 60 days prior to start of construction.

**SOIL&WATER-07**

**CEC Condition:**

Monitor and Inspect Periodically, Before First Seasonal and After Every Storm Event: • SunCatchers within Drainages or subject to drainage overflow: Inspect for tilting, mirror damage, depth of scour compared to pylon depth below ground and the Minimum Depth Stability Threshold, collapse, and downstream transport. • Drainage Channels: Inspect for substantial migration or changes in depth, and transport of broken glass. • Constructed Diversion Channels: Inspect for scour and structural integrity issues caused by erosion, and for sediment and debris buildup. • Ground Surface: Inspect for changes in the surface texture and quality from sediment buildup, erosion, or broken glass. Short-Term Incident-Based Response:...Long-Term Design-Based Response: Inspection, short-term incident response, and long-term design-based response may include activities both inside and outside of the approved right of-way. For activities outside of the approved right-of-way,

the project owner shall notify BLM and acquire environmental review and approval before field activities begin. (see SA/DEIS for further information)

**CEC Verification:**

N/A

**Applicant's Proposed Condition:**

Comment: Applicant recommends monitoring after 5 year storm events.

**SOIL&WATER-08**

**CEC Condition:**

N/A

**CEC Verification:**

Written assessments prepared by the County of Imperial and the RWQCB regarding the project's compliance with these requirements must be submitted to the AO and CPM for review and approval 30-days prior to the start of power plant operation.

**Applicant's Proposed Verification:**

How long does it take for agencies to complete "assessments"

**SOIL&WATER-10**

**CEC Condition:**

The project owner shall identify likely decommissioning scenarios and develop specific decommissioning plans for each scenario that will identify actions to be taken to avoid or mitigate long-term impacts related to water and wind erosion after decommissioning. Actions may include such measures as a decommissioning SWPPP, revegetation and restoration of disturbed areas, post-decommissioning maintenance, collection and disposal of project materials and chemicals, and access restrictions.

**CEC Verification:**

At least 90 days prior to the start of site mobilization, the project owner shall submit decommissioning plans to the AO and CPM for review and approval prior to site mobilization. The project owner shall amend these documents as necessary, with approval from the AO and CPM, should the decommissioning scenario change in the future.

**Applicant's Proposed Condition and Verification:**

Please consider adding the following condition of certification:

SOIL&WATER-XX Prior to the use of temporary/back-up water for the Solar Two project, the project owner shall consult with and obtain approval of the CPM. The project owner shall maintain and submit records of temporary/back-up water use to the CPM.

Verification: At least 30 days prior to delivery of temporary/back-up water to the project site, the project owner shall submit a report to the AO and CPM giving the reasons for the

required use of this water. The report shall identify the source of water, the intended use, the estimate the amount of water required, and the estimated date the primary water supply will be available. The project owner shall update this report and records on the amount of temporary/ back up water delivered monthly as long as temporary/back-up water is required and approved.

## **LAND-01**

### **CEC Condition:**

The project owner shall comply with the Subdivision Map Act (Pub. Resources Code Section 66410-66499.58) by adhering to the provisions of Imperial County Land Use Ordinance, Title 9, Division 8, Subdivision Ordinance, Section 90801.01 to ensure legality of parcels and site control.

### **CEC Verification:**

At least 30 days prior to construction of the SES Solar Two Project, the project owner shall submit evidence to the CPM, indicating approval of the merger of parcels by Imperial County, or written approval of another process (i.e., to adjust lot lines) that is acceptable to the county. The submittal to the CPM shall include evidence of compliance with all conditions and requirements associated with the approval of the Certificate of Merger and/or Notice of Lot Line Adjustment by the county.

### **Applicant's Proposed Condition:**

General Comment: The Applicant is concerned with Staff's assertion that impacts to recreation will be mitigated to a level less than significant with the adoption of Condition of Certification LAND-1. However, LAND-1 refers to compliance with the Subdivision Map Act and not mitigating impacts to recreation. While the Applicant, as discussed below, does not believe the Project would result in adverse impacts to recreation, a clear understanding of the proposed condition is necessary. The Applicant requests that staff clarify what condition of certification they were proposing.

## **NOISE-04**

### **CEC Condition:**

Within 30 days of the project first achieving a sustained output of 80% or greater of rated capacity, the project owner shall conduct a 25-hour community noise survey, utilizing the same monitoring sites employed in the pre-project ambient noise survey as a minimum. The survey shall also include the octave band pressure levels to ensure that no new pure-tone noise components have been introduced. No single piece of equipment shall be allowed to stand out as a source of noise that draws legitimate complaints. If the results from the survey indicate that the project noise levels are in excess of 45 dBA Leq at the residence located at 1510 Painted Gorge Road, additional mitigation measures shall be implemented to reduce noise to a level of compliance with this limit.

### **CEC Verification:**

N/A

### **Applicant's Proposed Condition:**

**Comment:** The applicant is unsure that a Project-only operation noise level of 45 dBA Leq or less can be accurately or reliably measured there...the applicant proposes that two sentences be added to NOISE-4 as appearing below, which in summary provides an alternative method for evaluating Project-only noise and appears consistent with what the applicant has found in staff assessments of conventional power plant projects (e.g., gas turbine peaker plants)...

## **NOISE-06**

### **CEC Condition:**

Heavy equipment operation and noisy construction work relating to any project features shall be restricted to the times of day delineated below:

Mondays through Fridays: 7:00 a.m. to 7:00 p.m.

Saturdays: 9:00 a.m. to 5:00 p.m.

Sundays and Holidays: No Construction Allowed

Haul trucks and other engine-powered equipment shall be equipped with mufflers that meet all applicable regulations. Haul trucks shall be operated in accordance with posted speed limits. Truck engine exhaust brake use shall be limited to emergencies.

### **CEC Verification:**

Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project.

### **Applicant's Proposed Condition:**

Applicant requests that the condition be changed to allow construction for 24 hours, 7 days a week. A variance may be issued from Imperial County to allow construction outside of the outlined times in the SA/DEIS. Typically, this would be handled through a condition of the CUP that would allow for variance beyond the normal construction

period with prior approval of the Imperial County planning department...Given the site location, the Applicant believes that a restriction on construction time periods is not necessary to avoid potentially significant impacts.

**Applicant's Proposed Verification:**

Please revise the verification as follows: Prior to ground disturbance, the project owner shall transmit to the CPM a statement acknowledging that the above restrictions will be observed throughout the construction of the project. If the project owner desires a variance from the restrictions on construction times, the project owner shall notify the CPM no less than 24 hours in advance of such a request. The request shall identify the dates and times of the variance, the activity to be performed, and the maximum expected noise levels.

### **TRANS-03**

#### **CEC Condition:**

N/A

#### **CEC Verification:**

At least 3 months prior to the start of site mobilization, the project owner shall submit a review of existing roadway pavement conditions to Imperial County for review and comment and the CPM for review and approval. This review will include photographs and the analysis of pavement and sub-surface conditions. The CPM will need to approve the summary of existing pavement conditions prior to the commencement of construction.

#### **Applicant's Proposed Verification:**

Comment: Applicant requests that the analysis of sub-surface conditions be deleted. Using photographic and/or video-graphic documentation, the Applicant would be able to ensure complete documentation of existing roadway conditions.

## **VIS-01**

### **CEC Condition:**

The project owner shall treat all non-mirror surfaces of all project structures and buildings visible to the public....The project owner shall submit for CPM and BLM AO review and approval, a specific Surface Treatment Plan [that includes]...A. description of the rationale for the proposed surface treatment, including the selection of the proposed color(s) and finishes; B. A list of each major project structure, building, tank, pipe, and wall; the transmission line towers and/or poles; and fencing, specifying the color(s) and finish proposed for each...; or according to a universal designation system; C. One set of color brochures or color chips showing each proposed color and finish; D. specific schedule for completion of the treatment; and E. procedure to ensure proper treatment maintenance for the life of the project. **(refer to SA/DEIS Conditions for more info)**

The project owner shall not specify to the vendors the treatment of any buildings or structures treated during manufacture, or perform the final treatment on any buildings or structures treated in the field, until ...approval of the plan.

### **CEC Verification:**

At least 90 days prior to specifying to the vendor the colors and finishes of the first structures or buildings that are surface treated during manufacture, the project owner shall submit the proposed treatment plan to BLM's AO and the CPM for review and approval and simultaneously to Imperial County for review and comment. The CPM and BLM AO shall make a field determination of an appropriate color from the BLM Environmental Color Chart and provide guidance to the proponent to maximize effectiveness of mitigation. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's AO and the CPM a plan with the specified revision(s) for review and approval by BLM's Authorized Officer and the CPM before any treatment is applied. Any modifications to the treatment plan must be submitted to BLM's AO and the CPM for review and approval.

### **Applicant's Proposed Condition:**

Comment: While the Applicant is currently investigating the feasibility of painting the backs of the mirror facets a color that would minimize the visual intrusion, there are many surfaces on the SunCatchers that cannot be painted due to the temperatures they would reach in the production of energy. The Applicant requests that this condition be deleted as it may be infeasible to comply. Additionally, the Applicant does not believe that this would be necessary to mitigate any potentially significant visual impacts.

## **VIS-02**

### **CEC Condition:**

To the extent feasible, consistent with safety and security considerations, the project owner shall design and install all permanent exterior lighting and all temporary construction lighting such that a) lamps and reflectors are not visible from beyond the project site, including any off-site security buffer areas; b) lighting does not cause excessive reflected glare; c) direct lighting does not illuminate the nighttime sky, except

for required FAA aircraft safety lighting; and shall employ on-demand lighting technology such as a radar-triggered audio-visual warning system; d) illumination of the project and its immediate vicinity is minimized, and e) the plan complies with local policies and ordinances.

**CEC Verification:**

At least 90 days prior to ordering any permanent exterior lighting or temporary construction lighting, the project owner shall contact BLM's Authorized Officer and the CPM to discuss the documentation required in the lighting mitigation plan.

**Applicant's Proposed Verification:**

Comment: Applicant proposes to change 90 days prior to 30 days prior.

**VIS-03**

**CEC Condition:**

To reduce the prominence of the proposed new segment of transmission line paralleling Highway I-8, the applicant shall set back the transmission line at least 1/2 mile from Highway I-8 within the project site. This measure applies only to that portion of the proposed transmission line paralleling Highway I-8 within the project site boundaries.

**CEC Verification:**

At least 90 days prior to start of construction, the project owner shall present to BLM's Authorized Officer and the CPM a revised plan depicting how the proposed transmission line will be set from the highway. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a revised plan for review and approval by BLM's Authorized Officer and the CPM. The project owner shall not begin construction until receiving BLM Authorized Officer and CPM approval of the revised plan.

**Applicant's Proposed Condition:**

Comment: Per the Project Map docketed on October 28, 2009, the transmission line interconnection no longer parallels I-8 within the project boundary.

**VIS-04**

**CEC Condition:**

To reduce the visual dominance and glare effects of the SunCatcher units to motorists on Highway I-8, the applicant shall employ a combination of measures as necessary, including set-backs of the nearest SunCatcher units to a distance of 500 feet from the adjoining roadway or as necessary to avoid excessive glare and reduce visual height and dominance of SunCatcher units, slatted fencing as described under Condition of Certification VIS-6, and setbacks of SunCatcher units from project fencing.

**CEC Verification:**

At least 90 days prior to start of construction, the project owner shall present to BLM's Authorized Officer and the CPM a revised plan depicting how the proposed SunCatchers will be set back from the highway. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a revised Plan for review and approval by BLM's Authorized Officer and the CPM. The project owner shall not begin construction until receiving BLM Authorized Officer and CPM approval of the revised plan.

**Applicant's Proposed Condition:**

The Applicant is currently preparing an additional Glint and Glare study to address concerns of potential Glint and Glare to motorists on I-8 and Evan Hewes Highway... VIS-4 does not accomplish a significant reduction in the size and scale of the project that would diminish its overall visual dominance in the viewshed by applying minimal increase in the setback...Applicant requests that VIS-4 be revised as follows: VIS-4: To reduce the visual dominance and glare effects of the SunCatchers to motorists on Highway I-8, the applicant shall employ a combination of measures as necessary, including set-backs of the nearest SunCatcher units to a minimum distance of 360 feet from I-8 and 50 feet from Evan Hewes as necessary to avoid excessive glare and reduce visual height and dominance of SunCatchers, security fencing, and setbacks of SunCatcher units from project fencing.

**VIS-05**

**CEC Condition:**

In order to off-set unavoidable adverse impacts to visitors on the Anza Trail and Yuha Desert ACEC, the project owner shall contribute funds to the National Park Service (NPS) and BLM, specifically to provide improvements to benefit visitors on the Anza Trail. Such improvements could include, but not be limited to, interpretive displays or exhibits, improvements to use areas, mounted telescopes, or other improvements to be determined by the NPS and BLM.

**CEC Verification:**

The project owner shall coordinate closely with the BLM and, NPS, and contribute funds to mitigate for visual impacts to recreational users of the Anza Trail. The funds will be used by the agencies to improve the recreational experience for Anza Trail visitors through such means as interpretive signage, improvements to camping facilities, provision of view scopes at campsites or vista points, or other measures as appropriate. The amount and payment of funds will be determined by the two agencies commensurate with the loss scenic integrity of the Anza Trail experience. The project owner shall provide funds to the two agencies as approved by the Compliance Project Manager (CPM) within 180 days of the start of construction, and specify that the funds would be used for the area affected by the SES Solar Two Project.

**Applicant's Proposed Verification:**

Comment: Applicant requests that the timeline for providing funds be revised from 180 days to 30 days.

## **VIS-06**

### **CEC Condition:**

The project owner shall develop and implement a glare mitigation plan that minimizes visibility of the SunCatcher mirrors to both east-and west-bound traffic on Highway I-8 utilizing one or more measures, which may include but is not limited to 20-foot tall slatted fencing, particularly at the eastern and western boundaries near the highway; earth berms, and/or an increase in the setbacks of the SunCatcher units from the roadway; and must include a SunCatcher Mirror Positioning Plan (MPP) describing how the outermost rows of SunCatchers could be positioned in order to avoid or minimize the most intensive potential glare incidents on motorists as called for under Condition of Certification TRANS-4. The plan shall include a glare complaint resolution form to be distributed to the CPM, BLM, NPS, and Imperial County as a means to identify glare issues.

### **CEC Verification:**

At least 90 days prior to start of construction, the project owner shall present to BLM's Authorized Officer and the CPM a glare mitigation plan describing a proposed set of measures to reduce the most intensive potential glare events to motorists. If earth berms are proposed as part of the plan, the applicant shall submit a grading plan including contour grading, and a revegetation plan. If BLM's Authorized Officer and the CPM determine that the plan requires revision, the project owner shall provide to BLM's Authorized Officer and the CPM a revised plan for review and approval by BLM's Authorized Officer and the CPM. The project owner shall not begin construction until receiving BLM Authorized Officer and CPM approval of the revised plan.

### **Applicant's Proposed Condition:**

Applicant is currently preparing an additional Glint/Glare Plan to be submitted to the CEC and BLM prior to the SSA/FEIS to determine what if any potential for Glint/Glare effects to nearby roadway travellers exists...The Applicant proposes that VIS-6 be revised as follows:

VIS-6: The project owner shall develop and implement a glare mitigation plan that minimizes visibility of the SunCatcher mirrors to both east-and west-bound traffic on Highway I-8 utilizing one or more measures, which must include a SunCatcher Mirror Positioning Plan (MPP) describing how the outermost rows of SunCatchers could be positioned in order to avoid or minimize the most intensive potential glare incidents on motorists as called for under Condition of Certification TRANS-4. The plan shall include a glare complaint resolution form to be distributed to the CPM, BLM, NPS, and Imperial County as a means to identify glare issues.

### **Applicant's Proposed Verification:**

Applicant requests that the presentation of the glare mitigation plan be revised from 90 days to 30 days.

## **VIS-07**

### **CEC Condition:**

In order to minimize the visual prominence of the proposed staging area to motorists on I-8, the project owner shall provide a revised site plan for staging that includes a set-back of at least ¼-mile or more from the highway, and a description of measures to identify and address biological and cultural issues potentially connected to the plan. In addition, the project owner shall provide a re-vegetation plan describing how the staging site will be restored following construction. The plan shall call for beginning of restoration of the site within the shortest feasible time following completion of construction.

### **CEC Verification:**

At least 90 days prior to start of construction, the project owner shall present to BLM's Authorized Officer and the CPM a revised staging area site plan.

### **Applicant's Proposed Verification:**

Comment: Applicant requests that the presentation of the staging area site plan be revised from 90 days to 30 days.

## **WASTE-06**

### **CEC Condition:**

The project owner shall provide a reuse/recycling plan for at least 50% of construction and demolition materials prior to any building or demolition, including closure/decommissioning...Project mobilization and construction shall not proceed until the CPM and AO issue an approval document.

### **CEC Verification:**

At least 60 days prior to the start of any construction or demolition activities, the project owner shall submit a reuse recycling plan to the CPM and AO for review and approval.

### **Applicant's Proposed Verification:**

Comment: Applicant requests that the submittal timeline for the reuse/recycling plan be revised from 60 days to 30 days.

## **COMPLIANCE-07**

### **CEC Condition:**

Monthly Compliance Report: The first Monthly Compliance Report is due one month following the Energy Commission business meeting date upon which the project was approved, unless otherwise agreed to by BLM's AO and the CPM. The first Monthly Compliance Report shall include the AFC number and an initial list of dates for each of the events identified on the Key Events List. The Key Events List Form is found at the end of this section. **(refer to SES Solar Two SA DEIS Conditions for more info)**

### **CEC Verification:**

N/A

### **Applicant's Proposed Condition:**

Change COMPLIANCE-6 in previous conditions to COMPLIANCE-7 (global) for monthly reporting - Some conditions implicitly indicate the Monthly Reporting is to be performed prior to construction and during construction.

## **COMPLIANCE-08**

### **CEC Condition:**

Annual Compliance Report: After construction of each power plant is complete or when a power plant goes into commercial operations, the project owner shall submit Annual Compliance Reports instead of Monthly Compliance Reports. The reports are for each year of commercial operation and are due to BLM's AO and the CPM each year at a date agreed to by BLM's AO and the CPM. Annual Compliance Reports shall be submitted over the life of the project unless otherwise specified by BLM's AO and the CPM. Each Annual Compliance Report shall include the AFC number, identify the reporting period and shall contain the following: **(refer to SES Solar Two SA DEIS Conditions for more info)**

### **CEC Verification:**

N/A

### **Applicant's Proposed Condition:**

Change COMPLIANCE-7 in previous conditions to COMPLIANCE-8 (global) for annual reporting.

Exhibit 39

## 1.1 AIR QUALITY

This section presents a discussion of the potential impacts related to air quality during construction and operations of the SWWRF upgrades related to the Imperial Valley Solar Project.

The discussion below includes the affected environment, environmental consequences, cumulative impacts, mitigation measures, and applicable LORS. Public health is addressed separately in Section 2.16.

### 1.1.1 Affected Environment

The affected environment is substantially unchanged from that presented in the AFC. Specifically, the climate and meteorology discussions in the AFC have not changed. The existing air quality has been updated as shown in Table 2.2-1.

**Table 2.2-1  
Ambient Air Quality Data**

	Units	Most Stringent Ambient Air Quality Standard	2004	2005	2006	2007	2008
<i>Ozone (O<sub>3</sub>)</i>							
Maximum 1-hour concentration	ppm	0.09	0.096	0.122	0.129	0.118	0.135
Maximum 8-hour concentration	ppm	0.070	0.08	0.097	0.101	0.094	0.084
<i>Nitrogen Dioxide (NO<sub>2</sub>)</i>							
Maximum 1-hour concentration	ppm	0.053	0.067	0.065	0.066	0.071	0.081
Annual concentration	ppm	0.030	0.013	0.011	0.011	0.011	0.009
<i>Carbon Monoxide (CO)</i>							
Maximum 1-hour concentration	ppm	20	2	4.2	3.1	2.5	3.1
Maximum 8-hour concentration	ppm	9.0	1.17	2.23	2.59	1.67	1.71
<i>Respirable Particulate Matter (PM<sub>10</sub>)</i>							
Maximum 24-hour concentration	µg/m <sup>3</sup>	50	57	81	146	117	88.2
Annual concentration	µg/m <sup>3</sup>	20	35.4	33.9	43.3	47.5	32.7
<i>Fine Particulate Matter<sup>3</sup> (PM<sub>2.5</sub>)</i>							
Maximum 24-hour concentration	µg/m <sup>3</sup>	35	25.1	22.1	27.1	18.2	17
Annual concentration	µg/m <sup>3</sup>	12	9.7	9.4	8.8	8.5	8.1
<i>Sulfur Dioxide (SO<sub>2</sub>)</i>							
Maximum 24-hour concentration	ppm	0.04	0.003	0.002	0.041	0.004	0.007
Annual concentration	ppm	0.03	0.000	0.000	0.001	0.001	0.001

Notes:

ppm = parts per million; µg/m<sup>3</sup> = micrograms per cubic meter

Sources: CARB 2010a; EPA 2009a.

The Salton Sea Air Basin (SSAB) is currently classified as a nonattainment for the federal and state ozone standards, the federal and state PM<sub>10</sub> standards, and the federal PM<sub>2.5</sub> standards. Table 2.2-2 summarizes the SSAB's federal and state attainment designations for each of the criteria pollutants.

**Table 2.2-2  
SSAB Attainment Classification**

Pollutant	Federal Designation	State Designation
Ozone	Moderate Nonattainment	Nonattainment <sup>1</sup>
Carbon Monoxide	Attainment	Attainment
PM <sub>10</sub>	Serious Nonattainment	Nonattainment
PM <sub>2.5</sub>	Nonattainment <sup>2</sup>	Unclassified
Nitrogen Dioxide	Attainment	Attainment
Sulfur Dioxide	Attainment	Attainment
Lead	Attainment	Attainment
Sulfates (SO <sub>4</sub> )	—	Attainment
Hydrogen Sulfide (H <sub>2</sub> S)	—	Unclassified
Vinyl Chloride	—	Unclassified
Visibility Reducing Particles	—	Unclassified

Source: CARB 2010b. EPA 2009b.

Notes:

<sup>1</sup> CARB has not issued area classifications based on the new state 8-hour standard. The previous classification for the 1-hour O<sub>3</sub> standard was Moderate.

<sup>2</sup> The portion of Imperial County encompassing the urban and surrounding areas of Brawley, Calexico, El Centro, Heber, Holtville, Imperial, Seeley, and Westmorland is designated nonattainment; the remainder of the SSAB is designated unclassifiable/attainment.

### 1.1.2 Environmental Consequences

This section describes the potential air quality impacts from the upgrade to the SWWRF. A discussion of the potential emission sources during construction and operation of the upgrade to the SWWRF is presented in this section. The SWWRF upgrade and associated activities will result in minor changes that will not cause significant construction or operations related impacted to air quality.

The ICAPCD has established significance thresholds to assist lead agencies in determining whether a proposed project may have a significant air quality impact (ICAPCD 2007). Project-related air quality impacts estimated in this environmental analysis would be considered significant if any of the applicable significance thresholds presented in Table 2.2-3 are exceeded.

**Table 2.2-3  
ICAPCD Air Quality Significance Thresholds  
(pounds/day)**

Criteria Pollutant	Construction (pounds/day)	Operation (pounds/day)
Carbon Monoxide (CO)	550	550
Oxides of Nitrogen (NO <sub>x</sub> )	100	55
Volatile Organic Compounds (VOC)	75	55

Oxides of Sulfur (SO <sub>x</sub> )	—	150
Particulate Matter (PM <sub>10</sub> )	150	150
Particulate Matter (PM <sub>2.5</sub> )	—	—

Source: ICAPCD 2007.

For nonattainment pollutants, if emissions exceed the thresholds shown in Table 2.2-3, a project could also have the potential to result in a cumulatively considerable net increase in these pollutants, and thus it could have a cumulatively significant impact on the ambient air quality.

The ICAPCD has not adopted health impact thresholds for CEQA purposes. However, a source of TACs that uses Best Available Control Technology would be considered by the ICAPCD to be acceptable for permitting purposes if its TAC emissions resulted in a lifetime cancer risk less than 10 in one million over a 70-year lifetime for sensitive receptors (Hernandez 2010a).

### 1.1.2.1 Project Construction Emissions

The primary emission sources during construction of the proposed SWWRF Improvements would include exhaust from heavy construction equipment and vehicles and fugitive dust generated in areas disturbed by grading, excavating, and erection of facility structures. Different areas within the proposed SWWRF site would be disturbed at different times over this period. Estimated land disturbance for construction activities is assumed to be five acres.

Emissions from the construction phase of the project were estimated through the use of emission factors from the URBEMIS 2007, Version 9.2.4, land use and air emissions model (Jones & Stokes Associates 2007). For the purposes of modeling, it was assumed that the proposed project would commence in November 2010 and would last approximately 5 months. Construction phases and associated durations would include the following: demolition (3 weeks), rough grading (6 weeks), sludge drying beds (10 weeks), installation of yard piping (18 weeks), concrete work (10 weeks), building construction (8 weeks), architectural coatings (3 weeks), mechanical work (14 weeks), electrical work (12 weeks), and final grading and cleanup (4 weeks). Several of these phases would overlap with one another. For the analysis, it was generally assumed that heavy construction equipment would be operating at the site for approximately 8 hours per day, 5 days per week (22 days per month), during project construction.

Fugitive dust emissions from the construction of the SWWRF would result from:

- Site grading/excavation activities at the construction site;
- Installation of new structures and water line; and
- Onsite travel on unpaved surfaces.

Combustion emissions during construction would result from:

- Exhaust from the off-road construction equipments, including diesel construction equipment used for site grading, excavation, and construction of onsite structures, and water trucks used to control construction dust emissions;

- Exhaust from on-road construction vehicles, including pickup trucks and diesel trucks used to transport workers and materials around the construction site, and from diesel trucks used to deliver concrete, equipment, and construction supplies to the construction site; and,
- Exhaust from vehicles used by workers to commute to the construction site.

The equipment mix anticipated for each phase construction activity was based on typical construction practices, and is indicated in Appendix 2.2. The equipment mix is meant to represent a reasonably conservative estimate of construction activity. To account for fugitive dust control measures in the calculations, it was assumed that the active sites would be watered at least two times daily, resulting in an approximately 55% reduction of particulate matter.

Table 2.2-4 shows the estimated maximum daily construction emissions associated with the construction phase of the proposed project.

**Table 2.2-4  
Estimated Maximum Daily Construction Emissions  
(pounds/day)**

	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Proposed Project Emissions	10.61	58.56	41.48	0.01	26.24	8.12
<i>Pollutant Threshold</i>	<i>75</i>	<i>100</i>	<i>550</i>	—	<i>150</i>	—
Threshold Exceeded?	No	No	No	—	No	—

Source: URBEMIS 2007 Version 9.2.4. See Appendix 2.2 for complete results.

Note:

The emissions shown are the maximum values for any construction year.

As shown, construction emissions would not exceed the ICAPCD's daily thresholds for VOC, NO<sub>x</sub>, CO, or PM<sub>10</sub>. As such, construction of the proposed project would result in a less-than-significant impact. In order to further reduce emissions, mitigation is provided (see Section 2.2.4, Mitigation Measures, Mitigation Measure AQ-1). This mitigation is consistent with the standard mitigation measures identified in the ICAPCD's *CEQA Air Quality Handbook*.

Table 2.2-5 shows the estimated annual construction emissions associated with the construction phase of the proposed project.

**Table 2.2-5  
Estimated Annual Construction Emissions  
(tons/year)**

Construction Year	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2010	0.23	1.47	1.09	0.00	0.38	0.15
2011	0.45	2.57	2.02	0.00	0.48	0.22

Source: URBEMIS 2007 Version 9.2.4. See Appendix 2.2 for complete results.

### 1.1.2.2 Project Operations Emissions

#### 1.1.2.2.1 Wastewater Treatment

The operational VOC emissions from the wastewater treatment processes were estimated using emission factors from the Joint Emission Inventory Program (JEIP) Report (CH2M-Hill 1993). These emission factors are specific to different wastewater processes found at facilities in the SCAQMD. The JEIP was a comprehensive source testing and data analysis program to develop an emission inventory pursuant to SCAQMD Rule 1179 (Publicly Owned Treatment Works Operations). For the analysis of operation, the baseline emissions from the existing SWWRF were based on the current influent flow rate of 0.12 million gallons per day (MGD), average dry weather flow. For the upgraded SWWRF, an influent flow of 0.25 MGD, corresponding to the future treatment capacity, was used. It should be noted, however, that the treatment capacity of the SWWRF will not be increased as a result of the proposed upgrade. The JEIP Report factors for the following treatment processes were used to estimate the process emissions for the existing SWWRF:

- Activated Sludge – Mechanical
- Secondary Clarifiers

The SWWRF upgrade would replace the reaction basins and mechanical aerators with membrane bioreactor (MBR) technology using diffused aeration. The facility would use membrane filters for removal of suspended solids instead of secondary sedimentation basins. Lastly, the upgrade would add new sludge drying beds. Accordingly, the JEIP Report factors for the following treatment processes were used to estimate the process emissions for the upgraded SWWRF:

- Activated Sludge – Diffused Air
- Sludge Drying Bed - Static

The JEIP Report emission factors were expressed in units of pounds of VOC as carbon (C) per MGD per year. VOC emissions were converted to report them as methane (CH<sub>4</sub>)<sup>1</sup>; thus a factor of 1.33 (molecular weight of CH<sub>4</sub> divided by molecular weight of C or 16/12 = 1.33). The emission factors were multiplied by the respective influent flow rates and divided by 365 days per year to calculate the daily emissions for the existing and upgraded SWWRF.

The estimated daily VOC emissions from the existing and upgraded SWWRF are shown in Table 2.2-6, along with the net change in daily emissions resulting from the proposed project. The estimated annual emissions are shown in Table 2.2-7. Detailed calculations are shown in Appendix 2.2.

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<sup>1</sup> While the VOC emissions are reported as CH<sub>4</sub>, they are not likely to be emitted as CH<sub>4</sub>, a greenhouse gas. Aerobic treatment processes are not anticipated to emit CH<sub>4</sub>.

#### 1.1.2.2.2 Motor Vehicles

Operations and maintenance activities would potentially increase staffing by up to two additional staff specific to the upgraded tertiary treatment plant operations and maintenance requirements. In addition, new long-term operational deliveries for the improved SWWRF may include:

- Chemical (Sodium Hypochlorite) delivery: once every 2 or 3 months, scheduled if feasible to coincide with delivery to the nearby water treatment plant;
- Chemical (Citric Acid) delivery: once or twice per year, delivered in a chemical tote on a flatbed truck;
- Additional equipment maintenance deliveries, several times per year depending on upgraded equipment requirements; and
- Sludge removal, estimated at several truckloads annually. Sludge will be stockpiled on the site until sufficiently dried and then hauled to an appropriate landfill or disposal site.

Maximum daily motor vehicle emissions associated with operation of the proposed project were estimated using emission factors derived using CARB's motor vehicle emission inventory program, EMFAC2007 (CARB 2007). EMFAC2007 can generate total emissions and total vehicle-miles traveled for the fleet in a class of motor vehicles within a county, air basin, or air quality management district for a particular study year. For this analysis, Imperial County and calendar year 2011, the anticipated initial year of operation, were selected. Because the age of the vehicles analyzed within this report is unknown, the full range of vehicle model years in EMFAC2007 was used (refer to Appendix 2.2 for detailed calculations). The estimated daily emissions from motor vehicles are shown in Table 2.2-6. The estimated annual emissions are shown in Table 2.2-7.

#### 1.1.2.2.3 Generator Set

The proposed project would utilize a 275-kW (422 horsepower) diesel engine-generator set. It is estimated that the emergency generator set would be utilized approximately 2 hours per day, and a maximum of 50 hours per year. Utilizing current CARB and USEPA engine standards (Tier 3), the emissions resulting from operation of the generator set have been estimated and are included in Table 2.2-6. The estimated annual emissions are shown in Table 2.2-7.

#### 1.1.2.2.4 Emissions Summary

The estimated daily emissions from treatment processes, motor vehicles, and the generator set are shown in Table 2.2-5, along with the net change in daily emissions resulting from the proposed project. As shown in Table 2.2-5, the operational emissions would be less than the ICAPCD significance thresholds, and the operation of the proposed project would have a less-than-significant impact on air quality.

**Table 2.2-6**  
**Estimated Maximum Daily Operational Emissions**  
**(pounds/day)**

	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Existing SWWRF	0.009	—	—	—	—	—
Upgraded SWWRF (Proposed Project)						
Wastewater Treatment	0.034	—	—	—	—	—
Employee Trips	0.03	0.03	0.29	0.00	0.00	0.00
Sludge Removal Trips	0.49	6.20	2.38	0.01	0.23	0.23
Emergency Generator*	1.86	5.58	4.84	0.01	0.28	0.25
<i>Total Emissions</i>	<i>2.41</i>	<i>11.81</i>	<i>7.51</i>	<i>0.02</i>	<i>0.51</i>	<i>0.48</i>
<i>Net Emissions</i>	<i>2.40</i>	<i>11.81</i>	<i>7.51</i>	<i>0.02</i>	<i>0.51</i>	<i>0.48</i>
<i>Pollutant Threshold</i>	<i>55</i>	<i>55</i>	<i>550</i>	<i>150</i>	<i>150</i>	—
Threshold Exceeded?	No	No	No	No	No	—

Source: See Appendix 2.2 for complete results.

\*PM<sub>2.5</sub> emissions assumed to be 90% of PM<sub>10</sub> emissions.

Table 2.2-7 shows the net change in estimated annual emissions associated with operation of the proposed project.

**Table 2.2-7**  
**Estimated Annual Operational Emissions**  
**(tons/year)**

	VOC	NO <sub>x</sub>	CO	SO <sub>x</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
Existing SWWRF	0.003	—	—	—	—	—
Upgraded SWWRF (Proposed Project)						
Wastewater Treatment	0.006	—	—	—	—	—
Employee Trips	0.004	0.004	0.038	0.000	0.000	0.000
Sludge Removal Trips	0.000	0.003	0.001	0.000	0.000	0.000
Delivery Trucks	0.000	0.001	0.001	0.000	0.000	0.000
Emergency Generator*	0.070	0.023	0.060	0.000	0.003	0.003
<i>Total Emissions</i>	<i>0.080</i>	<i>0.031</i>	<i>0.100</i>	<i>0.000</i>	<i>0.003</i>	<i>0.003</i>
<i>Net Emissions</i>	<i>0.077</i>	<i>0.031</i>	<i>0.100</i>	<i>0.000</i>	<i>0.003</i>	<i>0.003</i>

Source: See Appendix 2.2 for complete results.

\*PM<sub>2.5</sub> emissions assumed to be 90% of PM<sub>10</sub> emissions.

### 1.1.2.3 Greenhouse Gas Emissions

In 2006, the California Legislature passed and Governor Schwarzenegger signed the California Global Warming Solutions Act of 2006 (AB32) directing the California Air Resources Board (CARB) to develop

regulations to achieve the goal of reducing statewide greenhouse gas (GHG) emissions to 1990 levels by 2020. Additionally, California's current Renewables Portfolio Standard (RPS) is intended to increase the share of renewable energy to 20% by the end of 2010. Based on Governor Schwarzenegger's Executive Order calling for a statewide 33% RPS, the Climate Change Scoping Plan developed to implement AB 32 anticipates that California will have 33% of its electricity provided by renewable resources by 2020.

GHGs contributed from the proposed project would consist of carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), and nitrous oxide (N<sub>2</sub>O). The proposed project would result in (1) construction GHG emissions associated with construction equipment and vehicle trips and (2) operational GHG emissions associated with the operation of motor vehicles, the emergency generator, and electrical generation. The proposed project would assist in the attainment of the state's goals by supplying recycled water to the proposed Imperial Valley Solar Two Project, thereby expediting the generation of renewable energy in California in place of a typical fossil-fuel-fired power plant. Excess reclaimed water may also be available for other reclaimed uses within the Seeley CWD service area to conserve the use of potable water. Additionally, the proposed project would utilize premium efficiency motors to conserve energy associated with operation of the upgraded SWWRF. The project would therefore be consistent with state initiatives aimed at reducing GHG emissions, and impacts with respect to GHG emissions and climate change would be less than significant.

#### *1.1.2.4 Odors*

The upgrades to the SWWRF may have the potential to cause more odorous activities, due to the tertiary treatment of additional wastewater. Although, since the existing facility already has odorous activities, generally small increases in odorous activities are not perceptible to most people. Thus, it is expected that odors from the SWWRF Project will be similar to those from the existing facility with no potentially significant impacts.

#### **1.1.3 Cumulative Impacts**

Since the SWWRF is located approximately 13 miles from the Imperial Valley Solar Project, the potential air quality impacts from each portion of the project will not be additive. Thus, no additional cumulative analysis will be conducted for the SWWRF project. The AFC and subsequent responses to Data Requests determined that no significant cumulative impacts are associated with the Imperial Valley Solar Project, and none are identified as part of this analysis.

CEQA requires that environmental documents evaluate potential cumulative impacts, and while no cumulative impacts between the SWWRF and the Imperial Valley Solar Project are anticipated, there are potential cumulative impacts related to a reduction in water entering the New River and ultimately the Salton Sea, potentially increasing exposure of sea bed leading to windborne particulates. While on a project specific basis, the water level reduction from the SWWRF would not create a noticeable change in the environment, as discussed above this reduction must be evaluated in light of several closely related projects that may cause a cumulatively considerable impact when the SWWRF's incremental effects are included.

The effect of reduced inflow volumes from the New River, as well as other sources, on the Salton Sea due to these potential cumulative projects would ultimately reduce the total surface area of the Salton Sea and

expose multiple acres of land that are currently submerged by water (playa). The potential effect would be the exposure of this sediment and a resulting increase in potential windborne sediments and dust suspension.

Similar to the findings from the Draft and Final IID Water Conservation and Transfer Project EIR/EIS, the removal of the current levels of effluent that is currently being discharged into the New River from the SWWRF would translate to only a minimal impact, and would not noticeably or substantially reduce the existing water levels of the Salton Sea. Currently, the SWWRF is only operating at a permitted 200,000 gallons per day (gpd) level and is only capable of treating that amount. The SWWRF currently discharges effluent treated to secondary standards via an unlined channel to the New River. Current influent flow rate to the treatment facility and outflow to the New River is approximately 112,000 gpd based upon recorded effluent flow data. As previously discussed, over the past several years, discharge from the facility has exceeded allowed effluent limits, and the District has received notices of violations. (URS September 2009).

Similar to the projects addressed in the cumulative section of the IID Water Conservation and Transfer Project EIR/EIS, the existing level of water entering the New River from the current SWWRF operations is not sufficient to either directly, indirectly, or cumulatively create any significant new impacts beyond what has already been addressed in the identified environmental documents. The current 120,000 gpd corresponds to approximately .34 acre-feet of daily water, or approximately 124 acre-feet per year (afy). While more in-depth hydrology and biology studies are being completed at this time, 124 afy is not anticipated to have a noticeable difference on current or proposed Salton Sea water levels. No cumulative air quality impacts are anticipated due to the SWWRF project related to the removal of the existing effluent entering the New River, beyond the direct and indirect significant and unavoidable impacts attributed to the IID Water Conservation and Transfer Project regarding an increase in exposed playa due to Salton Sea water level reductions.

#### 1.1.4 Mitigation Measures

The only additional mitigation measures that are recommended based on the SWWRF upgrades are related to dust control mitigation measures to limit fugitive dust emissions. The District will ensure that the contractor manages and controls fugitive dust pursuant to local requirements. :

#### 1.1.5 LORS Compliance

Most of the LORS presented in Section 5.2.5 of the Imperial Valley Solar Project AFC are applicable to the SWWRF upgrade Project. Newly proposed and adopted LORS are discussed below and summarized in Table 2.2-9. Where applicable, the SWWRF Project will comply with these LORS.

**Table 2.2-9  
Laws, Ordinances, Regulations, and Standards**

Applicable LORS	Description
<i>Federal</i>	
40 Code of Federal Regulations	Nonattainment New Source Review (NSR) requires a permit and requires Best Available

**Table 2.2-9  
Laws, Ordinances, Regulations, and Standards  
(Continued)**

Applicable LORS	Description
(CFR) Parts 51 and 52	Control Technology (BACT) and offsets for major sources. Permitting and enforcement delegated to ICAPCD. Prevention of Significant Deterioration (PSD) requires major sources or major modifications to major sources to obtain permits for attainment pollutants.
40 CFR Part 60	New Source Performance Standards (NSPS), Subpart III Standards of Performance for Stationary Compression Ignition Internal Combustion Engines. Establishes emission standards for compression-ignition internal combustion engines.
<i>State</i>	
Health and Safety Code (HSC) Section 40910-40930	Permitting of source needs to be consistent with Air Resources Board (ARB) approved Clean Air Plans.
HSC Section 41700	Restricts emissions that would cause nuisance or injury.
California Code of Regulations (CCR) Section 93115	Airborne Toxic Control Measure (ATCM) for Stationary Compression Ignition Engines. Limits the types of fuels allowed, establishes maximum emission rates, and establishes recordkeeping requirements on stationary compression-ignition engines.
<i>Local</i>	
ICAPCD Rule 201 Permits	Requires an Authority to Construct before construction of an emission source occurs. Prohibits operation of any equipment that emits or controls air pollutants without first obtaining a Permit to Operate.
ICAPCD Rule 207 New and Modified Stationary Source Review	Specifies BACT and offsets requirements for a new or modified emissions unit that has potential to emit any regulated pollutants.
ICAPCD Rule 400 Fuel Burning Equipment – Oxides of Nitrogen	Limits the emission levels of oxides of nitrogen from any source to no more than 140 lbs/hr of NO <sub>x</sub> , calculated as NO <sub>2</sub> .
ICAPCD Rule 401 Opacity of Emissions	Limits the opacity of discharges from any single source to less than 20% opacity or No. 1 on the Ringlemann Chart.
ICAPCD Rule 403 General Limitations on the Discharge of Air Contaminants	Limits the concentration of the discharge of air contaminants, combustion contaminants, and particulate matter into the atmosphere.
ICAPCD Rule 405 Sulfur Compounds Emission Standards, Limitations, and Prohibitions	Limits the concentration of the discharge of sulfur compounds and the sulfur content of liquid fuels.
ICAPCD Rule 407 Nuisances	Prohibits the discharge from any source of any air contaminant that may cause injury, detriment, nuisance, or annoyance to any considerable number of persons or the public, or which endangers such persons or public or which may cause injury or damage to business or property.
ICAPCD Rule VIII Fugitive Dust Rules 800 through 806	These rules identify mitigation requirements to reduce fugitive dust emissions.
ICAPCD Rule 1101 New Source Performance Standards	Incorporates the Federal NSPS (40 CFR 60) rules by reference.

### 1.1.5.1 Federal

#### National Ambient Air Quality Standards

On January 22, 2010, the U.S. Environmental Protection Agency (EPA) announced a new hourly NO<sub>2</sub> standard of 100 parts per billion (ppb) based on the 3-year average of the 98<sup>th</sup>-percentile of the annual distribution of daily maximum 1-hour concentrations. The final rule for the new hourly NAAQS was published in the Federal Register on February 9, 2010, and became effective on April 12, 2010.

On December 8, 2009, EPA issued a proposed rule for a new one-hour SO<sub>2</sub> standard within the range of 50-100 ppb, based on the three-year average of the annual 99<sup>th</sup> percentile (or 4<sup>th</sup> highest) of one-hour daily maximum concentrations. The new rule is expected to be effective in June 2010. The EPA also proposes to revoke both the existing 24-hour and annual primary SO<sub>2</sub> standards.

On January 19, 2010, EPA issues a proposed rule to lower the eight-hour primary standard, which was at 0.075 ppm in the 2008 final rule, to a lower level within the range 0.060 to 0.070 parts per million (ppm). The new rule is expected to be effective in August 2010.

#### Greenhouse Gas Regulations

On July 11, 2008, the U.S. EPA gave *Advance Notice of Proposed Rulemaking: Regulating Greenhouse Gas Emissions under the Clean Air Act* (CAA). It reviewed various CAA provisions that may be applicable to regulate GHGs and examined the issues that regulating GHGs under those provisions may raise. It also provided information regarding potential regulatory approaches and technologies for reducing GHG emissions and raised issues relevant to possible legislation and the potential for overlap between legislation and CAA regulation. The Congress instructed the U.S. EPA to publish a proposed mandatory greenhouse gas rule using its authority under the existing CAA in September 2008 and a final rule by June 2009.

The Proposed Mandatory Greenhouse Gas Reporting Rule public comment period ended June 9, 2009. The comment period was open for 60 days, following publication of the proposed rule in the Federal Register, April 10, 2009. In general, U.S. EPA proposes that suppliers of fossil fuels or industrial greenhouse gases, manufacturers of vehicles, and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions submit annual reports to U.S. EPA. These reports will serve to inform future policy decisions. The gases covered by the proposed rule are carbon dioxide (CO<sub>2</sub>), methane (CO<sub>4</sub>), nitrous oxide (N<sub>2</sub>), hydrofluorocarbons (HFC), perfluorocarbons (PFC), sulfur hexafluoride (SF<sub>6</sub>), and other fluorinated gases including nitrogen trifluoride (NF<sub>3</sub>) and hydrofluorinated ethers (HFE).

On September 30, 2009, U.S. EPA published proposed rules addressing applicability thresholds for GHG emissions under Prevention of Significant Deterioration (PSD) and Title V permitting programs and to set a PSD significance level for GHG emissions. These proposed applicability levels (between 10,000 and 25,000 metric tons per year of carbon dioxide equivalents) would be phased in during the next six years. These rules became final on December 29, 2009.

### *1.1.5.2 State*

#### Greenhouse Gas Regulations

On September 30, 2008, Governor Arnold Schwarzenegger signed Senate Bill (SB) 375 (Steinberg). SB 375 focuses on housing and transportation planning decisions to reduce fossil fuel consumption and conserve farmlands and habitat. This legislation is important to achieving AB 32 goals because greenhouse gas emissions associated with land use, which includes transportation, are the single largest source of emissions in California.

On October 24, 2008, CARB released the Preliminary Draft Staff Proposal: Recommended Approaches for Setting Interim Significant Thresholds for Greenhouse Gases under CEQA recommending CHC-related significance thresholds which lead agencies can use in the significance determination pursuant to OPR's request (CARB 2008). The preliminary interim thresholds are for two sectors: 1) industrial projects, and 2) residential and commercial projects.

On December 30, 2009, Natural Resources Agency released revised CEQA guidelines for implementation of CEQA, which include guidance for the assessment of GHG emissions. These Guideline amendments are slated to take effect in mid-March 2010. The amended CEQA Guidelines emphasize the lead agencies have the discretion to determine appropriate significance thresholds for evaluating GHG impacts that are supported by substantial evidence in the record.

## 5.7 Greenhouse Gas Emissions

### 5.7.1 Introduction

This analysis includes a discussion of applicable plans, policies and regulations, existing conditions, identification and justification of significance thresholds, and a determination of whether greenhouse gas (GHG) emissions impacts are considered significant from a CEQA perspective or other applicable standard.

### 5.7.2 Methodology

The impact analysis evaluates project-related GHG emissions for both short-term (construction) and long-term (operational) impacts. Preparation of this section is based primarily on information contained in the included calculation sheets.

### 5.7.3 Existing Conditions

#### Applicable Plans, Policies, and Regulations

##### *Federal*

##### Massachusetts v. U.S. Environmental Protection Agency

Under the Bush Administration, the U.S. Environmental Protection Agency (EPA) had not regulated greenhouse gases (GHGs) under the federal Clean Air Act based on the assertion that “(1) the Act does not authorize it to issue mandatory regulations to address global climate change, and (2) even if it had the authority to set GHG emission standards, it would have been unwise to do so at that time because a causal link between GHGs and the increase in global surface air temperatures was not unequivocally established” (*Massachusetts v. EPA* 2007). In *Massachusetts v. EPA*, however, the Supreme Court held that EPA has the statutory authority under Section 202 of the Clean Air Act to regulate GHGs from new motor vehicles because GHGs meet the Clean Air Act definition of an air pollutant. The court did not hold that the EPA was required to regulate GHG emissions; however, it indicated that the agency must decide whether GHGs from motor vehicles cause or contribute to air pollution that is reasonably anticipated to endanger public health or welfare. Upon the final decision, President Bush signed Executive Order 13432 on May 14, 2007, directing the EPA, along with the Departments of Transportation, Energy, and Agriculture, to initiate a regulatory process that responds to the Supreme Court’s decision.

In *Massachusetts v. EPA*, the Supreme Court directed the Administrator to determine whether GHG emissions from new motor vehicles cause or contribute to air pollution that may reasonably be anticipated to endanger public health or welfare, or whether the science is too uncertain to

make a reasoned decision. In making these decisions, the Administrator is required to follow the language of Section 202(a) of the Clean Air Act. On December 7, 2009, the Administrator signed a final rule with two distinct findings regarding GHGs under Section 202(a) of the Clean Air Act:

- The Administrator found that elevated concentrations of GHGs—carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), and sulfur hexafluoride (SF<sub>6</sub>)—in the atmosphere threaten the public health and welfare of current and future generations. This is referred to as the endangerment finding.
- The Administrator further found the combined emissions of GHGs—CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, and HFCs—from new motor vehicles and new motor vehicle engines contribute to the GHG air pollution that endangers public health and welfare. This is referred to as the cause or contribute finding.

These two findings were necessary to establish the foundation for regulation of GHGs from new motor vehicles as air pollutants under the Clean Air Act.

### *State*

#### Senate Bill 1078

Approved by Governor Davis in September 2002, Senate Bill (SB) 1078 established the Renewal Portfolio Standard program, which requires an annual increase in renewable generation by the utilities equivalent to at least 1% of sales, with an aggregate goal of 20% by 2017. This goal was subsequently accelerated, requiring utilities to obtain 20% of their power from renewable sources by 2010 (see SB 107 and Executive Order S-14-08).

#### Executive Order S-3-05

In June 2005, Governor Schwarzenegger established California's GHG emissions reduction targets in Executive Order S-3-05. The Executive Order established the following goals: GHG emissions should be reduced to 2000 levels by 2010; GHG emissions should be reduced to 1990 levels by 2020; and GHG emissions should be reduced to 80% below 1990 levels by 2050. The Secretary of the California Environmental Protection Agency (CalEPA) is required to coordinate efforts of various agencies in order to collectively and efficiently reduce GHGs. Representatives from several state agencies comprise the Climate Action Team. The Climate Action Team is responsible for implementing global warming emissions reduction programs. The Climate Action Team fulfilled its report requirements through the March 2006 Climate Action Team Report to Governor Schwarzenegger and the legislature (California Climate Action Team 2006). A second biennial report was released in April 2009.

The 2009 Draft Climate Action Team Report (California Climate Action Team 2009) expands on the policy oriented in the 2006 assessment. The 2009 report provides new information and scientific findings regarding the development of new climate and sea-level projections using new information and tools that have recently become available, evaluating climate change within the context of broader soil changes, such as land use changes and demographics. The 2009 report also identifies the need for additional research in several different aspects that affect climate change in order to support effective climate change strategies. The aspects of climate change that were discussed that need future research include vehicle and fuel technologies, land use and smart growth, electricity and natural gas, energy efficiency, renewable energy and reduced carbon energy sources, low-GHG technologies for other sectors, carbon sequestration, terrestrial sequestration, geologic sequestration, economic impacts and considerations, social science, and environmental justice.

### Senate Bill 107

Approved by Governor Schwarzenegger on September 26, 2006, SB 107 requires investor-owned utilities such as Pacific Gas and Electric, Southern California Edison, and San Diego Gas and Electric to generate 20% of their electricity from renewable sources by 2010. Previously, state law required that this target be achieved by 2017 (see SB 1078).

### Assembly Bill 32

The California Global Warming Solutions Act of 2006 (AB 32) was signed into law by Governor Schwarzenegger on September 27, 2006. AB 32's GHG emissions limit is equivalent to the 1990 levels, which are to be achieved by 2020. The 1990 levels are approximately 30% below "business-as-usual." Business-as-usual conditions represent what would occur in the absence of any GHG reduction actions. The California Air Resources Board (CARB) estimates the statewide 2020 business-as-usual GHG emissions will be 596 million metric tons of CO<sub>2</sub> equivalent (MMTCO<sub>2</sub>E).

CARB has been assigned to carry out and develop the programs and requirements necessary to achieve the goals of AB 32. Under AB 32, CARB must adopt regulations requiring the reporting and verification of statewide GHG emissions. This program will be used to monitor and enforce compliance with the established standards. CARB is also required to adopt rules and regulations to achieve the maximum technologically feasible and cost-effective GHG emission reductions. AB 32 allows CARB to adopt market-based compliance mechanisms to meet the specified requirements. Finally, CARB is ultimately responsible for monitoring compliance and enforcing any rule, regulation, order, emission limitation, emission reduction measure, or market-based compliance mechanism adopted.

The first action under AB 32 resulted in the adoption of a report listing early action GHG emission reduction measures on June 21, 2007. The early actions include three specific GHG control rules. On October 25, 2007, CARB approved an additional six early action GHG reduction measures under AB 32. The original three adopted early action regulations meeting the narrow legal definition of “discrete early action GHG reduction measures” include the following:

- A low-carbon fuel standard to reduce the “carbon intensity” of California fuels
- Reduction of refrigerant losses from motor vehicle air conditioning system maintenance to restrict the sale of “do-it-yourself” automotive refrigerants
- Increased methane capture from landfills to require broader use of state-of-the-art methane capture technologies.

The additional six early action regulations, which were also considered “discrete early action GHG reduction measures,” include the following:

1. Reduction of aerodynamic drag, and thereby fuel consumption, from existing trucks and trailers through retrofit technology
2. Reduction of auxiliary engine emissions of docked ships by requiring port electrification
3. Reduction of perfluorocarbons from the semiconductor industry
4. Reduction of propellants in consumer products (e.g., aerosols, tire inflators, and dust removal products)
5. Require that all tune-up, smog check, and oil change mechanics ensure proper tire inflation as part of overall service in order to maintain fuel efficiency
6. Restriction on the use of SF<sub>6</sub> from nonelectricity sectors if viable alternatives are available.

According to CARB, the electric power generation industry is the primary user of SF<sub>6</sub>, a synthetic gas used as an insulating medium (CARB 2010a). The use of SF<sub>6</sub>, a highly potent GHG with a global warming potential (GWP) 23,900 times greater than CO<sub>2</sub>, is problematic because fugitive emissions can escape older gas-insulated substations and switchgear through insulation leaks. The most promising and cost-effective strategies to reduce SF<sub>6</sub> emissions is through the installation of new equipment, technologies, and practices including leak detection, repair, use of recycling equipment, and employer/employee training (CARB 2010a). On February 25, 2010, CARB adopted a regulation that requires gas-insulated substations and switchgear owners to reduce their SF<sub>6</sub> emission rate by 1% per year over a 10-year period, from 2011 to 2020. Beginning January 1, 2020, the maximum annual emission rate would be at 1%. The measure

would also require gas-insulated substations and switchgear owners to (1) annually report their SF<sub>6</sub> emissions, (2) annually report their emission rate, (3) provide a complete inventory of all gas insulated switchgear and their SF<sub>6</sub> capacities, (4) produce a SF<sub>6</sub> gas container inventory, and (5) keep all information current for CARB enforcement staff inspection and verification.

As required under AB 32, on December 6, 2007, CARB approved the 1990 GHG emissions inventory, thereby establishing the emissions limit for 2020. The 2020 emissions limit was set at 427 MMTCO<sub>2</sub>E. In addition to the 1990 emissions inventory, CARB also adopted regulations requiring mandatory reporting of GHGs for large facilities that account for 94% of GHG emissions from industrial and commercial stationary sources in California. About 800 separate sources that fall under the new reporting rules and include electricity generating facilities, electricity retail providers and power marketers, oil refineries, hydrogen plants, cement plants, cogeneration facilities, and other industrial sources that emit CO<sub>2</sub> in excess of specified thresholds. The proposed project does not fall under these new reporting rules.

On December 11, 2008, CARB approved the required Climate Change Scoping Plan (Scoping Plan) to achieve the goals of AB 32. The Scoping Plan establishes an overall framework for the measures that will be adopted to reduce California's GHG emissions. The Scoping Plan evaluates opportunities for sector-specific reductions, integrates all CARB and Climate Action Team early actions and additional GHG reduction measures by both entities, identifies additional measures to be pursued as regulations, and outlines the role of a cap-and-trade program. Additional development of these measures and adoption of the appropriate regulations will occur over the next 2 years, becoming effective by January 1, 2012. Emission reductions from the recommended measures in the Scoping Plan total 169 MMTCO<sub>2</sub>E, which will allow California to attain the 2020 emissions limit of 427 MMTCO<sub>2</sub>E, a 30% reduction from CARB's 2020 estimated statewide business-as-usual GHG emissions of 596 MMTCO<sub>2</sub>E. The key elements of the Scoping Plan include the following (CARB 2010b):

- Expanding and strengthening existing energy efficiency programs as well as building and appliance standards
- Achieving a statewide renewable energy mix of 33%
- Developing a California cap-and-trade program that links with other Western Climate Initiative partner programs to create a regional market system and caps sources contributing 85% of California's GHG emissions
- Establishing targets for transportation-related GHG emissions for regions throughout California, and pursuing policies and incentives to achieve those targets
- Adopting and implementing measures pursuant to existing state laws and policies, including California's clean car standards, goods movement measures, and the Low

### Carbon Fuel Standard

- Creating targeted fees, including a public goods charge on water use, fees on high global warming potential gases, and a fee to fund the administrative costs of the State of California's long-term commitment to AB 32 implementation.

California's retail electric load is currently comprised of approximately 12% renewable energy resources. Renewable energy includes, but is not limited to, wind, solar, geothermal, small hydroelectric, biomass, anaerobic digestion, and landfill gas (CARB 2008). California's current Renewables Portfolio Standard (RPS) is intended to increase that share to 20% by the end of 2010. Based on Governor Schwarzenegger's call for a statewide 33% RPS, the Scoping Plan anticipates that California will have 33% of its electricity provided by renewable resources by 2020.

### Senate Bill 1368

In September 2006, Governor Schwarzenegger signed SB 1368, which requires the California Energy Commission (CEC) to develop and adopt regulations for GHG emissions performance standards for the long-term procurement of electricity by local, publicly owned utilities. These standards must be consistent with the standards adopted by the California Public Utilities Commission (CPUC). This effort will help to protect energy customers from financial risks associated with investments in carbon-intensive generation by allowing new capital investments in power plants whose GHG emissions are as low or lower than new combined-cycle natural gas plants, by requiring imported electricity to meet GHG performance standards in California and requiring that the standards be developed and adopted in a public process.

### Senate Bill 97

In August 2007, the legislature enacted SB 97 (Dutton), which directs the Governor's Office of Planning and Research (OPR) to develop guidelines under the California Environmental Quality Act (CEQA) for the mitigation of GHG emissions. OPR was to develop proposed guidelines by July 1, 2009, and the Natural Resources Agency was directed to adopt guidelines by January 1, 2010.

On June 19, 2008, OPR issued a technical advisory as interim guidance regarding the analysis of GHG emissions in CEQA documents (OPR 2008). The advisory indicated that a project's GHG emissions, including those associated with vehicular traffic, energy consumption, water usage, and construction activities, should be identified and estimated. The advisory further recommended that the lead agency determine significance of the impacts and impose all mitigation measures that are necessary to reduce GHG emissions to a less-than-significant level.

On April 13, 2009, OPR submitted to the Natural Resources Agency its proposed amendments to the state CEQA Guidelines relating to GHG emissions. On July 3, 2009, the Natural Resources Agency commenced the Administrative Procedure Act rulemaking process for certifying and adopting the proposed amendments, starting the public comment period.

The Natural Resources Agency adopted CEQA Guidelines Amendments on December 30, 2009, and transmitted them to the Office of Administrative Law on December 31, 2009. On February 16, 2010, the Office of Administrative law completed its review and filed the amendments with the secretary of state. The amendments became effective on March 18, 2010. The amended guidelines establish several new CEQA requirements concerning the analysis of GHGs, including the following:

- Requiring a lead agency to “make a good faith effort, based to the extent possible on scientific and factual data, to describe, calculate or estimate the amount of greenhouse gas emissions resulting from a project” (Section 15064(a))
- Providing a lead agency with the discretion to determine whether to use quantitative or qualitative analysis or performance standards to determine the significance of greenhouse gas emissions resulting from a particular project (Section 15064.4(a))
- Requiring a lead agency to consider the following factors when assessing the significant impacts from greenhouse gas emissions on the environment:
  - The extent to which the project may increase or reduce greenhouse gas emissions as compared to the existing environmental setting.
  - Whether the project emissions exceed a threshold of significance that the lead agency determines applies to the project.
  - The extent to which the project complies with regulations or requirements adopted to implement a statewide, regional, or local plan for the reduction or mitigation of greenhouse gas emissions. (Section 15064.4(b))
  - Allowing lead agencies to consider feasible means of mitigating the significant effects of greenhouse gas emissions, including reductions in emissions through the implementation of project features or off-site measures, including offsets that are not otherwise required (Section 15126.4(c)).

The amended guidelines also establish two new guidance questions regarding GHG emissions in the Environmental Checklist set forth in CEQA Guidelines Appendix G:

- Would the project generate greenhouse gas emissions, either directly or indirectly, that

may have a significant impact on the environment?

- Would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?

The adopted amendments do not establish a GHG emission threshold, and instead allow a lead agency to develop, adopt, and apply its own thresholds of significance or those developed by other agencies or experts.<sup>1</sup> The Natural Resources Agency also acknowledges that a lead agency may consider compliance with regulations or requirements implementing AB 32 in determining the significance of a project's GHG emissions.<sup>2</sup>

#### Executive Order S-13-08

Governor Schwarzenegger issued Executive Order S-13-08 on November 14, 2008. The Executive Order is intended to hasten California's response to the impacts of global climate change, particularly sea-level rise. It directs state agencies to take specified actions to assess and plan for such impacts. It directs the Resource Agency, in cooperation with the California Department of Water Resources, CEC, California's coastal management agencies, and the Ocean Protection Council to request the National Academy of Sciences to prepare a Sea Level Rise Assessment Report by December 1, 2010. The Ocean Protection Council, California Department of Water Resources, and CEC, in cooperation with other state agencies are required to conduct a public workshop to gather information relevant to the Sea Level Rise Assessment Report. The Business, Transportation, and Housing Agency was ordered to assess the vulnerability of the state's transportation systems to sea-level rise within 90 days of the order. The OPR and the Resources Agency are required to provide land use planning guidance related to sea-level rise and other climate change impacts. The order also requires the other state agencies to develop adaptation strategies by June 9, 2009, to respond to the impacts of global climate change that are predicted to occur over the next 50 to 100 years. A discussion draft adaptation strategies report was released in August 2009, and the final adaptation strategies report was issued in December 2009. To assess the state's vulnerability, the report summarizes key climate change impacts to the state for the following areas: public health, ocean and coastal resources, water supply and flood protection, agriculture, forestry, biodiversity and habitat, and transportation and energy infrastructure. The report then recommends strategies and specific responsibilities related to water supply, planning and land use, public health, fire protection, and energy conservation.

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<sup>1</sup> "The CEQA Guidelines do not establish thresholds of significance for other potential environmental impacts, and SB97 did not authorize the development of a statement threshold as part of this CEQA Guidelines update. Rather, the proposed amendments recognize a lead agency's existing authority to develop, adopt and apply their own thresholds of significance or those developed by other agencies or experts" (California Natural Resources Agency 2009, p. 84).

<sup>2</sup> "A project's compliance with regulations or requirements implementing AB32 or other laws and policies is not irrelevant. Section 15064.4(b)(3) would allow a lead agency to consider compliance with requirements and regulations in the determination of significance of a project's greenhouse gas emissions" (California Natural Resources Agency 2009, p. 100).

### Executive Order S-14-08

On November 17, 2008, Governor Schwarzenegger issued Executive Order S-14-08. This Executive Order focuses on the contribution of renewable energy sources to meet the electrical needs of California while reducing the GHG emissions from the electrical sector. The governor's order requires that all retail suppliers of electricity in California serve 33% of their load with renewable energy by 2020. Furthermore, the order directs state agencies to take appropriate actions to facilitate reaching this target. The Resources Agency, through collaboration with the CEC and California Department of Fish and Game (CDFG), is directed to lead this effort. Pursuant to a Memorandum of Understanding between the CEC and CDFG creating the Renewable Energy Action Team, these agencies will create a "one-stop" process for permitting renewable energy power plants.

### Executive Order S-21-09

On September 15, 2009, Governor Schwarzenegger issued Executive Order S-21-09. This Executive Order directed CARB to adopt a regulation consistent with the goal of Executive Order S-14-08 by July 31, 2010. CARB is further directed to work with the CPUC and CEC to ensure that the regulation builds upon the Renewable Portfolio Standard program and is applicable to investor-owned utilities, publicly owned utilities, direct access providers, and community choice providers. Under this order, CARB is to give the highest priority to those renewable resources that provide the greatest environmental benefits with the least environmental costs and impacts on public health and that can be developed most quickly in support of reliable, efficient, and cost-effective electricity system operations.

### **Existing Conditions**

Gases that trap heat in the atmosphere are often called GHGs. The greenhouse effect traps heat in the troposphere through a three-fold process: Short-wave radiation emitted by the Sun is absorbed by the Earth; the Earth emits a portion of this energy in the form of long-wave radiation; and GHGs in the upper atmosphere absorb this long-wave radiation and emit this long-wave radiation into space and toward the Earth. This "trapping" of the long-wave (thermal) radiation emitted back toward the Earth is the underlying process of the greenhouse effect. Principal GHGs include carbon dioxide CO<sub>2</sub>, CH<sub>4</sub>, N<sub>2</sub>O, ozone (O<sub>3</sub>), and water vapor (H<sub>2</sub>O). Some GHGs, such as CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O, occur naturally and are emitted into the atmosphere through natural processes and human activities. Of these gases, CO<sub>2</sub> and CH<sub>4</sub> are emitted in the greatest quantities from human activities. Emissions of CO<sub>2</sub> are largely by-products of fossil fuel combustion, whereas CH<sub>4</sub> results mostly from off-gassing associated with agricultural practices and landfills. Man-made GHGs, which have a much greater heat-absorption potential than CO<sub>2</sub>, include fluorinated gases, such as HFCs, PFC, SF<sub>6</sub>, and nitrogen trifluoride (NF<sub>3</sub>), which are associated with certain industrial products and processes (California Climate Action Team 2006).

The greenhouse effect is a natural process that contributes to regulating the Earth's temperature. Without it, the temperature of the Earth would be about 0°F (−18°C) instead of its present 57°F (14°C). Global climate change concerns are focused on whether human activities are leading to an enhancement of the greenhouse effect (National Climatic Data Center 2008).

The effect each GHG has on climate change is measured as a combination of the volume or mass of its emissions plus the potential of a gas or aerosol to trap heat in the atmosphere, known as its GWP. The GWP varies between GHGs; for example, the GWP of CH<sub>4</sub> is 21, and the GWP of N<sub>2</sub>O is 310. Total GHG emissions are expressed as a function of how much warming would be caused by the same mass of CO<sub>2</sub>. Thus, GHG gas emissions are typically measured in terms of pounds or tons of “CO<sub>2</sub> equivalent” (CO<sub>2</sub>E).

According to CARB, some of the potential impacts in California of global warming may include loss in snow pack, sea level rise, more extreme heat days per year, more high O<sub>3</sub> days, more large forest fires, and more drought years (CARB 2006). Several recent studies have attempted to explore the possible negative consequences that climate change, left unchecked, could have in California. These reports acknowledge that climate scientists' understanding of the complex global climate system, and the interplay of the various internal and external factors that affect climate change, remains too limited to yield scientifically valid conclusions on such a localized scale. Substantial work has been done at the international and national level to evaluate climatic impacts, but far less information is available on regional and local impacts.

The primary effect of global climate change has been a rise in average global tropospheric temperature of 0.2°C per decade, determined from meteorological measurements worldwide between 1990 and 2005. Climate change modeling using 2000 emission rates shows that further warming would occur, which would induce further changes in the global climate system during the current century. Changes to the global climate system and ecosystems and to California would include, but would not be limited to, the following:

- The loss of sea ice and mountain snow pack resulting in higher sea levels and higher sea surface evaporation rates with a corresponding increase in tropospheric water vapor due to the atmosphere's ability to hold more water vapor at higher temperatures (IPCC 2007)
- Rise in global average sea level primarily due to thermal expansion and melting of glaciers, ice caps, and the Greenland and Antarctic ice sheets (IPCC 2007)
- Changes in weather that include widespread changes in precipitation, ocean salinity, and wind patterns, and more energetic aspects of extreme weather including droughts, heavy precipitation, heat waves, extreme cold, and the intensity of tropical cyclones (IPCC 2007)
- Decline of Sierra snowpack, which accounts for approximately half of the surface water storage in California, by 70% to as much as 90% over the next 100 years (California

Climate Action Team 2006)

- Increase in the number of days conducive to O<sub>3</sub> formation by 25% to 85% (depending on the future temperature scenario) in high O<sub>3</sub> areas of Los Angeles and the San Joaquin Valley by the end of the 21st century (California Climate Action Team 2006)
- High potential for erosion of California's coastlines and sea water intrusion into the Delta and levee systems due to the rise in sea level (California Climate Action Team 2006).

### Contributions to Greenhouse Gas Emissions

According to the 2004 GHG inventory data compiled by CARB for the California 1990 GHG emissions inventory, California emitted emissions of 484 MMTCO<sub>2</sub>E, including emissions resulting from out-of-state electrical generation (CARB 2007a). The primary contributors to GHG emissions in California are transportation, electric power production from both in-state and out-of-state sources, industry, agriculture and forestry, and other sources, which include commercial and residential activities. These primary contributors to California's GHG emissions and their relative contributions in 2004 are presented in Table 5.7-1.

**Table 5.7-1  
Greenhouse Gas Sources in California**

Source Category	Annual GHG Emissions (MMTCO <sub>2</sub> E)	Percent of Total
Agriculture	27.9	5.8
Commercial uses	12.8	2.6
Electricity generation	119.8 <sup>a</sup>	24.7
Forestry (excluding sinks)	0.2	0.0
Industrial uses	96.2	19.9
Residential uses	29.1	6.0
Transportation	182.4	37.7
Other <sup>b</sup>	16.0	3.3
<b>Totals</b>	<b>484.4</b>	<b>100.0</b>

Notes:

a Includes emissions associated with imported electricity, which account for 61.3 MMTCO<sub>2</sub>E annually.

b Unspecified combustion and use of ozone-depleting substances.

Source: CARB 2007a.

### 5.7.4 Thresholds of Significance

The following significance criteria, included in Appendix G of the CEQA Guidelines, will determine the significance of greenhouse gas (GHG) emissions impacts. Impacts related to GHG emissions would be significant if the proposed project would:

- A) Generate greenhouse gas emissions, either directly or indirectly, that may have a

significant impact on the environment

- B) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases.

Neither the State of California nor the Imperial County Air Pollution Control District (ICAPCD) has adopted emission-based thresholds for GHG emissions under the California Environmental Quality Act (CEQA). The Governor's Office of Planning and Research's (OPR's) Technical Advisory titled *CEQA and Climate Change: Addressing Climate Change through California Environmental Quality Act (CEQA) Review* states that "public agencies are encouraged but not required to adopt thresholds of significance for environmental impacts. Even in the absence of clearly defined thresholds for GHG emissions, the law requires that such emissions from CEQA projects must be disclosed and mitigated to the extent feasible whenever the lead agency determines that the project contributes to a significant, cumulative climate change impact" (OPR 2008, p. 4). Furthermore, the advisory document indicates in the third bullet item on page 6 that "in the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a 'significant impact', individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice."

### 5.7.5 Impacts

*Would the proposed project generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment, or would the project conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?*

The proposed project would result in (1) construction GHG emissions associated with construction equipment and vehicle trips; and (2) operational GHG emissions associated with the operation of motor vehicles, the emergency generator, and electrical generation.

#### Construction Emissions

GHG emissions would be associated with the construction phase of the proposed project through use of construction equipment and vehicle trips. Emissions of CO<sub>2</sub> were estimated for each year of construction using the URBEMIS 2007, Version 9.2.4, land use and air emissions model. The model results were adjusted to estimate CH<sub>4</sub> and N<sub>2</sub>O emissions in addition to CO<sub>2</sub>. The CO<sub>2</sub> emissions from off-road equipment and vehicles and delivery trucks, which are assumed by URBEMIS 2007 to be diesel fueled, were adjusted by a factor derived from the relative CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O for diesel fuel as reported in the California Climate Action Registry's (CCAR) *General Reporting Protocol* (CCAR 2009) for transportation fuels and the global warming potential for each GHG to estimate the emissions in units of CO<sub>2</sub>E. The CO<sub>2</sub> emissions associated with construction worker trips were multiplied by a factor based on the assumption

that CO<sub>2</sub> represents 95% of the CO<sub>2</sub>E emissions associated with passenger vehicles (EPA 2005). The results were then converted from annual tons per year to metric tons per year.

Table 5.7-2 shows the total annual GHG construction emissions associated with the proposed project.

**Table 5.7-2**  
**Estimated Construction GHG Emissions**  
**(metric tons/year)**

Construction Year	CO <sub>2</sub> E Emissions
2010	90
2011	140
Total	230

Source: See included calculation sheets for complete results.

## Operational Emissions

The following section discusses the calculations of GHG emissions resulting from the primary sources of GHGs associated with the operation of the proposed project. Primary sources of GHGs associated with the operation of the proposed project are the wastewater treatment processes, operation of motor vehicles, the emergency generator, and electrical generation.

### *Emissions from Wastewater Treatment*

The estimated GHG emissions associated with wastewater treatment and discharge were based on equations in the Local Governmental Operations Protocol (CARB et al. 2010). Nitrous oxide is associated with some types of wastewater treatment and discharges to aquatic environments. The current WRF nitrifies (converts organic nitrogen and ammonia to nitrate), but it does not include a denitrification process (conversion of nitrate to molecular nitrogen). The upgraded WRF would include the same processes. Neither the existing or upgrade WRF include anaerobic processes (e.g., sludge digestion), which can be a source of CH<sub>4</sub>. The current WRF discharges to an aquatic environment, while the upgrade WRF would not. The population-based estimates from the Local Governmental Operations Protocol were used to estimate the N<sub>2</sub>O emissions from wastewater treatment processes and the discharge. The estimated GHG emissions from these sources are shown in Table 5.7-3.

### *Emissions from Motor Vehicles*

As indicated in Section 3.5.9, operations and maintenance activities would potentially increase staffing by up to two additional staff to the upgraded tertiary treatment plant operations and maintenance requirements. In addition, new long-term operational deliveries for the improved WRF may include:

- Chemical (Sodium Hypochlorite) delivery: once every 2 or 3 months, scheduled if feasible to coincide with delivery to the nearby water treatment plant;
- Chemical (Citric Acid) delivery: once or twice per year, delivered in a chemical tote on a flatbed truck;
- Additional equipment maintenance deliveries, several times per year depending on upgraded equipment requirements; and
- Sludge removal, estimated at several truckloads annually. Sludge will be stockpiled on the site until sufficiently dried and then hauled to an appropriate landfill or disposal site.

Maximum daily motor vehicle emissions associated with operation of the proposed project were estimated using emission factors derived using CARB's motor vehicle emission inventory program, EMFAC2007 (CARB 2007b). EMFAC2007 can generate total emissions and total vehicle-miles traveled for the fleet in a class of motor vehicles within a county, air basin, or air quality management district for a particular study year. For this analysis, Imperial County and calendar year 2011, the anticipated initial year of operation, were selected. Because the age of the vehicles analyzed within this report is unknown, the full range of vehicle model years in EMFAC2007 was used (refer to included calculation sheets for detailed calculations). As described earlier, for employee vehicle emissions, CH<sub>4</sub> and N<sub>2</sub>O emissions were accounted for by multiplying the URBEMIS 2007 CO<sub>2</sub> emissions by a factor based on the assumption that CO<sub>2</sub> represents 95% of the CO<sub>2</sub>E emissions associated with passenger vehicles (EPA 2005). The CO<sub>2</sub> emissions from delivery trucks and sludge hauling trucks, which are assumed to be primarily diesel fueled, were adjusted by a factor derived from the relative CO<sub>2</sub>, CH<sub>4</sub>, and N<sub>2</sub>O for diesel fuel as reported in the California Climate Action Registry's (CCAR) *General Reporting Protocol* (CCAR 2009).

The estimated GHG emissions from motor vehicles are shown in Table 5.7-3. Additional detail regarding these calculations can be found in the included calculation sheets.

### ***Emissions from Generator Set***

The proposed project would utilize a 275-kW (422 horsepower) diesel engine-generator set. It is estimated that the emergency generator set would be utilized approximately 2 hours per day, and a maximum of 50 hours per year. Utilizing emission factors from CARB's OFFROAD model, the GHG emissions resulting from operation of the generator set have been estimated and are included in Table 5.7-3. Additional detail regarding these calculations can be found in the included calculation sheets.

### *Emissions from Electrical Generation*

The WRF currently utilizes approximately 255,045 kilowatt-hours (kWh) of electricity per year based on utility invoices for 2009 (refer to the included calculation sheets for calculations). The proposed project would result in an overall electricity usage of 497,027 kWh per year at the facility based on equipment ratings and duty cycles. Therefore, the project would result in a net increase of 241,982 kWh per year. The generation of electricity through combustion of fossil fuels typically results in emissions of CO<sub>2</sub> and to a smaller extent CH<sub>4</sub> and N<sub>2</sub>O. Emission factors for the Imperial Irrigation District were obtained from the EPA's eGrid website (EPA 2010) (refer to included calculation sheets for details). The estimated GHG emissions from electrical generation are shown in Table 5.7-3.

### *Summary of Operational GHG Emissions*

As indicated in Table 5.7-3, the proposed project is estimated to result in a net increase in GHG emissions of approximately 144 metric tons CO<sub>2</sub>E per year.

**Table 5.7-3**  
**Estimated Operational GHG Emissions**  
**(metric tons/year)**

Source	CO <sub>2</sub> E Emissions
Upgraded WRF	
Wastewater Treatment	4
Motor Vehicles	3
Generator Set	12
Electrical Generation	334
Total	353
Existing WRF	
Wastewater Treatment	38
Electrical Generation	171
Total	209
Net Increase	144

Source: Refer to included calculation sheets for complete results.

### **Assessment of GHG Impacts**

As indicated earlier, neither the State of California nor the ICAPCD has adopted emission-based thresholds for GHG emissions under CEQA. In the absence of regulatory standards for GHG emissions or other scientific data to clearly define what constitutes a significant impact, individual lead agencies may undertake a project-by-project analysis, consistent with available guidance and current CEQA practice.

The proposed project would result in GHG emissions of 90 MTCO<sub>2</sub>E during project construction in 2010, 140 MTCO<sub>2</sub>E during project construction in 2011, and 144 MTCO<sub>2</sub>E per year during operation. California's current Renewables Portfolio Standard (RPS) is intended to increase the share of renewable energy to 20% by the end of 2010. Based on Governor Schwarzenegger's call for a statewide 33% RPS, the Climate Change Scoping Plan anticipates that California will have 33% of its electricity provided by renewable resources by 2020. Additionally, AB 32 calls for a reduction in GHG emissions to 1990 levels by 2020. The proposed project would assist in the attainment of the state's goals by supplying recycled water to the proposed Imperial Valley Solar Two Project, thereby expediting the generation of renewable energy in California in place of a typical fossil-fuel-fired power plant. Excess reclaimed water may also be available for other reclaimed uses within the Seeley CWD service area to conserve the use of potable water. Additionally, the proposed project would utilize premium efficiency motors to conserve energy associated with operation of the upgraded SWWRF. The project would therefore be consistent with state initiatives aimed at reducing GHG emissions, and impacts with respect to GHG emissions and climate change would be less than significant.

The Climate Change Scoping Plan, approved by the CARB on December 12, 2008, provides an outline for actions to reduce California's GHG emissions. The Scoping Plan requires CARB and other state agencies to adopt regulations and other initiatives to reduce GHGs. At this time, no mandatory GHG regulations or finalized agency guidelines would apply to this project, and no conflict would occur. Furthermore, CARB has estimated the statewide reductions to achieve the goal of reducing GHG emissions to 1990 levels by 2020 are 169 million MTCO<sub>2</sub>E from the estimated levels in 2020. Due to the potential for the proposed project to enhance the contribution of renewable energy to the state's electrical supply and local reclaimed water supplies, the proposed project would not conflict with the planned reductions. Impacts would therefore be less than significant.

#### **5.7.6 Mitigation Measures**

As analyzed in Section 5.7.5, no significant climate change impacts have been identified; therefore, no mitigation measures are proposed.

#### **5.7.7 Level of Significance after Mitigation**

No significant impacts have been identified; therefore, no mitigation measures are required, and impacts would remain less than significant.

#### **5.7.8 References**

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Exhibit 40

May 14, 2010

Jeffrey D. Byron, Commissioner  
Presiding Member  
Anthony Eggert, Commissioner  
Associate Member  
1516 Ninth Street,  
Sacramento, CA 95814-5512

Subject: Groundwater Evaluation Report  
Dan Boyer Water Company  
State Well No. 16S/9E-36G4  
Ocotillo, California

Commissioners Byron and Eggert:

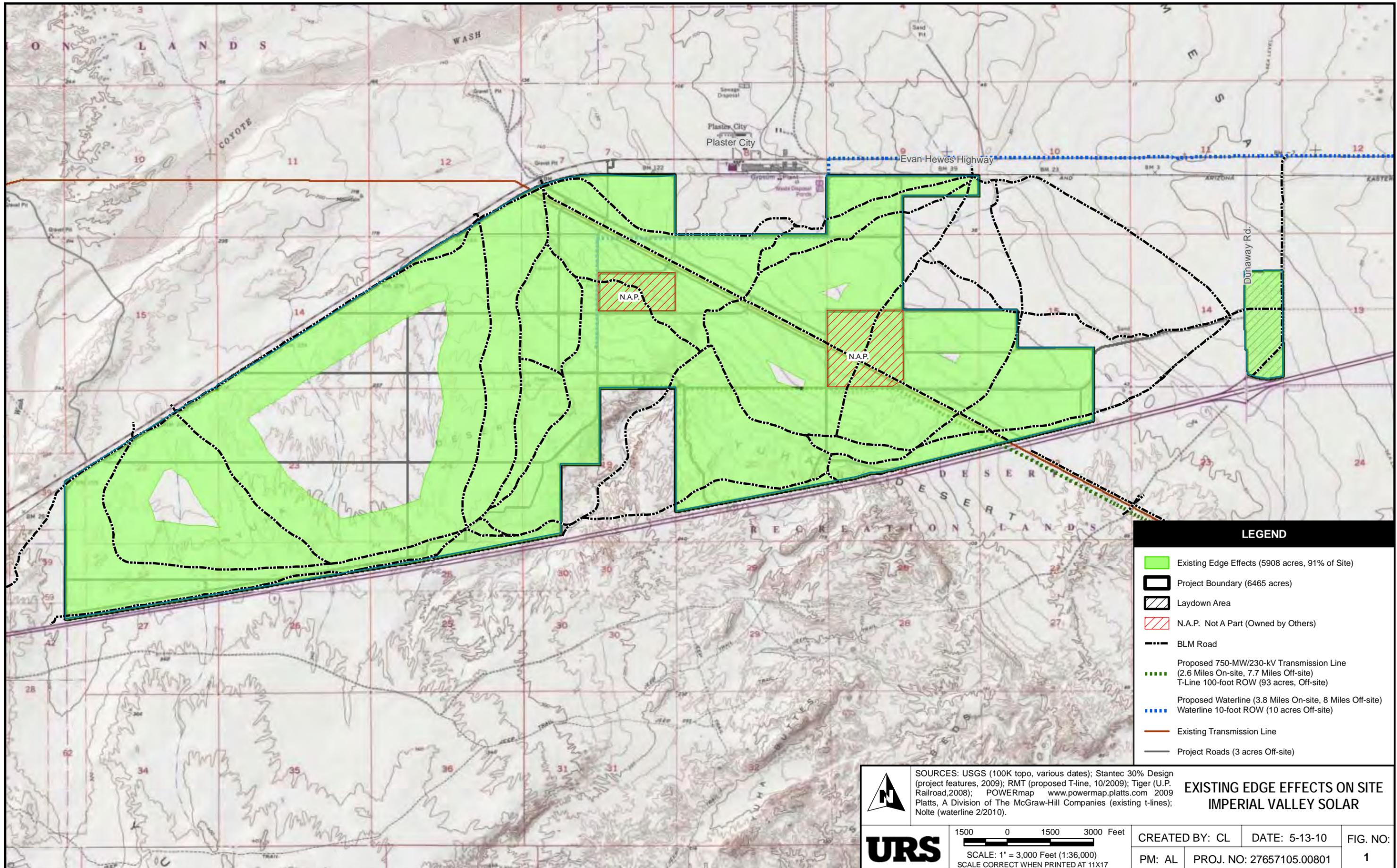
I have reviewed the URS Corporation Americas (URS) report dated April 26, 2010 and titled: "Groundwater Evaluation, Boyer Well (Well No. 16S9E-36G4), Ocotillo, California". The report was prepared to evaluate the temporary use of water from the Boyer Well for the Imperial Valley Solar (IVS) Project proposed Tessler Solar North America, Inc. solar facility. The evaluation also addressed zone of influence of the well and whether or not pumping from the well would result in significant impacts to adjacent water users, water quality and the environment. Based on my review of the report, at the pumping rates consistent with the Conditional Use Permit, I concur with URS' analysis of the well, and its conclusions regarding the well's limited "zone of influence", and its negligible effect on the overall water quantity of the basin.

Sincerely,



Eric M. LaBolle, PhD

Exhibit 41



**LEGEND**

- Existing Edge Effects (5908 acres, 91% of Site)
- Project Boundary (6465 acres)
- Laydown Area
- N.A.P. Not A Part (Owned by Others)
- BLM Road
- Proposed 750-MW/230-kV Transmission Line  
(2.6 Miles On-site, 7.7 Miles Off-site)  
T-Line 100-foot ROW (93 acres, Off-site)
- Proposed Waterline (3.8 Miles On-site, 8 Miles Off-site)  
Waterline 10-foot ROW (10 acres Off-site)
- Existing Transmission Line
- Project Roads (3 acres Off-site)



SOURCES: USGS (100K topo, various dates); Stantec 30% Design (project features, 2009); RMT (proposed T-line, 10/2009); Tiger (U.P. Railroad, 2008); POWERmap www.powermap.platts.com 2009 Platts, A Division of The McGraw-Hill Companies (existing t-lines); Nolte (waterline 2/2010).

**EXISTING EDGE EFFECTS ON SITE  
IMPERIAL VALLEY SOLAR**



1500 0 1500 3000 Feet  
SCALE: 1" = 3,000 Feet (1:36,000)  
SCALE CORRECT WHEN PRINTED AT 11X17

CREATED BY: CL

DATE: 5-13-10

FIG. NO:

PM: AL

PROJ. NO: 27657105.00801

1

Exhibit 42

[Federal Register: April 14, 2009 (Volume 74, Number 70)]  
[Rules and Regulations]  
[Page 17287-17365]  
From the Federal Register Online via GPO Access [wais.access.gpo.gov]  
[DOCID:fr14ap09-20]

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Part II

Department of the Interior

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Fish and Wildlife Service

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50 CFR Part 17

Endangered and Threatened Wildlife and Plants; Designation of Critical  
Habitat for Peninsular Bighorn Sheep and Determination of a Distinct  
Population Segment of Desert Bighorn Sheep (*Ovis canadensis nelsoni*);  
Final Rule

[[Page 17288]]

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DEPARTMENT OF THE INTERIOR

Fish and Wildlife Service

50 CFR Part 17

FWS-R8-ES-2007-0005; 92210-1117-0000-B4

RIN 1018-AV09

Endangered and Threatened Wildlife and Plants; Designation of Critical Habitat for Peninsular Bighorn Sheep and Determination of a Distinct Population Segment of Desert Bighorn Sheep (*Ovis canadensis nelsoni*)

AGENCY: Fish and Wildlife Service, Interior.

ACTION: Final rule.

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SUMMARY: We, the U.S. Fish and Wildlife Service (Service), designate revised critical habitat for the Peninsular bighorn sheep, a distinct population segment (DPS) of desert bighorn sheep (*Ovis canadensis nelsoni*) occupying the Peninsular Ranges of Southern California, under the Endangered Species Act of 1973, as amended (Act). In total, approximately 376,938 acres (ac) (152,542 hectares (ha)) fall within the boundaries of the critical habitat designation. This revised designation of critical habitat for Peninsular bighorn sheep reduces the 2001 designation by approximately 467,959 ac (189,377 ha). The revised critical habitat is located in Riverside, San Diego, and Imperial Counties, California.

DATES: This rule becomes effective on May 14, 2009.

ADDRESSES: The final rule, final economic analysis, and map of critical habitat will be available on the Internet at <http://www.regulations.gov>. Supporting documentation we used in preparing this final rule will be available for public inspection, by appointment, during normal business hours, at the U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office, 6010 Hidden Valley Road, Suite 101, Carlsbad, CA 92011; telephone 760-431-9440; facsimile 760-431-5901.

FOR FURTHER INFORMATION CONTACT: Jim Bartel, Field Supervisor, U.S. Fish and Wildlife Service, Carlsbad Fish and Wildlife Office (see ADDRESSES section). If you use a telecommunications device for the deaf (TDD), call the Federal Information Relay Service (FIRS) at 800-877-8339.

SUPPLEMENTARY INFORMATION:

Background

It is our intent to discuss only those topics directly relevant to the designation of critical habitat for Peninsular bighorn sheep in this final rule. For more information on the taxonomy, biology, and ecology of Peninsular bighorn sheep, refer to the final listing rule published in the Federal Register on March 18, 1998 (63 FR 13134), the original final critical habitat rule published in the Federal Register on February 1, 2001 (66 FR 8650), the proposed rule to revise critical habitat published in the Federal Register on October 10, 2007 (72 FR 57740), and the August 26, 2008 (73 FR 50498), notice of availability

of the draft economic analysis (DEA) that announced revisions to the proposed critical habitat designation.

The listed entity treated in this rule is a DPS of desert bighorn sheep (*Ovis canadensis nelsoni*). We will refer to this entity as Peninsular bighorn sheep, or as a DPS (not species or subspecies).

As stated in the October 10, 2007, proposed critical habitat rule, we are formally recognizing the listed entity as Peninsular bighorn sheep, a DPS of the desert bighorn sheep (*Ovis canadensis nelsoni*). This is the currently accepted taxonomic placement of these animals. We submitted this as a change for inclusion in the Code of Federal Regulations (CFR). The taxonomic revision does not affect discreteness and significance of Peninsular bighorn sheep as a DPS. In the 1998 final listing rule, Peninsular bighorn sheep were listed as a DPS of the species *Ovis canadensis*. At the time of listing at least six subspecies of bighorn sheep (*Ovis canadensis*) were named, including *Ovis canadensis cremnobates*, which is a name that previously had been applied to the Peninsular bighorn sheep. However, because of ongoing questions regarding the distinctiveness of the subspecific taxa at that time, the Peninsular Ranges population was considered a distinct population segment (DPS) of the species *O. canadensis* rather than as a subspecies or a DPS of a particular subspecies.

Relevant information regarding the systematic relationships of the infraspecific (below species rank) taxa of bighorn sheep at or near the time of listing was based on morphometric (variation in size and shape) assessments, as well as molecular analyses, such as mitochondrial DNA (mtDNA) assessments (Wehausen and Ramey 1993; Ramey 1993; Ramey 1995; Boyce et al. 1999) and microsatellite and histocompatibility complex loci analysis (Boyce et al. 1997; Gutierrez-Espeleta et al. 1998). While the discriminatory value of these various approaches was not addressed in the recovery plan (USFWS 2000), the Service concluded in the morphology and taxonomy section of the Recovery Plan (USFWS 2000, p. 3) that the currently recognized subspecies for desert bighorn sheep, *Ovis canadensis nelsoni*, includes the Peninsular bighorn sheep. This taxonomic placement was recognized in the final critical habitat designation for the Peninsular bighorn sheep published in 2001 (USFWS 2001, p. 8650). In that rule, we described the range of the DPS as coincident with the U.S. portion of the formerly recognized *Ovis canadensis cremnobates*. The current known range for the Peninsular bighorn sheep remains the same, as does its status as a DPS of the desert bighorn sheep (*Ovis canadensis nelsoni*).

Regardless of its systematic affiliation, the Peninsular bighorn sheep continues to meet the criteria for consideration as a DPS. Within this document, we refer to the listed entity as a distinct population segment (DPS) of desert bighorn sheep (*Ovis canadensis nelsoni*), not as a subspecies as we did within the discussion portion of the October 10, 2007, proposed critical habitat rule. We will continue to use the common name Peninsular bighorn sheep when referring to this DPS. No discussions or references to the Peninsular bighorn sheep DPS are intended to apply to any other portions of the range (e.g., San Bernardino Mountains, Joshua Tree National Park, the desert mountains of southwestern Nevada and northwestern Arizona) of the desert bighorn sheep (*Ovis canadensis nelsoni*). For a detailed discussion of the DPS analysis for Peninsular bighorn sheep, see the Distinct Vertebrate Population Segment section of the 1998 final listing rule (March 18, 1998, 63 FR 13134). Therefore, we are changing the listed entity from a DPS of the species *Ovis canadensis*, to a DPS of the subspecies *Ovis canadensis nelsoni*. This final rule includes a change to the List of Endangered and Threatened Wildlife at 50 CFR 17.11(h) to reflect this

change.

#### DPS Description, Life History, Distribution, Ecology, and Habitat

No new substantial information pertaining to the DPS description, life history, ecology, or habitat of Peninsular bighorn sheep was received following the 2007 proposed rule to revise critical habitat for this DPS. Therefore, please refer to the final listing rule published in the Federal Register on March 18, 1998 (63 FR 13134), and the proposed rule to revise critical habitat published in the Federal Register on October 10, 2007 (72 FR 57740), for a discussion of the DPS's description, life history, ecology, and habitat.

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#### DPS Distribution

During the first public comment period for the proposed rule, we received new information regarding occurrence data that had been collected within the past year. The areas in which new sheep occurrence data was received include the South Santa Rosa Mountains along Grave Wash and the Jacumba Mountains near Interstate 8. The occurrence data received falls within the boundary of the 2001 critical habitat designation and the 2000 Recovery Plan area; therefore, we do not believe this new information markedly affects the known distribution of Peninsular bighorn sheep. However, we considered this new occurrence data and revised our proposed designation to include these areas recently used by Peninsular bighorn sheep (see the Notice of Availability (NOA), August 26, 2008, 73 FR 50498). The areas represented by the new occurrence data are included in this final designation (see the ``Summary of Changes From the 2007 Proposed Rule To Revise Critical Habitat to This Final Rule to Revise Critical Habitat'' section of this final rule).

#### Previous Federal Actions

As discussed in the proposed rule to revise critical habitat for this DPS, a July 31, 2006, court-approved consent decree enacted a limited partial vacatur of tribal, mining, and Desert Riders lands and remanded the critical habitat designation back to the Service for new rulemaking. The Service was obligated under the consent decree to submit a proposed revised critical habitat designation to the Federal Register on or before September 30, 2007, and a final revised critical habitat designation on or before September 30, 2008. We published a proposed revised critical habitat designation in the Federal Register on October 10, 2007 (72 FR 57740), and accepted public comments on the proposed revised designation for 60 days, ending December 10, 2007. Because significant new information was received, the parties agreed to extend the due date to the Federal Register of the final revised critical habitat rule to March 30, 2009. On August 26, 2008 (73 FR 50498), we opened a second public comment period on the proposed revised critical habitat designation and announced our intention to hold two public hearings on the proposed rule that were held in Palm Desert, California, on September 10, 2008. In the same Federal Register notice we announced the availability of our Draft Economic Analysis (DEA) (dated June 9, 2008) and announced changes to the proposed rule. We accepted public comments during the second open comment period for 60 days, ending October 27, 2008. For more information on previous

Federal actions concerning Peninsular bighorn sheep, refer to the final listing rule published in the Federal Register on March 18, 1998 (63 FR 13134), the final critical habitat designation published in the Federal Register on February 1, 2001 (66 FR 8650), and the proposed rule to revise critical habitat published in the Federal Register on October 10, 2007 (72 FR 57740).

#### Summary of Comments and Recommendations

We requested written comments from the public during two comment periods on the proposed rule to revise critical habitat for Peninsular bighorn sheep. The first comment period opened October 10, 2007 (72 FR 57740), and closed December 10, 2007, and was associated with the publication of the proposed rule. We received several requests for a public hearing during this comment period. The second comment period opened August 26, 2008 (73 FR 50498), and closed October 27, 2008, and was associated with the notice of availability of the DEA, announcement of revisions to the proposed critical habitat, and a notice of public hearings that were held September 10, 2008. During these two public comment periods, we contacted appropriate Federal, State, and local agencies; scientific organizations; and other interested parties and invited them to comment on the proposed rule to revise critical habitat for this DPS and the associated DEA.

During the first comment period, we received 212 public comments directly addressing the proposed revision of critical habitat: 1 from a Federal agency, 2 from State agencies, 1 from an elected official, and 208 from organizations and individuals. During the second comment period and the September 10, 2008, public hearings, we received 5,092 comments directly addressing the proposed revision of critical habitat for this DPS or the DEA: 1 from an elected official, 2 from State agencies, 3 from local governments, and 5,086 from organizations and individuals.

#### Peer Review

In accordance with our policy on peer review published in the Federal Register on July 1, 1994 (59 FR 34270), we solicited expert opinions from five knowledgeable individuals with scientific expertise that included familiarity with the DPS, the geographic region in which it occurs, and conservation biology principles. We received responses from all five of the peer reviewers.

We reviewed all comments received from the peer reviewers and the public for substantive issues and new information regarding critical habitat for Peninsular bighorn sheep. These comments are addressed below and incorporated into the final rule as appropriate.

#### Peer Reviewer Comments

Comment 1: Several peer reviewers stated the proposed critical habitat is flawed because it does not provide for connectivity. One peer reviewer stated further that the proposal fragments the habitat available to the Peninsular bighorn sheep. Several peer reviewers asserted that, although essential habitat (as identified by the Peninsular bighorn sheep Recovery Team and depicted in the 2000 Peninsular bighorn sheep Recovery Plan) and critical habitat originally designated in 2001 promoted habitat connectivity among all subpopulations, the proposed critical habitat essentially severs the San Jacinto Mountains subpopulation (Unit 1) and the Carrizo Canyon

subpopulation (Unit 3) from the remainder of the range (Units 2A and 2B). One peer reviewer also noted that movement of Peninsular bighorn sheep has been documented between these areas. According to the same peer reviewer, a collared ram from the San Jacinto Mountains was observed during July and August 2008 on several different occasions in the northern Santa Rosa Mountains with other bighorn sheep there. The peer reviewer concluded that not including these areas as critical habitat incorrectly suggests that these areas are not critical to the long-term recovery or survival of the population.

Another peer reviewer stated that movement between Units 1, 2A, 2B, and 3 is important and that critical habitat should be extended to protect corridors connecting the units. The same peer reviewer maintained that if any unit is isolated, the subpopulation may not be viable and that critical habitat should be expanded to include corridors for movement between units. One peer reviewer noted an extensive and irrefutable body of scientific literature that illustrates the importance of habitat connectivity. Two peer reviewers stated that, despite the acknowledgement in the proposed rule that connectivity is vital for this species' recovery, the revised critical habitat designation decreases connectivity or does not include corridors for movement. One peer reviewer asserted that habitat fragmentation will only promote the

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decline of this DPS and goes directly against the recommendations of the Recovery Plan that the Service adopted.

Our Response: We agree with the peer reviewers that habitat connectivity is important to allow for movement between ewe groups and to maintain genetic variation. We also agree with the peer reviewer that an extensive amount of scientific evidence illustrates the importance of habitat connectivity, and we considered this information during the development of this critical habitat designation. We acknowledge that areas potentially providing connectivity between Units 1 and 2A and between Units 2B and 3 were included in the 2001 critical habitat designation; however, based on our reevaluation of the data available at the time of the 2001 designation, data obtained since, and our revised methodology for delineating critical habitat, we find that those areas do not meet the definition of critical habitat because the available data do not identify specific areas between these units that contain the physical or biological features essential to the conservation of the DPS.

The best available data do not provide any information indicating what areas, if any, Peninsular bighorn sheep use as connectivity corridors within the expansive areas between Units 1 and 2A and Units 2B and 3. Although the peer reviewers presented data showing that at least one collared ram has moved between Units 1 and 2A, we do not have occurrence data suggesting a specific corridor between these units. In addition, we have no data documenting natural sheep movement between Units 3 and 2B. As such we have not included specific corridors between Units 1 and 2A or between Units 3 and 2B in the designation. However, we will continue to monitor movement between these units to determine if specific movement corridors exist. In contrast, where the available data do support the identification of specific areas utilized by the DPS as movement corridors, such as between the ewe groups in the Santa Rosa Mountains and the Vallecito Mountains ewe group, those areas are included in the critical habitat designation.

We recognize this finding is different than what is outlined as essential habitat in the 2000 Recovery Plan and what was designated as critical habitat in the 2001 designation (which largely adopted the boundary delineated in the Recovery Plan). The Recovery Plan and 2001 critical habitat rule note that allowing for ram movement between ewe groups is important for maintaining genetic variation in the Peninsular bighorn sheep metapopulation. While we believe connectivity areas are important for the Peninsular bighorn sheep's recovery, we have significantly more data available today than when the Recovery Plan and 2001 critical habitat were finalized. We have utilized the currently available data to more precisely identify areas meeting the definition of critical habitat; in particular, areas related to connectivity. Such areas are included in this designation where the data support the determination that such areas contain the physical and biological features essential to the conservation of the DPS. For other potential connectivity areas that were included in the 2001 designation, the available movement and occurrence data we have for those areas do not support the identification of specific areas that provide a movement corridor that is essential for the conservation of the DPS.

We believe it is important to note that critical habitat designation is a different process than development of a recovery plan. A critical habitat designation is a specific regulatory action that defines specific areas as critical habitat in accordance with the statutory definition. A recovery plan is a guidance document developed in cooperation with partners, which provides a roadmap with detailed site-specific management actions to help conserve listed species and their ecosystems. The term "essential," as used in the recovery plan, is not necessarily used in the same manner as it is used in the definition of critical habitat. The recovery plan provides important information about the species and the actions that are needed to bring about its recovery, while critical habitat identifies specific areas that are essential for the species' conservation.

The deviation from the Peninsular bighorn sheep Recovery Plan boundary and the 2001 final critical habitat designation is primarily the result of using a revised methodology to delineate critical habitat. Our revised methodology incorporates new information to best identify areas that meet the definition of critical habitat (see "Summary of Changes From the 2001 Critical Habitat Designation To the 2007 Proposed Rule To Revise Critical Habitat" section for more discussion). As a result, the final revised critical habitat boundary does not include areas the Recovery Plan identified as necessary for the conservation of the Peninsular bighorn sheep that we since determined (based on the best available data at this time) are not essential for the conservation of this DPS. Therefore, we believe the final revised critical habitat boundary more precisely maps the physical and biological features that occur within the geographical area occupied by the Peninsular bighorn sheep at the time of listing, which includes those areas containing preferred habitat for sheep use.

There are likely additional areas outside of the final revised critical habitat boundary that contain some of the PCEs, including areas identified in the Recovery Plan and 2001 critical habitat. We recognize that areas outside of the critical habitat boundary are likely utilized by Peninsular bighorn sheep (primarily for movement of rams between ewe groups). However, as stated above, the data available at this time do not support the identification of specific areas containing the essential features that provide a movement corridor between Units 1 and 2A or between Units 2B and 3. Additionally, Unit 2A is continuous with Unit 2B and these units contain a large contiguous

portion of the Peninsular Ranges allowing for movement between six ewe groups with these units. Furthermore, although we do not have information to identify specific movement corridors, the areas between Units 1 and 2A or between Units 2B and are steep, rugged, and remote and there are no perceived threats in these areas. Therefore, we are confident that these areas will still be available for any natural sheep movements between units allowing for genetic connectivity.

We recognize that the designation of critical habitat may not include all of the habitat that may eventually be determined to be necessary for the recovery of Peninsular bighorn sheep, and critical habitat designations do not signal that habitat outside the designation is unimportant or may not contribute to recovery. Areas outside the final revised critical habitat designation will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act and regulatory protections afforded by the section 7(a)(2) jeopardy standard and the prohibitions of section 9 of the Act if actions occurring in these areas may affect sheep; these protections and conservation tools will continue to contribute to recovery of the DPS.

Please see the ``Criteria Used To Identify Critical Habitat'' and ``Summary of Changes From the 2001 Critical Habitat Designation To the 2007 Proposed Rule To Revise Critical Habitat'' sections of this final rule for further discussion of this topic.

Comment 2: Two peer reviewers stated that exclusion of areas under the Agua Caliente Band of Cahuilla Indians Tribal Habitat Conservation Plan (Tribal HCP) and Coachella Valley Multiple

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Species Habitat Conservation Plan (Coachella Valley MSHCP) is inappropriate because the Coachella Valley MSHCP and the Tribal HCP are not yet approved, and therefore provide absolutely no protection to Peninsular bighorn sheep or their habitat at this time. One peer reviewer stated it would be pre-decisional to exclude critical habitat based on these plans. Another peer reviewer suggested that managers and those making policy decisions should have solid documentation that the Peninsular bighorn sheep will receive the same level of enforceable protection from the Tribal HCP and the Coachella Valley MSHCP as provided by the Endangered Species Act. One peer reviewer stated that the proposed exclusion of tribal lands and lands covered by the Coachella Valley MSHCP are not supported by the best available science and that removal of these areas from critical habitat will increase the threats to the persistence and recovery of Peninsular bighorn sheep.

Our Response: We believe the exclusion of the identified tribal lands and the lands covered by the Coachella Valley MSHCP, which is now final, is appropriate based on the potential impacts associated with designating these areas as critical habitat. Section 4(b)(2) of the Act states that the ``Secretary shall designate critical habitat, and make revisions thereto, on the basis of the best scientific data available and after taking into consideration the economic impact, the impact on national security, and any other relevant impact, of specifying any particular area as critical habitat.'' The Act further states that the Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned.

We believe that critical habitat designation would negatively

impact the working relationships and conservation partnerships we have formed with permittees, the Tribe, and other private landowners (i.e., other relevant impacts), and could result in decreased voluntary conservation efforts to benefit the Peninsular bighorn sheep. Additionally, as explained in detail in the ``Application of Section 4(b)(2)--Other Relevant Impacts--Conservation Partnerships'' section of this final rule, we believe these conservation partnerships will provide as much or more benefit than consultation under section 7(a)(2) related to the critical habitat designation (the primary benefit of a designation).

The exclusion of Agua Caliente Band of Cahuilla Indians lands is not based on the 2007 draft Tribal HCP, but is primarily based on the importance of our government-to-government relationship with the Agua Caliente Band of Cahuilla Indians, our conservation partnership with the Tribe, and their current management of tribal lands as described in the 2001 Tribal Conservation Strategy (adopted by the Tribe on November 12, 2002, and implemented since its adoption). Furthermore, in accordance with the Secretarial Order 3206, ``American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997); the President's memorandum of April 29, 1994, ``Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951); Executive Order 13175; and the relevant provision of the Departmental Manual of the Department of the Interior (512 DM 2), we believe that fish, wildlife, and other natural resources on tribal lands are better managed under tribal authorities, policies, and programs than through Federal regulation wherever possible and practicable. Based on this philosophy, we believe that, in most cases, designation of tribal lands as critical habitat provides very little additional benefit to threatened and endangered species. Conversely, such designation is often viewed by tribes as unwarranted and an unwanted intrusion into tribal self governance, thus compromising the government-to-government relationship essential to achieving our mutual goal of managing for healthy ecosystems upon which the viability of threatened and endangered species populations depend. As an indication of the success of our partnership with the Agua Caliente Band of Cahuilla Indians and their commitment to natural resources management, a regional HCP is being developed, which incorporates protections and management of this DPS's essential physical and biological features.

The protections provided by the Coachella Valley MSHCP and the Tribe's resource management are consistent with the mandates under section 7 of the Act to avoid destruction or adverse modification of critical habitat and go beyond that prohibition by including active management and protection of essential habitat areas. These established partnerships demonstrate a continued commitment to conservation and aid in fostering additional partnerships for the benefit of all sensitive species on tribally-owned or controlled lands, Coachella Valley MSHCP permittee-owned/controlled lands, and other private lands. Finally, we determined that the Tribe's management of its resources provides protection and management, in perpetuity, of lands that meet the definition of critical habitat for Peninsular bighorn sheep in Units 1 and 2A, and the Coachella Valley MSHCP provides further evidence of this partnership and continued protection of these features. Furthermore, we determined that the routine implementation of conservation measures in these units, combined with protections provided under the jeopardy standard of section 7 of the Act in these two occupied units, provide assurances that the DPS will not go extinct as a result of these exclusions.

Please see the ``Application of Section 4(b)(2)--Other Relevant

Impacts--Conservation Partnerships'' section of this final rule for additional discussion of the Coachella Valley MSHCP and tribal conservation strategies and the benefits provided to Peninsular bighorn sheep.

Comment 3: Several peer reviewers stated that alluvial fans and low-elevation habitat provide important resources for Peninsular bighorn sheep and noted that the proposed critical habitat does not include extensive areas of alluvial fans and other low-elevation habitat that were included in the 2001 critical habitat designation. Two peer reviewers stated that, based on a geographic information systems (GIS) evaluation of proposed critical habitat by California Department of Parks and Recreation staff, nearly 250,000 ac (101,172 ha) of habitat have been removed from the eastern side of critical habitat, as compared to critical habitat designated in 2001. The peer reviewers further stated this area includes alluvial fans, washes, bajadas (i.e., converging alluvial fans), canyon bottoms, and open playas, which provide important forage resources and which are used during movement between more mountainous terrain. One peer reviewer stated that the fact that bighorn sheep use gentle terrain, such as alluvial fans and washes, despite potentially increasing their risk of predation, provides strong evidence that these areas provide critically important resources.

Another peer reviewer commented that the 2007 proposed revision eliminates key low-slope areas and raises the boundary upslope, which they assert is a contradiction to the best available science. One peer reviewer noted there are contradictions of slope

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condition in the rule based on straight lines drawn on the critical habitat maps, even though the text in the proposed rule describes the importance of gentle slopes to bighorn sheep.

Our Response: We agree that low-elevation habitat is important for Peninsular bighorn sheep because these areas can provide seasonal abundance of forage vegetation and water resources. In our August 26, 2008, NOA (73 FR 50498), we announced a revision to our criteria used to identify critical habitat to include occurrence data from 1988 to 2008. Because of comments received from peer reviewers and the public about low-elevation habitat and the revision of our criteria used to identify critical habitat to include a larger occurrence data set, we reevaluated and revised our proposed revised critical habitat boundary. In our August 26, 2008, NOA (73 FR 50498), we announced changes to the proposed critical habitat revision, including the addition of 36,240 ac (14,667 ha) of habitat for Peninsular bighorn sheep, the majority of which is low-elevation, low-slope, or alluvial-fan habitat on the eastern edge of the Peninsular Ranges. We acknowledge there are some low-elevation areas included in the 2001 designation of critical habitat that are not included in this final designation. However, currently available data do not support a determination that these areas outside the geographical area occupied by the species at the time of listing are essential for the conservation of the sheep; therefore these areas do not meet the definition of critical habitat.

Please see the ``Criteria Used To Identify Critical Habitat,'' the ``Summary of Changes From the 2001 Critical Habitat Designation to the 2007 Proposed Rule To Revise Critical Habitat,'' and the ``Summary of Changes From the 2007 Proposed Rule To Revise Critical Habitat to This Final Rule To Revise Critical Habitat'' sections of this final rule for

further discussion of this topic.

Comment 4: One peer reviewer objected to the statement in the proposed critical habitat rule that essential habitat delineated in the Recovery Plan (and in the 2001 critical habitat designation) included a ``buffer'' of 0.5 mile (mi) (0.8 kilometer (km)) around slopes greater than or equal to 20 percent. The peer reviewer stated that buffer areas identified in the Recovery Plan were added as ``essential habitat'' (as defined in the Recovery Plan) because these areas include important resources for bighorn sheep; they were not added as a buffer around essential habitat. The peer reviewer reiterated what was written in the Recovery Plan (i.e., that bighorn sheep have been observed at great distances from slopes of greater than or equal to 20 percent, and the recovery team chose to define essential habitat as those areas within 800 m (2,625 ft) of slopes of greater than or equal to 20 percent). Additionally, the peer reviewer stated that the Peninsular bighorn sheep recovery team recognized that this area would capture the majority of Peninsular bighorn sheep use in these areas and that inclusion of these areas represented inclusion of important resources.

Our Response: The Recovery Plan acknowledges that the 800-m (2,625-ft) area around slopes greater than or equal to 20 percent is a buffer. Page 157 of the Recovery Plan describes the process of delineating these areas as follows: ``A buffer of 0.8 kilometer (0.5 mile) was then applied to the perimeter of all areas of slope [greater than or equal to 20 percent] in the derivative grid.'' The inclusion of this area around 20 percent slopes adds expanses of land to the Recovery Plan area and the 2001 critical habitat designation, but we have relatively little to no occurrence data indicating that sheep use those areas. By including these 0.5-mi (0.8-km) buffers in the Recovery Plan, a boundary was developed that included almost any location that a Peninsular bighorn sheep could possibly roam, but such a buffer would not meet the statutory definition of ``critical habitat,'' because such areas are not essential for the conservation of the DPS. As stated in section 3(5)(C) of the Act, except in those circumstances determined by the Secretary, critical habitat shall not include the entire geographical area which can be occupied by the threatened or endangered species. Please see the ``Criteria Used To Identify Critical Habitat,'' and the ``Summary of Changes From the 2001 Critical Habitat Designation To the 2007 Proposed Rule To Revise Critical Habitat'' sections of this final rule for further discussion of this topic.

Comment 5: One peer reviewer stated that the proposed delineation does not appear to be based on good science or conservation principles and that the major reduction in area (as compared to the original critical habitat delineated in 2001) will jeopardize the chances of recovery and survival of this population. A second peer reviewer stated that the proposal to remove over 50 percent of critical habitat is contrary to the PCEs as well as the Recovery Plan. A third peer reviewer believes the revised critical habitat is geared towards sustaining the current, low population level of Peninsular bighorn sheep, rather than planning for recovery. Finally, a fourth peer reviewer stated it is unclear what changed between the time of the 2000 Recovery Plan and today that would cause certain areas to be eliminated that were previously determined as essential for the DPS's recovery.

Our Response: The designation of critical habitat for Peninsular bighorn sheep is based on the best scientific data available regarding the DPS, including: (1) A compilation of data from peer-reviewed, published literature; (2) unpublished or non-peer reviewed survey and research reports; and (3) opinions of biologists knowledgeable about Peninsular bighorn sheep and their habitat. Consequently, the PCEs, as

described in this final rule, represent our best assessment of what habitat components are essential for the conservation of Peninsular bighorn sheep, and we believe that our final revised designation is adequate to ensure the conservation of this DPS throughout its extant range.

The Act defines critical habitat as (1) the specific areas within the geographical area occupied by the species at the time it is listed on which are found those physical or biological features (a) essential to the conservation of the species, and (b) which may require special management considerations or protection, and (2) specific areas outside the geographical area occupied by the species at the time it is listed upon a determination by the Secretary that such areas are essential for the conservation of the species. Consistent with section 3(5)(C) of the Act, the designation does not include the entire geographical area which can be occupied by Peninsular bighorn sheep, but is limited to those areas that we determined meet the definition of critical habitat. The reduction in total area from what was identified as important for the Peninsular bighorn sheep in the Recovery Plan and designated in 2001 is primarily the result of: (1) Exclusions of habitat under section 4(b)(2) of the Act; (2) revision of the primary constituent elements; (3) revision of our criteria used to identify critical habitat; (4) removal of lands within the geographical area occupied by the DPS at the time it was listed that do not contain the physical or biological features as identified by the PCEs in the appropriate quantity and spatial arrangement essential to the conservation of the DPS; and (5) removal of lands outside the geographical area occupied by the DPS at the time it was listed that are not

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essential for the conservation of the DPS.

The 2001 critical habitat designation was predominantly based on the 2000 Recovery Plan, and we used the best available scientific information at that time to delineate critical habitat. Since 2001, we received significant additional occurrence data and formulated a better understanding about specific habitat requirements of this DPS that was not known when we first designated critical habitat for the Peninsular bighorn sheep. We utilized this new information to appropriately revise the PCEs and criteria used to identify critical habitat, consistent with the Act. Additionally, case law has developed since 2001 regarding the Act's requirements and the definition of critical habitat (e.g., *The Cape Hatteras Access Preservation Alliance v. U.S. Dep't of the Interior*, 344 F. Supp. 2d 108 (D.D.C. 2004); *Home Builders Ass'n of N. Cal. v. U.S. Fish and Wildlife Service*, U.S. Dist. LEXIS 80255 (E.D. Cal. 2006); and *Arizona Cattle Growers' Ass'n v. Kempthorne*, 534 F. Supp. 2d 1013 (D. Ariz. 2008)).

Therefore, we refined our approach to this critical habitat designation, including identification of the geographical areas occupied by the DPS at the time of listing, identification of physical or biological features essential to the conservation of the DPS, determination of any areas outside the geographical area occupied by the DPS at the time of listing that are essential for the conservation of the DPS, and appropriate exclusions under section 4(b)(2) of the Act. A complete discussion of how data collected since the 2001 designation were utilized to refine the proposed designation can be found in the ``Summary of Changes From the 2001 Critical Habitat Designation To the 2007 Proposed Rule To Revise Critical Habitat'' and ``Summary of Changes From the 2007 Proposed Rule To Revise Critical

Habitat To This Final Rule To Revise Critical Habitat'' sections of this final rule.

We delineated critical habitat for the Peninsular bighorn sheep using the criteria presented in the ``Criteria Used To Identify Critical Habitat'' section of this final rule. Application of these criteria results in the determination of the physical and biological features that are essential to the conservation of this DPS, identified as the DPS's PCEs laid out in the appropriate quantity and spatial arrangement essential to the conservation of the DPS. Therefore, not all areas supporting the identified PCEs will meet the definition of critical habitat.

Refer to our response to Comment 1 for a discussion on the difference between critical habitat designation and development of a Recovery Plan.

Our proposed designation, in combination with our August 26, 2008, NOA, which announced the addition of areas to the proposed designation, and this final designation accurately describe all specific areas meeting the statutory definition of critical habitat for Peninsular bighorn sheep. See the ``Summary of Changes From the 2001 Critical Habitat Designation To the 2007 Proposed Rule To Revise Critical Habitat'' and ``Summary of Changes From the 2007 Proposed Rule To Revise Critical Habitat To This Final Rule To Revise Critical Habitat'' sections of this final rule for more information.

Comment 6: Two peer reviewers pointed out that the proposed critical habitat rule states that researchers have documented movement of rams ``between up to three ewe groups.'' The peer reviewers suggested this statement incorrectly cites Rubin et al. (1998), which documented male movement among at least six groups, and the proposed rule therefore underestimates the importance of connectivity throughout the range. The peer reviewers stated that researchers have documented movement of radio collared males and females among all eight subpopulations, demonstrating that these subpopulations are currently linked via animal movement. One peer reviewer stated that historic ram movement data between the northern Santa Rosa Mountains and the San Jacinto Mountains was not used in delineating proposed critical habitat. The peer reviewer further stated that they believe the Service has had this data for years and, if used, they believe the Service would not have developed a critical habitat designation lacking connectivity between critical habitat units.

Our Response: We corrected the section of the critical habitat designation involving the Rubin et al. (1998) citation mentioned above and included the additional information on the metapopulation structure of Peninsular bighorn sheep into the PCEs discussion in this rule. With regard to historic ram movement data and connectivity, see our response to Comment 1 and the ``Criteria Used To Identify Critical Habitat'' and ``Summary of Changes From the 2001 Critical Habitat Designation To the 2007 Proposed Rule To Revise Critical Habitat'' sections of this final rule for further discussion.

Comment 7: One peer reviewer believes that the critical habitat designation should encompass areas of historical occupancy if it is intended to aid in the recovery of the Peninsular bighorn sheep.

Our Response: Please refer to our response to Comment 5 for the statutory definition of critical habitat. The Service may designate as critical habitat areas outside the geographical area occupied by a species at the time it was listed (i.e., historical habitat) only when we can determine that those areas are essential for the conservation of the species (section 3(5)(A)(ii) of the Act). We have determined that designating critical habitat solely within the geographical area

occupied by the DPS at the time it was listed will provide for the conservation of the Peninsular bighorn sheep. We, therefore, did not include areas of historical occupancy that were outside of these areas. As previously mentioned in this final rule, critical habitat designations do not signal that habitat outside the designation is unimportant or may not contribute to a species' recovery. See our response to Comment 5 above and the ``Criteria Used To Identify Critical Habitat'' section of this final rule for more information.

Comment 8: One peer reviewer had concerns about designating critical habitat based on occupancy at the time of listing. The peer reviewer identified what the peer reviewer believed to be two shortcomings of this approach, as follows: (1) Critical habitat is designated based on the distribution of a species at its lowest abundance level, and most likely its most limited spatial distribution, thereby reducing the probability of encompassing areas required for full recovery; and (2) designated critical habitat assumes that all areas have been sufficiently surveyed to document occupancy and doesn't address false absences. Another peer reviewer believes that the Service failed to recognize false absences as a result of this approach, and that this is a grave error because the peer reviewer believes many important areas may not be included in the critical habitat designation.

Our Response: In response to the peer reviewer's comment and other public comments related to the delineation of critical habitat based on occupancy at the time of listing, we revised our criteria used to delineate critical habitat as announced in the NOA published in the Federal Register on August 25, 2008 (73 FR 50498). As a revision to our criteria, we included areas with occupancy data indicating they are currently occupied or areas with occupancy data indicating they were occupied at some point between 2008

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(present time) and 1988 (i.e., the time of listing (1998) less 10 years, which is the average lifespan of Peninsular bighorn sheep). Use of a data set that considers a larger time-span of occurrence data accounts for the large fluctuations in Peninsular bighorn sheep population levels over the last two decades, and provides a reasonable delineation of the geographical area occupied by the species at the time of listing. After rangewide estimates were made in the 1970s, the population was estimated as high as 1,171 in 1974 (Weaver 1974, p. 5). The population was estimated at 570 individuals in 1988 (Weaver 1989, p. 11). We reported in the final listing rule for Peninsular bighorn sheep that the population at that time (1998) was approximately 280 individuals (March 18, 1998, 63 FR 13134). The most recent estimate from 2006 puts the population at approximately 800 individuals (Torres 2007, p. 1). By considering occurrence data between 1988 and the present, we are not designating critical habitat based on the distribution of the DPS at its lowest abundance level, nor its most limited spatial distribution as the peer reviewer suggested.

We realize that false absences can result from rangewide surveys for Peninsular bighorn sheep. Additionally, we are aware that not all areas within the range of the DPS have been surveyed or studied equally. For example, there is a disproportionate amount of data from the northern half of the Peninsular Ranges in the United States, compared to the southern half that has not been studied as thoroughly. Regardless, we used the best available scientific information and

occurrence data in determining areas occupied by Peninsular bighorn sheep. No information is available to indicate which portions of the DPS's range might include false absences.

Comment 9: One peer reviewer believes that delineation of critical habitat must not rely on simple occurrence data alone, but should also rely on robust methods of identifying and mapping critical habitat based on habitat features.

Our Response: We agree with the peer reviewer's statement. We delineated critical habitat based on occurrence data and a combination of habitat features. We designated critical habitat for the Peninsular bighorn sheep within areas that we determined were occupied at the time of listing and that contain the physical and biological features essential to the conservation of the DPS. Lands were designated based on sufficient essential features being present to support the life processes. Please see our response to Comment 5 and the ``Criteria Used To Identify Critical Habitat'' section of this final rule for detailed discussions.

Comment 10: One peer reviewer noted a large number of known Peninsular bighorn sheep locations (documented post-listing) that were not included in the proposed revised critical habitat and further stated that it was unclear why these areas were not included. Another peer reviewer listed multiple areas that are documented as occupied at or since the time of listing but were not included in the proposed critical habitat designation. The peer reviewer indicated that occurrence data documenting occupancy were provided to the Service prior to the delineation of proposed critical habitat, and further stated that these areas provide lambing habitat, foraging areas, connectivity between mountainous areas, and important water sources. The peer reviewer determined that nearly 1,000 of these locations were not included in the proposed critical habitat following an examination of occurrence data collected during 2001 to 2003 with the use of Global Positioning System (GPS) collars in areas between Highway 74 and the southern edge of the Vallecito Mountains. Finally, another peer reviewer believes there are large areas without location data of Peninsular bighorn sheep that are included as critical habitat and areas with bighorn sheep location data that are not included as critical habitat.

Our Response: Upon receiving the peer reviewers' comments, we examined the occurrence data considered in the delineation of the proposed revised critical habitat and found that a set of data was missing from our GIS database. Subsequently, we included that occurrence data into our GIS database and double-checked to ensure that all occurrence records submitted to the Service were included for our analyses. In light of this data and our revised criteria used to identify critical habitat (i.e., a data set that includes data since 1988), we revised our proposed critical habitat boundary, as reported in the NOA, to include the areas represented by the location data (August 26, 2008, 73 FR 50498).

Comment 11: One peer reviewer suggested the proposed revised critical habitat could have been improved had it been an ``open process'' that included the expertise of biologists on the Recovery Team, as well as others who have worked with bighorn sheep for decades, like what was done for the Peninsular bighorn sheep Recovery Plan. The peer reviewer believes that the resulting proposed critical habitat designation reflects a hurried process that used arbitrary decision-making, is not scientifically based, and contradicts the Services' Recovery Plan for the DPS.

Our Response: Contrary to the opinion of the peer reviewer,

designating critical habitat is an open process. We solicited additional expert opinion and public comment through publication of our proposed revised rule that was developed using the best scientific data available at that point in time. As stated in the proposed rule, comments and materials received, as well as supporting documentation used in the preparation of the proposed rule, are available for public inspection at the Carlsbad Fish and Wildlife Office. In accordance with section 4(5)(A) of the Act and the regulations at 50 CFR 424.16(c)(1), the Secretary shall--

- (i) Publish notice of the proposal in the Federal Register;
- (ii) Give actual notice of the proposed regulation (including the complete text of the regulation) to the State agency in each State in which the species is believed to occur, and to each county or equivalent jurisdiction therein in which the species is believed to occur, and invite the comment of each such agency and jurisdiction;
- (iii) Give notice of the proposed regulation to any Federal agencies, local authorities, or private individuals or organizations known to be affected by the rule;
- (iv) Insofar as practical, and in cooperation with the Secretary of State, give notice of the proposed regulation to list, delist, or reclassify a species to each foreign nation in which the species is believed to occur or whose citizens harvest the species on the high seas, and invite the comment of such nation;
- (v) Give notice of the proposed regulation to such professional scientific organizations as the Secretary deems appropriate; and
- (vi) Publish a summary of the proposed regulation in a newspaper of general circulation in each area of the United States in which the species is believed to occur. Further, the regulations at 50 CFR 424.16(c)(2) state that at least 60 days shall be allowed for public comment following publication in the Federal Register of a rule proposing the listing, delisting, or reclassification of a species, or the designation or revision of critical habitat.

On May 14, 2007, representatives from the Carlsbad Fish and Wildlife Office and the Regional Office, including the Regional Director, met with recovery team members in part to inform members that we were initiating work to propose revisions to designated critical habitat for the Peninsular

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bighorn sheep. At that meeting, we requested that recovery team members submit any data they wanted us to consider in our proposed revision. We received data from one recovery team member in response to this request.

During the development of this revision to critical habitat for the Peninsular bighorn sheep, we followed the appropriate guidance and regulations regarding inclusion of expert biologists and other appropriate entities, including the general public. In accordance with our policy on peer review published in the Federal Register on July 1, 1994 (59 FR 34270), we solicited expert opinions from five knowledgeable individuals with scientific expertise that included familiarity with the DPS, the geographic region in which it occurs, and conservation biology principles. We reviewed all comments received from the peer reviewers and the public for substantive issues and new information regarding the designation of critical habitat for Peninsular bighorn sheep.

Under section 4(f)(2) of the Act, the Secretary may procure the services of appropriate public and private agencies and institutions

and other qualified persons in developing and implementing recovery plans. However, the Act limits the use of recovery teams appointed under this subsection to the development and implementation of recovery plans. The Act does not contain a provision for development of critical habitat teams. However, the Service could set up a critical habitat team, but it would be subject to the Federal Advisory Committee Act (FACA), unlike a recovery team that is exempt from FACA. Since the Act contains specific timeframes for completion of critical habitat designations, creating a critical habitat team would slow the process of designation of critical habitat causing us to be out of compliance with the statutory requirements of the Act. However, consistent with our peer review policy and the Act's standard of using the best available scientific data, we openly and publically solicited information for consideration in rule development and solicited peer review of our proposal.

In total, we received comments from all five peer reviewers that we solicited comments from, and we received 5,299 comments from the general public during two public comment periods and two public hearings. Therefore, we believe we followed an open process during development of the Peninsular bighorn sheep revised critical habitat designation.

Regarding the peer reviewer's beliefs that the proposed critical habitat designation reflects a hurried process that used arbitrary decision-making and was not scientifically based, we disagree with this comment. As noted above, we solicited information from the entire Peninsular bighorn sheep recovery team prior to the proposed revisions to the designation. We also solicited expert opinions from five knowledgeable individuals with scientific expertise that included familiarity with the DPS, the geographic region in which it occurs, and conservation biology principles. Additionally, the designation of critical habitat for Peninsular bighorn sheep is based on the best scientific data available regarding the DPS, including: (1) A compilation of data from peer-reviewed, published literature; (2) unpublished or non-peer reviewed survey and research reports; and (3) opinions of biologists knowledgeable about Peninsular bighorn sheep and their habitat (see our response to Comment 5 and the ``Criteria Used To Identify Critical Habitat'' section for additional discussion on use of available scientific data and how this data was used to develop criteria for identifying critical habitat).

Comment 12: One peer reviewer believes it is impossible to duplicate the delineation of the revised critical habitat based on the Service's poorly described methods and an inadequate explanation of how the PCEs were used to delineate critical habitat. Another peer reviewer believes the proposed rule does not provide specifics on how proposed revised critical habitat was delineated, nor does it include discussion of the actual methods of identifying and mapping the PCEs. The same peer reviewer stated that along several sections of the proposed revised critical habitat boundary, the boundary line follows a perfectly straight course, which does not appear to conform to (or follow) any obvious biological or topographical feature; therefore, the peer reviewer questioned how this boundary line was placed. Another peer reviewer could not identify the specific methods used to create the revised boundary of the proposed rule and further stated that the boundary lines give the appearance of being hand-drawn, rather than based on a scientific method.

Our Response: As discussed in our response to Comment 5 above and the ``Criteria Used To Identify Critical Habitat'' section of this final rule, we delineated critical habitat for the Peninsular bighorn

sheep using the following criteria: (1) Areas that contain the PCEs required by the DPS as determined from aerial imagery and GIS data on vegetation, elevation, and slope; (2) areas within the ewe group distribution (i.e., subpopulations) boundaries identified by Rubin et al. (1998); (3) areas occupied by the subspecies between 2008 (present time) and 1988; and (4) areas where occupancy data points indicate repeated Peninsular bighorn sheep use, but which were not captured within the ewe group distribution boundaries identified by Rubin et al. (1998). Application of these criteria results in the determination of the physical and biological features that are essential to the conservation of this DPS, identified as the DPS's PCEs laid out in the appropriate quantity and spatial arrangement essential to the conservation of the DPS. Since the 2007 proposed rule, we revised the ``Criteria Used To Identify Critical Habitat'' section of this rule to provide more detail and description of the stepwise process used, data considered, habitat features mapped, and method used to delineate critical habitat boundaries. The boundaries were drawn with GIS software using detailed aerial imagery maps and data layers of occurrences and habitat information. Any straight lines along the boundary of critical habitat are the result of following habitat features that are naturally straight in appearance.

Comment 13: One peer reviewer asked if a model was employed, and if so, describe the type and state whether it was based on expert opinion.

Our Response: We did not use a model to delineate critical habitat for the Peninsular bighorn sheep. For more information on how we delineated critical habitat, see the ``Criteria Used To Identify Critical Habitat'' section of this final rule.

Comment 14: One peer reviewer inquired as to whether or not PCEs were weighted in the process of revising critical habitat.

Our Response: The PCEs were not weighted in the process of revising critical habitat.

Comment 15: One peer reviewer expressed concern that Anza Borrego Desert State Park's vegetation maps were not utilized in the critical habitat revision. The peer reviewer believes that vegetation has a critical influence on what type of habitat the Peninsular bighorn sheep use; therefore, he asserts that this information would have been instrumental in delineating a more accurate critical habitat boundary. Another peer reviewer asked which vegetation layer was used in delineating critical habitat.

Our Response: We believed it was important to use a GIS vegetation data

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layer that provided a consistent analysis over the entire extent of the Peninsular bighorn sheep range. Any vegetation layers that were prepared for a specific entity, including a park (such as Anza Borrego Desert State Park) or individual county, were not all-encompassing and therefore inappropriate for the analysis. The proposed and final revised critical habitat includes land in three separate counties (Imperial, Riverside, and San Diego). Therefore, the GIS layer that we used for the vegetation analysis portion of defining proposed critical habitat for the Peninsular bighorn sheep was the Fire and Resource Assessment Program layer created by the California Department of Forestry and Fire Protection. For further information on this vegetation data, see their Web site at: <http://frap/cdf/ca/gov>. This vegetation layer was most appropriate because it extended over the

entire area of the Peninsular Ranges and allowed for consistency in our analysis of vegetation across the range of this DPS.

Comment 16: One peer reviewer was concerned that our methodology included an elevation cut-off of 4,600 ft (1,400 m) to guide the critical habitat boundary line. The peer reviewer stated that, at times, Peninsular bighorn sheep rely on areas higher than this, especially on the western side of the Santa Rosa Mountains.

Our Response: We acknowledge that Peninsular bighorn sheep have occasionally been observed above 4,600 ft (1,400 m) elevation; however, it is commonly accepted that sheep within the Peninsular Ranges are primarily restricted to lower elevations (see the ``Primary Constituent Elements (PCEs)'' section for more information). We do not have evidence to suggest that areas above 4,600 ft (1,400 m) elevation are essential for the conservation of this DPS, and the commenter did not provide information to support the assertion that sheep rely on higher elevations. As previously mentioned in this final rule, critical habitat designations do not signal that habitat outside of the designation is unimportant or may not contribute to recovery (see our response to Comment 1 above).

Comment 17: One peer reviewer stated that the rule indicates that areas with canopy cover greater than 30 percent were not included as critical habitat. The peer reviewer asked what information was used to determine this cut-off point and what GIS data layer was used to identify these areas.

Our Response: Generally, bighorn sheep primarily rely on their sense of sight to detect predators. Research shows that bighorn sheep will avoid habitat where dense vegetation reduces visibility and, instead, prefer to use habitat with vegetative canopy cover less than or equal to 30 percent (Risenhoover and Bailey 1985, p. 799; Etchberger et al. 1989, p. 906; Dunn 1996, p. 1). Bighorn sheep in the Peninsular Ranges avoid higher elevations (above 4,600 ft (1,400 m)), likely due to decreased visibility (and therefore increased predation risk) associated with denser vegetation (i.e., chaparral and conifer woodland) found at higher elevations (Service 2000, p. 10).

The GIS layer that was used for the vegetation analysis for the proposed revised critical habitat designation for the Peninsular bighorn sheep was the Fire and Resource Assessment Program layer created by the California Department of Forestry and Fire Protection. With this layer, we were able to highlight areas likely to have vegetative canopy cover over 30 percent (i.e., chaparral and conifer woodland). Subsequently, we used detailed aerial imagery to focus on those areas and visually confirm whether or not those areas had canopy cover above 30 percent. If areas appeared to have canopy cover over 30 percent, those areas were removed from the critical habitat delineation. Therefore, vegetated areas within the final revised critical habitat designation include only those areas that provide lower density vegetation and better visibility to detect potential predators.

Comment 18: One peer reviewer inquired as to how we identified areas unlikely to be used by Peninsular bighorn sheep.

Our Response: As required by section 4(b)(2) of the Act, we used the best scientific data available in designating critical habitat, and more specifically (as per section 3(5)(A) of the Act), in determining the specific areas within the geographical area occupied by the DPS at the time of listing that contain the physical or biological features essential to the conservation of the DPS which may require special management considerations or protection, as well as in determining if any specific areas outside the geographical area occupied by the DPS at

the time of listing are essential for the conservation of the DPS. Areas unlikely to be used by Peninsular bighorn sheep were identified by Service biologists using detailed aerial imagery maps of the Peninsular Ranges with GIS information on vegetation, elevation, slope, and sheep occurrence data from 1988 to 2008. Please see our responses to Comments 5, 16, and 17 and the ``Criteria Used To Identify Critical Habitat'' section for additional information related to how we used the data to delineate critical habitat.

Comment 19: One peer reviewer noted that the proposed rule (72 FR 57740, October 10, 2007) includes language describing how the delineation of critical habitat is supported by a draft habitat model provided to the Service by Peninsular bighorn sheep biologists, because areas designated as critical habitat ``roughly fall within the upper level habitat suitability classes derived from the preliminary model.'' The peer reviewer believes the Service incorrectly interpreted the draft model, suggesting that the Service did not understand the model results. The peer reviewer also stated that although the recent models are based on two years of GPS data from a subset of the total population, and may therefore underestimate use of some areas, they provide support for the essential habitat line and the original (2001) critical habitat line. The peer reviewer believes that the models do not provide support for the currently proposed revised critical habitat delineation.

Our Response: As stated in the proposed rule, we did not adopt the above mentioned predictive habitat model in our critical habitat delineation process because: (1) It was in draft form and had not been peer reviewed; and (2) it was based on only two years of GPS data from a subset of the Peninsular bighorn sheep population. In response to comments received from peer reviewers and the public, we reanalyzed the draft predictive habitat model. However, we continue to believe it is inappropriate to draw conclusions on whether the model supports or does not support our revised critical habitat designation for this DPS because there are limitations in the data set used to create the model (i.e., only two years of GPS data), the model is in draft form, and has not been peer reviewed.

Comment 20: One peer reviewer believes that the proposed rule (as written) suggests that the proposed critical habitat delineation was based partially on ewe group delineations in Rubin et al. (1998). The peer reviewer noted that the Rubin et al. (1998) ewe group delineation was intended to document the approximate known distribution of ewe groups at that time. The peer reviewer further stated the ewe group delineation was not intended to represent essential habitat, it does not include additional areas used by rams, and it does not represent areas of connectivity. The peer reviewer clarified that the ewe group delineation in Rubin et al. (1998) was based on a small number of radiocollared sheep

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(GPS collars had not been used in the study at that time), it did not include locational information on sheep in the San Jacinto Mountains, and it was based on data collected in the mid-1990s when the population of Peninsular bighorn sheep was at its smallest known size. Finally, the peer reviewer contends that the proposed rule is implying that ewe-group delineations in Rubin et al. (1998) were based on animal locations collected during 1971-1996 (p. 57747). However, the peer reviewer stated that ewe-group delineations were actually based on data collected during 1993-1996; Rubin et al. (1998) did use data collected

since 1971, but those data were only represented by water-hole count data (used to examine long-term abundance trends). Therefore, the peer reviewer believes that the ewe group delineations in Rubin et al. (1998) present a minimum distribution of bighorn sheep in the Peninsular Ranges.

Our Response: As stated in this final rule and the ``Criteria Used To Identify Critical Habitat'' section of the NOA (73 FR 50498, August 26, 2008), we mapped ewe group areas from Rubin et al. (1998) over GIS imagery of the Peninsular Ranges to delineate the distribution of ewe groups in the proposed revised critical habitat as an initial step in the delineation process. We consider Rubin et al. (1998) to be the best available data on Peninsular bighorn sheep ewe group distribution. The ewe group delineations presented in Rubin et al. (1998) were based on data collected during 1993 to 1996 (not 1971 to 1996 as incorrectly stated in the proposed rule (72 FR 57740, October 10, 2007)), when the population of Peninsular bighorn sheep was at historically low levels. Therefore, the ewe group delineations present a minimum distribution of bighorn sheep in the Peninsular Ranges. However, this is the only data we are aware of that identifies the distribution of ewe groups and subgroups within the Peninsular Ranges. Furthermore, we believe that the ewe groups presented in Rubin et al. (1998) accurately depict the general locations of the known ewe groups in these ranges and provide a logical starting point for the delineation of critical habitat.

Comment 21: One peer reviewer believes that climate change will undoubtedly have an effect on habitat, and changes in temperature and precipitation will likely increase the importance of upper elevation habitats. Additionally, the peer reviewer believes the proposed revision to critical habitat excludes some high elevation areas currently occupied by bighorn sheep and reduces the protection of habitat that will be essential for conservation of the Peninsular bighorn sheep in the future.

Our Response: Peninsular bighorn sheep generally do not use the upper elevation habitats of the Peninsular Ranges at this time because those areas are more densely vegetated and provide conditions of poor visibility. For further discussion, see our responses to Comments 16 and 17.

We acknowledge that climate change could result in changes in the resources and habitat condition along an elevational gradient in the Peninsular Ranges. However, the scientific evidence available at this time does not suggest that upper elevation habitats in the Peninsular Ranges will become more visually open (i.e., more suitable for Peninsular bighorn sheep) as a result of a climate change scenario like that described by the peer reviewer. The peer reviewer did not submit any specific data supporting the contention for the need to expand critical habitat to include currently unoccupied upper elevation habitat. We are unaware of any studies or data that would indicate this request is appropriate. In fact, Epps et al. (2004, p. 111) applied a climate change model that assumed an increase in temperature of 2 degrees Celsius and a decrease in precipitation of 12 percent and found no change in the probability of extinction for sheep in those ranges supporting the Peninsular bighorn sheep. Should additional data become available, we may revise this final critical habitat designation, subject to available funding and other conservation priorities.

Comment 22: One peer reviewer agreed with the Service regarding correction of an earlier error to recognize this listed entity as a DPS of the subspecies *Ovis canadensis nelsoni*. The peer reviewer also stated that no attempt was made by the Service in the proposed rule to give the reader a full geographic picture of how this DPS fits into the

larger distribution of that subspecies. The peer reviewer believes that this animal should be referred to as a DPS, avoiding the term subspecies. The peer reviewer believes that if Peninsular bighorn sheep is defined as simply ``bighorn sheep in the Peninsular Ranges,' ' then the word Peninsular in that phrase is redundant and unnecessary. The peer reviewer believes the problem is that the use of Peninsular bighorn sheep in this context gives the reader a false impression that there is something unique and different about this subspecies. The peer reviewer suggested this could be avoided by referring to the animal as ``bighorn sheep in the Peninsular Ranges.' ' Another peer reviewer stated that the commonly accepted vernacular name for *Ovis canadensis nelsoni* is Nelson's bighorn sheep and not Peninsular bighorn sheep. The peer reviewer suggested the Service refer to this DPS throughout the rule as ``Nelson's bighorn sheep in the Peninsular Ranges.' '

Our Response: As discussed in the Background section of this final rule, we are formally changing the listed entity as a DPS of the desert bighorn sheep, *Ovis canadensis nelsoni*, and this final rule includes such change to the list of Endangered and Threatened Wildlife at 50 CFR 17.11(h). Within this final rule, we believe it is appropriate to continue to refer to these sheep with the common name Peninsular bighorn sheep. Further, we will refer to this listed entity as a DPS, not a species or subspecies as we have in previous Federal Register publications. We also have included information on the geographic distribution of the desert bighorn sheep subspecies, of which Peninsular bighorn sheep are a DPS, in the ``Background' ' section of this final rule.

Comment 23: One peer reviewer noted that in the proposed rule the Service stated it ``has been hypothesized that desert bighorn sheep can survive without a permanent water source,' ' although the Service did not provide a citation. The peer reviewer believes the most appropriate citation should have been Krausman et al. (1985), which demonstrated this to be true for a Sonoran Desert population. The peer reviewer further believes that more meaningful discussion would have compared high temperatures for the population studied by Krausman et al. (1985) with those in the Peninsular Ranges, from which a greater need for water could be surmised. The same peer reviewer noted that the Service also did not provide a citation in the proposed rule when referring to water as ``especially important to lactating ewes. \* \* \*' ' The peer reviewer believes that Bleich et al. (1997) refuted this as a myth.

Our Response: In light of the peer reviewer's comment, we included the citation of Krausman et al. (1985) into our discussion of water in the ``Primary Constituent Elements (PCEs)' ' section of this final rule. All other variables (e.g., vegetation, elevation, climate, terrain) being the same, we agree with the peer reviewer that it could be assumed that sheep living in ranges with higher temperatures would have a greater need for water. However, we are not aware of an analysis comparing the Peninsular Ranges to the Little Harquahalas studied

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by Krausman et al. (1985, p. 26). Regarding the peer reviewer's comment regarding Bleich et al. (1997), we reevaluated the available literature on the importance of water to lactating ewes. As a result, we revised the discussion of water in the ``Primary Constituent Elements (PCEs)' ' section of this final rule.

Comment 24: One peer reviewer stated the proposed rule lists sites for breeding and space for mating as key habitat elements, but the peer

reviewer believes there is no evidence to suggest that lack of breeding is a limiting factor for these sheep. The peer reviewer also believes there is no evidence that breeding takes place in any habitat other than where normal activities occur during the months in which breeding and mating take place.

Our Response: We acknowledge the peer reviewer's concerns regarding Peninsular bighorn sheep breeding habitat. We did not suggest in the proposed rule that lack of breeding is a limiting factor for Peninsular bighorn sheep or that breeding occurs exclusively in a specific type of habitat. Rather, our intention was to highlight the importance of maintaining space for individual and population growth and normal behavior, which includes breeding.

Comment 25: One peer reviewer believes the document could be strengthened by using primary literature (versus grey literature) and citing original sources.

Our Response: Consistent with section 4(b)(2) of the Act, the Secretary shall use the best scientific data available when making critical habitat determinations. Data reviewed by the Secretary may include, but are not limited to, scientific or commercial publications, administrative reports, maps or other graphic materials, information received from experts on the subject, and comments from interested parties. Designation of critical habitat for Peninsular bighorn sheep includes a compilation of data from peer-reviewed, published literature; unpublished or non-peer reviewed survey and research reports; and opinions of biologists knowledgeable about Peninsular bighorn sheep and their habitat. We use primary literature whenever possible, although in some cases grey literature provides timely and detailed information that may otherwise not be available. Therefore, in this final revised critical habitat designation we have used the best scientific information available at this time, including updated information provided by peer reviewers and commenters, which is incorporated into this rule where appropriate.

Comment 26: One peer reviewer believes the distribution of critical habitat could be more exact (and defensible) based on locations of sheep. The peer reviewer further stated that the Service should consider documented sheep locations approximately 500-1,000 m (1,640-3,280 ft) in any direction as the boundary of critical habitat, because the peer reviewer believes this would be defensible given the accuracy of the radio and GPS collar generated locations. Finally, the peer reviewer suggested other defensible options for a more exact critical habitat delineation, including the use of minimum convex polygons or 95 percent adaptive kernel techniques (and the connectivity between them).

Our Response: Consistent with 50 CFR 424.12(b), when considering the designation of critical habitat, the Secretary shall focus on the principal biological or physical constituent elements within the defined area that are essential to the conservation of a given species and that may require special management considerations or protection. Additionally, as per section 3(5)(A)(ii) of the Act, critical habitat also includes specific areas outside the geographical area occupied by the species at the time it is listed if such areas are essential for the conservation of the species. While delineating critical habitat, we not only considered Peninsular bighorn sheep locations, but also a combination of habitat features. We believe that drawing circles around occurrence points as the commenter has suggested (by delineating the critical habitat boundary as 500-1,000 m (1,640-3,280 ft) in any direction of a sheep location) would not accurately reflect essential habitat for this DPS because collared sheep represent a subset of the total number of sheep in the Peninsular Ranges. Additionally, there are

a disproportionate number of collared animals in the northern extent of the DPS's range compared to the southern extent of its range. Therefore, we believe basing critical habitat only on occurrence data would lead to an underrepresentation of the habitat essential to the whole population.

Both the minimum convex polygons or 95 percent adaptive kernel techniques could be valid options for determining a species' habitat or home range; however, we believe our criteria used to identify critical habitat gives a more precise delineation of essential habitat based on occurrence data and the physical or biological features essential to the conservation of Peninsular bighorn sheep (see ``Criteria Used To Identify Critical Habitat''). We did consider the use of other techniques to delineate critical habitat, including minimum convex polygons or 95 percent adaptive kernel techniques such as the peer reviewer suggested. However, those techniques can yield broad and irregularly shaped polygons of habitat inclusive of expanses of areas that lack occurrence data.

We delineated critical habitat boundaries as described in the ``Criteria Used To Identify Critical Habitat'' section of this final rule. Please see this section for a detailed discussion of the delineation process used for this rule.

Comment 27: One peer reviewer stated it was not clear in the proposed rule how the distribution of bighorn sheep and occupied areas were determined. The peer reviewer believes the ``Methods'' section does not define occupied habitat. The peer reviewer believes that if sheep are regularly using an area, it is important for the Service to define occupied habitat. However, if sheep have not used an area in more than 5 to 10 years and there is no suitable habitat adjacent to that area, the peer reviewer believes it would be difficult to defend this area as critical. The peer reviewer suggested an in-depth cumulative effects examination to address this issue.

Our Response: We agree with the peer reviewer that areas of regular, repeated sheep use are important to this DPS; however, we disagree with the peer reviewer's assertion that areas not used by sheep in more than 5 to 10 years will be difficult to defend as critical habitat. Section 3(5)(A)(i) of the Act defines critical habitat as the geographical area occupied by the species, at the time it is listed in accordance with the provisions of section 4 of the Act, on which are found those physical or biological features (a) essential to the conservation of the species and (b) which may require special management considerations or protection. As a revision to our criteria announced in the NOA (73 FR 50498, August 26, 2008), we included areas with occupancy data indicating they are currently occupied or areas with occupancy data indicating they were occupied at some point between 2008 (present time) and 1988 (i.e., the time of listing (1998) less 10 years, which is the average lifespan of Peninsular bighorn sheep).

Use of a data set that considers a larger time-span of occurrence data accounts for the large fluctuations in Peninsular bighorn sheep population levels over the last two decades. Because the average lifespan of sheep is approximately 10 years (Botta 2008a, p. 1), areas occupied 10 years prior to listing should be considered occupied at listing. Therefore, we appropriately

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included areas supporting the essential physical and biological features that may require special management considerations or protection that are within areas occupied at the time of listing. We

did not include areas that were unsuitable or otherwise did not support physical and biological features essential to the conservation of the species. Please see our response to Comment 8 and ``Criteria Used To Identify Critical Habitat'' section of this rule for additional discussion on occupancy and methodology used to develop critical habitat.

With regard to the assertions about a cumulative effects analysis, the peer reviewer may be confusing a cumulative effects analysis under section 7 of the Act or NEPA with the process for designating critical habitat. A ``cumulative effects'' analysis is not required under section 4 of the Act. Under section 4(b)(2) of the Act, we did consider the economic, national security, and other relevant impacts of designating critical habitat.

Comment 28: One peer reviewer believes that bighorn sheep habitat along the border could be altered by illegal immigrants and the Border Patrol (or other agents that pursue illegal immigrants). The peer reviewer also believes that future economic growth could further infringe on the bighorn sheep's habitat in the southern part of its range as it has in the northern part of its range. The peer reviewer believes that these issues should be addressed in a cumulative effects analysis.

Our Response: When delineating critical habitat for Peninsular bighorn sheep, we used the best available scientific information to determine those areas that meet the definition of critical habitat. We do not have any data indicating that activities associated with the Border Patrol activities or illegal immigration threaten Peninsular bighorn sheep habitat along the border, nor did the peer reviewer supply data to support this assumption. The DEA analyzed projected economic growth and associated economic impacts, and the majority of projected growth is expected to occur in the northern part of the range. We recognize the potential threat of development in the ``Special Management Considerations or Protection'' section of this final rule. Again, the peer reviewer may be confusing a cumulative effects analysis under section 7 of the Act or NEPA with the process for designating critical habitat.

Comment 29: One peer reviewer did not agree with our discussion of the potential negative effects of roads to Peninsular bighorn sheep as stated in the 2007 proposed rule. The peer reviewer believes that the citation of Epps et al. (2005, p. 1035) in the proposed rule is inappropriate to this DPS because that study was concerned with the effects of major fenced highways, and the roads in question in the Peninsular Ranges are smaller two-lane roads that Peninsular bighorn sheep cross regularly.

Our Response: In light of the above comment, we revised our discussion of the effects of roads on Peninsular bighorn sheep and revised our citation of Epps et al. (2005). Please see the ``Special Management Considerations or Protection'' section of this final rule.

Comment 30: One peer reviewer believes that the discussion in the 2007 proposed rule of behavioral interactions between humans and bighorn sheep is not objective and lacks a real analysis of the problem as its basis. The peer reviewer believes that an analysis is required regarding our statement that ``disturbance could modify the sheep's behavior or cause bighorn sheep to flee an area.'' The peer reviewer believes this statement falsely implies that such an incident is detrimental to the conservation of this animal. Additionally, the peer reviewer suggested we provide an alternative statement indicating that bighorn sheep in the Peninsular Ranges are a good example of a DPS that can readily habituate to human activities that are non-threatening and

geographically predictable.

Our Response: The opening paragraphs of our proposed revised critical habitat designation clearly state that the rule is not intended to serve as a comprehensive review of desert bighorn sheep ecology and conservation, and such reviews can be found elsewhere. The proposed rule briefly discusses the natural history and management of bighorn sheep, and then concentrates upon the methodology used to designate critical habitat. The effects of human activities on bighorn sheep have been discussed and debated by many biologists and managers for decades; thus, we included a brief synopsis of the topic. We recognized there were differences of opinion, and thus we were careful to include words such as ``potential.'' It should be noted that we were discussing human activity in a general sense, and we listed a variety of activities as examples.

A careful review of the literature reveals that bighorn sheep group or individual responses to human activity are highly variable and influenced by local factors and local history. Therefore, generalized statements extending to all bighorn sheep are inappropriate. An overwhelming majority of biologists have expressed concern and have recommended limiting or managing human activities in bighorn sheep habitat. The peer reviewer is correct in asserting that much of the literature consists of opinions and that there is a need for additional well-designed studies that provide stronger inferences. However, considering the volume of opinions on the potential impacts that human activities may have on bighorn sheep, it was appropriate to include discussion of these potential impacts when considering if the physical or biological features essential to the conservation of the Peninsular bighorn sheep may require special management considerations or protection.

Comment 31: One peer reviewer made the following statement: ``Conspicuous by its absence in this proposal is any reference to the recent Turner et al. [2004] published habitat analysis of bighorn sheep in the northern Peninsular Ranges, the Ostermann et al. [2005] rebuttal to that, and the response by Turner et al. [2005].'' The peer reviewer further stated that a subsequent unpublished preliminary habitat analysis by Rubin et al. was referenced in the proposed rule instead, with a statement that it was not adopted because of its preliminary nature; yet it was used as validation of the critical habitat boundaries, which effectively is stating that it was adopted. The peer reviewer pointed out that in discussing why the new proposal includes much less habitat, the Service stated that many areas in the original critical habitat did not support features essential for the conservation of the Peninsular bighorn sheep or otherwise contain suitable habitat for the DPS. The peer reviewer stated this is the same point made by Turner et al. (2004), and regardless of whether the Service accepts the details of their habitat modeling, the peer reviewer believes it would be appropriate to cite them as having arrived at the same conclusion. Finally, the peer reviewer stated that, without advocating one study over the other, this is not objective, and there should be a discussion addressing why the Turner et al. analysis was not used, while an unpublished preliminary analysis was used.

Our Response: We considered the papers cited above (Turner et al. 2004; 2005; and Ostermann et al. 2005), but they did not play a role in the development of the critical habitat designation. Therefore, they were not cited and discussed in the proposed rule. Turner et al. (2004) based their model primarily upon data collected

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from a subpopulation that exhibited atypical habitat selection patterns. Approximately 90 percent of the data points utilized were collected from a group of bighorn sheep that frequented urban areas in the vicinity of Rancho Mirage. Furthermore, 79 percent of the data points utilized were collected over only a seven-year period when bighorn sheep use of urban areas was most pronounced. This fact also biased the data from a spatial standpoint because point locations were much easier to collect in urban settings. Approximately 80 percent of the point locations utilized were obtained within 1.9 mi (3 km) of an artificial water source, which was located next to a residential community. Additionally, Turner et al. (2004) assumed that the density of bighorn sheep point locations in a given area accurately reflected habitat quality, and they did not account for variations in sampling effort and detection. Finally, the Turner et al. (2004) model utilized a subset of the available data. Only a small amount of the data utilized was collected from other bighorn sheep groups that exhibited behavior and habitat use patterns typical of bighorn sheep inhabiting the remainder of the Peninsular Ranges.

For the reasons stated above, the Turner et al. (2004) model should not be considered a general model for identifying or ranking bighorn sheep habitat in the Peninsular Ranges. Its validity is specific to the small group of sheep that frequented urban areas in Rancho Mirage from 1994-2000. The Turner et al. (2005) rebuttal to Ostermann et al. (2005) did not fully address the above issues, but instead aired past grievances with the Service and addressed aspects of Peninsular bighorn sheep recovery that were not specific to their model or Ostermann et al. (2005).

The preliminary habitat analysis conducted by Rubin et al. (2007) utilized point locations collected from bighorn sheep not closely associated with urban areas, and their efforts utilized different and recently developed methodology. The preliminary results were presented by Rubin et al. to our office and examined. However, the Rubin et al. (2007) preliminary results were not used to adjust the boundaries of the proposed critical habitat designation (see our response to Comment 20 above). The peer reviewer is justified in asserting that if the preliminary results of Rubin et al. (2007) were mentioned in the proposed rule, then the Turner et al. (2004) model, plus rebuttals, also should have been discussed. However; since neither model was used to designate the proposed critical habitat, we removed further discussion of the models (e.g., Rubin et al. 2007; Turner et al. 2004) from this final rule.

#### Public Comments

##### Comments Related to Criteria Used To Identify Critical Habitat

Comment 32: Two commenters stated that upon examination of occurrence data and the original critical habitat (2001), they believe that the original critical habitat was overdrawn. The commenters further believe that the original critical habitat contains large areas of land that have no evidence of current or historic bighorn sheep activity or that have had only a handful of observations over the past 30 years. The commenters noted that the Service's attempt to base the proposed critical habitat on more technical, state-of-the-art distributional information appears to be a step toward resolving some of these issues. The commenters believe the methodology used in the proposed rule is vague, and the sources of information do not appear to

be publicly available. For example, one commenter questioned how the ewe group delineation from Rubin et al. (1998) was compared to all occupancy data collected since the time of listing on GIS imagery maps. Both commenters also questioned how ewe group delineation was expanded to include areas where occupancy data points indicate repeated Peninsular bighorn sheep use and recent sheep movements.

Our Response: We acknowledge that the 2001 critical habitat designation contains large areas of land that have no evidence of current or historic bighorn sheep activity or have had only a handful of observations over the past 30 years. A complete discussion of how information and data collected since the 2001 designation was utilized to refine the proposed designation and the steps used in the delineation process (i.e., methodology) can be found in the ``Criteria Used To Identify Critical Habitat,' ' ``Summary of Changes From the 2001 Critical Habitat Designation To the 2007 Proposed Rule To Revise Critical Habitat,' ' and ``Summary of Changes From the 2007 Proposed Rule To Revise Critical Habitat To This Final Rule To Revise Critical Habitat' ' sections of this final rule.

Comment 33: Two commenters believe it is disconcerting that the proposed rule expands areas of occupancy (from E. Rubin's ewe group determination) to include areas where there are only a handful of sightings, where sighting data are unverifiable, and where bighorn sheep have been recently released. The commenters believe this suggests that critical habitat can be ``created' ' by releasing bighorn sheep into previously unoccupied areas. The commenters further stated that the expansion of the northernmost ewe group delineation in the San Jacinto Mountains could be justifiable; however, they believe there is no way to objectively evaluate the information used in support of this expansion. The commenters provided the example that several bighorn sheep sightings in Chino Canyon were the result of helicopter pursuits driving animals onto the valley floor. The commenters questioned if these coerced observations were included in the database. Additionally, the commenters believe the proposed rule expanded the southernmost ewe group delineation near Interstate 8 based on consistent, recent sightings of uncollared Peninsular bighorn sheep and asked the Service if this includes ewes, lambs, and rams. The commenters stated that their understanding was that California Department of Fish and Game (CDFG) personnel suggest these are occasional sightings of rams. The commenters believe that since these are uncollared animals, it is unknown if these ``consistent sightings' ' are of one or a few individuals being repeatedly seen or from multiple groups colonizing the area and further indicated that subjective statements such as this by the Service are unacceptable in a final rule.

Our Response: We believe it was necessary and justifiable to explore and consider additional available scientific information because the ewe group delineations from Rubin et al. (1998) were intended to document the approximate known distribution of ewe groups at that time and were based on only a few years of data. Using the ewe group delineations as a starting point, we expanded our proposed critical habitat boundary from the ewe group delineations using a much larger set of occurrence data from 1988 to 2008 and information on essential habitat features. See our response to Comment 20 and the ``Criteria Used To Identify Critical Habitat' ' section of this final rule for more discussion on the methodology and expanded critical habitat boundary.

In response to the commenters' assertion that we included areas where there are only a handful of sightings, where sighting data are unverifiable, and where bighorn sheep have been recently released, we

used the best available scientific data in determining whether the areas in question meet the definition of critical habitat. A captive breeding program has been maintained by the Bighorn Institute since 1984 in

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cooperation with CDFG and the Bureau of Land Management (BLM). Captive-bred Peninsular bighorn sheep have been released in the northern Santa Rosa Mountains and the San Jacinto Mountains (Ostermann et al. 2001, p. 751) solely into areas currently and historically occupied by the DPS. We recognize that a small percentage of data points considered may be those of released sheep from the captive breeding program; however, we do not suggest that critical habitat can be created by releasing sheep into previously unoccupied areas, as the commenters have asserted. Furthermore, all areas included in the designation contain data points from non-captive-bred sheep. In regard to the commenters' concerns and assertions about the data considered, we are not aware of any ``coerced'' observations in our database. Finally, the recent bighorn sheep sightings near Interstate 8 include multiple ewes and lambs in groups of varying sizes.

Comment 34: Several commenters expressed concern about the draft habitat model mentioned in the proposed rule.

Our Response: We did not use the draft habitat model in our critical habitat delineation for the proposed rule or this final rule. See our response to Comment 19 above.

Comment 35: Two commenters questioned why the Service does not mention in the proposed rule the three current peer reviewed papers on bighorn sheep critical habitat in the northern Peninsular Ranges (i.e., Turner et al. 2004; 2005; Ostermann et al. 2005). The commenters believe this is incongruous, as the critical habitat delineated in the proposed rule most closely approximates the conclusions of Turner et al. (2004).

Our Response: Please see our response to Comment 31 for a discussion of these papers.

Comment 36: Several commenters believe that the proposed revised critical habitat is flawed because it fails to consider historic and recent known Peninsular bighorn sheep locations. One commenter believes the current proposal fails to include and adequately consider the vast majority of known Peninsular bighorn sheep locations prior to the listing of the DPS as endangered in 1998, when the Peninsular bighorn sheep population was at a historic low point and their range was severely constricted. The commenter also believes that omitting historic locations of Peninsular bighorn sheep from critical habitat designation ensures that the distribution of the DPS will remain severely limited in relation to its historic distribution and is contrary to the Act. The commenter suggested that to promote recovery of the DPS, it is essential that Peninsular bighorn sheep be able to re-inhabit their historic range which, given the rapid expansion of human development in the area, will be impossible if sufficient historic habitat is not protected as critical habitat.

Additionally, one commenter believes the critical habitat designation in the proposed rule does not accurately take into account multiple sheep locations recorded since Peninsular bighorn sheep were listed in 1998. The commenter noted that conservation groups have been informed by the Peninsular bighorn sheep recovery team members that the proposed revised critical habitat fails to consider known sheep locations that were made available to the Service by members of the

Peninsular bighorn sheep recovery team. The commenter noted their belief that the consequence of this omission (whether purposeful or inadvertent) is that significant areas of currently occupied habitat essential to the DPS are omitted from the proposed rule.

Our Response: Regarding the commenters' concern about a flawed proposal and assertions about historic and known sheep locations not considered in the proposed revised critical habitat designation, we revised our criteria in light of these concerns and similar comments from peer reviewers about the limited dataset used in the proposed rule. The revisions were announced in the NOA published in the Federal Register on August 26, 2008 (73 FR 50498). We revised our criteria to consider occurrence data between 2008 (present time) and 1988 (i.e., the time of listing (1998) less 10 years, which is the average lifespan of Peninsular bighorn sheep). Use of a data set that considers a larger time-span of occurrence data accounts for the large fluctuations in Peninsular bighorn sheep population levels over the last two decades. See our response to Comment 8 above.

Regarding the concerns that critical habitat should include the historical range of the DPS, the Service may designate as critical habitat areas outside of the geographical area occupied by a species at the time it was listed (i.e., historical habitat) only when we can demonstrate that those areas are essential for the conservation of the species (section 3(5)(A)(ii) of the Act). Likewise, we can designate as critical habitat areas outside the geographical area presently occupied by a species only when a designation limited to the species' present range would be inadequate to ensure the conservation of the species (50 CFR 424.12(e)). Refer to our response to Comment 7 for further discussion.

We believe that we considered a scope of occurrence data that is reflective of the large population fluctuations of Peninsular bighorn sheep over the past two decades, not just occurrence data from a ``historic low point'' when the range of this DPS was ``severely constricted,'' as the commenter suggests. See our response to Comment 8 above for a detailed discussion.

With regard to the commenter's concerns of the omission of occurrence data previously provided to the Service, we examined the occurrence data considered in the delineation of the proposed revised critical habitat and found that a set of data was missing from our GIS database. Subsequently, we included that occurrence data into our GIS database and double-checked to ensure that all occurrence records submitted to the Service were included for our analyses. Please see our response to Comment 10 above.

Comment 37: One commenter asserted that instead of including the full catalogue of known locations, the Service's proposed revised critical habitat gives greater weight to occurrence data acquired remotely through radio telemetry and GPS. The commenter believes that this nonrandom sampling inevitably biases the assessment of habitat selection by Peninsular bighorn sheep towards more intensively studied groups and that it cannot be construed as representative of habitat use throughout the range.

Our Response: We realize that much of the occurrence data for this DPS is based on data acquired remotely through radio telemetry and GPS. Additionally, we are aware that not all areas within the range of the DPS have been surveyed or studied equally (see our response to Comment 8). For example, the extreme southern portion of the Peninsular Ranges has not been studied as heavily with radio telemetry and GPS collar technology as in the north. Therefore, we use a variety of occurrence

data such as photographic evidence, scat data, and field notes collected from Service biologists and other species experts to determine occupied habitat. The designation of critical habitat for Peninsular bighorn sheep is based on the best scientific data available regarding the DPS, including a compilation of data from peer-reviewed, published literature; unpublished or non-peer-reviewed survey and research reports; and opinions of biologists knowledgeable about Peninsular bighorn sheep and their habitat.

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Comment 38: One commenter believes the proposed rule is flawed because it uses uncertain and unclear methodology, and another commenter believes the Service failed to consider the best scientific and commercial data available. Additionally, one commenter believes that the failure to provide a clear and transparent methodology prevents independent validation of the proposed changes insofar as scientists and other members of the public are unable to conduct a comprehensive appraisal of the methods and determinations.

Several commenters stated that it is unclear how the Service utilized the PCEs identified in the proposed rule to ascertain whether specific habitat should be categorized as critical. One commenter stated that he was unable to assess how the Service derived the maps of critical habitat, as they contain features not consistent with known topography or known bighorn sheep locations. The commenter further noted that the critical habitat maps in the proposed rule show several lengthy and inexplicable straight line edges of habitat, notably adjacent to Borrego Springs and south of Route 78, which do not conform to the terrain and for which no biological explanation or justification is provided in the proposed rule; they added that bighorn sheep habitat does not naturally occur in such a linear fashion. The commenter had concerns that these boundaries may have been based on political and economic reasoning rather than sound science.

Our Response: As discussed in our responses to Comments 5 and 12 above and the ``Criteria Used To Identify Critical Habitat'' section of this final rule, we delineated critical habitat for the Peninsular bighorn sheep using the following criteria: (1) Areas that contain the PCEs required by the DPS as determined from aerial imagery and GIS data on vegetation, elevation, and slope; (2) areas within the ewe group distribution (i.e., subpopulations) boundaries identified by Rubin et al. (1998); (3) areas occupied by the DPS between 2008 (present time) and 1988; and (4) areas where occupancy data points indicate repeated Peninsular bighorn sheep use, but which were not captured within the ewe group distribution boundaries identified by Rubin et al. (1998). Application of these criteria results in the determination of the physical and biological features that are essential to the conservation of this DPS, identified as the DPS's PCEs laid out in the appropriate quantity and spatial arrangement essential to the conservation of the DPS. Since the 2007 proposed rule, we revised the ``Criteria Used To Identify Critical Habitat'' section of this rule to provide more detail and a description of the stepwise process used, data considered, habitat features mapped, and method used to delineate critical habitat boundaries. Any boundaries of the proposed critical habitat designation that seem straight in appearance are the result of our criteria used to identify critical habitat and are not the result of political or economic reasoning.

Comment 39: Many commenters stated that the methods were not designed by or made in consultation with members of the Peninsular

bighorn sheep recovery team who are most familiar with Peninsular bighorn sheep ecology and habitat and that they diverge significantly from those methods previously used in the Recovery Plan to determine critical habitat for the DPS.

Our Response: In accordance with our policy on peer review published on July 1, 1994 (59 FR 34270), we solicited expert opinions from five knowledgeable individuals (some of which were on the recovery team) with scientific expertise that included familiarity with the DPS, the geographic region in which it occurs, and conservation biology principles. We reviewed all comments received from the peer reviewers and the public for substantive issues and new information regarding the designation of critical habitat for Peninsular bighorn sheep. Furthermore, on May 14, 2007, representatives from the Carlsbad Fish and Wildlife Office and the Regional Office, including the Regional Director, met with recovery team members in part to inform members that we were initiating work to propose revisions to designated critical habitat for the Peninsular bighorn sheep. At that meeting, we requested that recovery team members submit any data they wanted us to consider in our proposed revision. Therefore, we believe that we followed the appropriate guidance and regulations regarding inclusion of expert biologists and others during development of this critical habitat designation. See our response to Comment 11 above.

Comment 40: One commenter believes that the 0.5-mi (0.8-km) buffer zone around slopes equal or greater than 20 percent as described in the Recovery Plan is not necessary, and they expressed support for the Service not to include this buffer in the final critical habitat designation.

Our Response: The areas of the 0.5-mi (0.8-km) zone around 20 percent slopes were included in the Recovery Plan and 2001 final critical habitat designation because they may contain resources for the DPS, and bighorn sheep have on occasion been observed to wander great distances from areas of 20 percent slope. The inclusion of these areas resulted in the addition of large expanses of land to the Recovery Plan area and the 2001 critical habitat designation. However, based on the best scientific information currently available and our criteria used to identify critical habitat, those areas do not meet the definition of critical habitat. As a result, we are not including some areas that were previously designated as critical habitat that are within this 0.5-mi (0.8-km) zone around 20 percent slopes. See our response to Comment 4 above, and the ``Criteria Used To Identify Critical Habitat'' and ``Summary of Changes From the 2001 Critical Habitat Designation To the 2007 Proposed Rule To Revise Critical Habitat'' sections of this final rule for further discussion.

Comment 41: One commenter had concerns about the occurrence data considered in our criteria used to identify critical habitat. The commenter stated that no scientifically based reason is identified for why occurrence data from 1988 to present is used. The commenter followed that Peninsular bighorn sheep occurred in the area for millennia prior to 1988 and were in decline by the 1970's. The commenter was also concerned that our use of occupancy data points was restricted to those indicating repeated Peninsular bighorn sheep use. The commenter stated that given the incomplete records for the location of all bighorn sheep at all times, especially in the southern part of the range, they believe it is unreasonable that only the repeated occupancy data points were used for the designation.

Our Response: As stated in our response to Comment 27 above, we considered areas with occupancy data indicating that they are currently occupied or areas with occupancy data indicating they were occupied at

some point between 2008 and 1988 (i.e., the time of listing (1998) less 10 years, which is the average lifespan of Peninsular bighorn sheep). Use of a data set that considers this time span of occurrence data accounts for the large fluctuations in Peninsular bighorn sheep population levels over the last two decades. Because the average lifespan of sheep is approximately 10 years (Botta 2008a, p. 1), areas occupied 10 years prior to listing should be considered occupied at listing. Regarding the concerns over using repeated occupancy data given the incomplete records in the southern part

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of the range, we are aware that not all areas within the range of the DPS have been surveyed or studied equally (see our response to Comment 8 above). Regardless, we used the best available scientific information and occurrence data in determining areas occupied by Peninsular bighorn sheep. Please see the ``Criteria Used To Identify Critical Habitat'' section of this rule for more information.

Comment 42: In response to our August 26, 2008, NOA announcing changes to the proposed rule, one commenter wrote; ``The proposed expansion of critical habitat beyond the boundaries, beyond those in the October 2007 critical habitat proposed rule, relies on essentially the same qualitative, opinion-based approach that led to the remand of critical habitat for new rulemaking by the Court (Agua Caliente v. Scarlett).''

Our Response: The commenter implies that the consent decree and associated remand of critical habitat reflect a court judgment supporting their opinion that the methodology used in delineating critical habitat is inappropriate. However, the court order upholding the approval of the consent decree states, ``It is also well established that in approving a consent decree, the Court does not delve into the merits of the case, but rather limits its review to determine if the settlement is fair, reasonable, and equitable.'' There was no court ``ruling'' that the methodology used to designate the critical habitat boundary was inappropriate. The parties agreed to a settlement to avoid the mutual risks and expenses of protracted litigation. Additionally, issues other than the methodology for delineating critical habitat, such as the economic analysis and tribal sovereignty, played important roles in the case.

Comments Related to the Primary Constituent Elements

Comment 43: One commenter believes that information about how PCEs are quantified, the models used for their application, and the methods applied to point-by-point determination of exclusion from critical habitat are not described in the proposed rule and are arbitrary. The commenter noted that some critical habitat was added in comparison to the critical habitat identified based on essential habitat designation in the Recovery Plan, and much habitat was deleted. The commenter inquired if there is a difference in the PCEs of these two groups (i.e., areas added and areas deleted).

Our Response: In our responses to Comments 5, 12, and 38 and in the ``Criteria Used To Identify Critical Habitat'' section of this final revised rule, we explain how we delineated critical habitat for the Peninsular bighorn sheep. In response to the commenter's inquiry if PCEs were different for areas added than for those deleted from critical habitat, the same set of PCEs for Peninsular bighorn sheep were used in the process of determining areas to include and not include as critical habitat in this designation.

Comment 44: One commenter believes the PCEs set forth an almost

unlimited area, confined only by certain upper-level altitudes.

Our Response: Some PCEs may extend beyond the boundary of critical habitat; however, we used ewe group delineations, occurrence data, and habitat features, in addition to the PCEs, to delineate the boundary of critical habitat. We believe that this process has resulted in critical habitat units that contain the PCEs laid out in the appropriate quantity and spatial arrangement essential to the conservation of the DPS. See the ``Criteria Used To Identify Critical Habitat'' section of this final rule for further discussion of the use of PCEs to delineate critical habitat.

#### Comments Related to DPS Biological Information

Comment 45: Two commenters believe the proposed rule gives a false impression that this population is a unique species or subspecies through weak use of nomenclature and erroneous information. The commenters also stated that in numerous places, the proposed rule refers to this DPS as if it were a subspecies or species. The commenters believe that the proposed rule incorrectly refers to this DPS as ``Peninsular bighorn sheep (*Ovis canadensis nelsoni*)'' in the title and body of the text; however, *Ovis canadensis nelsoni* is the Latin trinomial for ``desert bighorn sheep'' and the term ``Peninsular bighorn sheep'' was the common name for the now synonymized subspecies; *Ovis canadensis cremnobates*. The commenters believe this is a matter of peer-reviewed scientific literature and the proposed rule should use correct terminology and refer to this DPS as desert bighorn sheep (*Ovis canadensis nelsoni*) in the Peninsular Ranges of California (Wehausen and Ramey 1993; Ramey 1995).

Our Response: See our response to Comment 22 above. We are updating the listed entity to a DPS of desert bighorn sheep (*Ovis canadensis nelsoni*). However, we believe it is appropriate to continue to refer to these sheep with the common name Peninsular bighorn sheep within this rule. Additionally, we revised our discussion of the taxonomy of the listed entity in the ``Background'' section of this final rule.

Comment 46: Two commenters believe the proposed critical habitat rule includes overstatements that have little or no basis in fact about the negative impacts of human disturbance on bighorn sheep.

Our Response: Please see our response to Comment 30 above. We do not believe that the discussion in the proposed rule overstates impacts, and we based our discussion on a variety of widely discussed and debated impacts.

Comment 47: Two commenters stated that while it is important to minimize the effects or impacts of any construction project on bighorn sheep habitat, they believe the assertions in the proposed rule about power lines degrading and fragmenting habitat are without factual substantiation. The commenters also stated that once constructed, power lines and support structures are inanimate objects in the environment, and they believe there is no empirical evidence that power lines fragment bighorn sheep habitat or preclude movements under the power line.

Our Response: We agree with the commenters that it is important to minimize the effects or impacts of any construction project on bighorn sheep habitat. Our discussion of power lines in the proposed rule in relation to the threat of disturbance to Peninsular bighorn sheep and their habitat was limited to disturbance that would occur during power line construction. Once constructed, power lines become part of the inanimate landscape and may not impede sheep movement. Contrary to the commenters' assertions, we did not suggest or state in the proposed rule that sheep movement is precluded by power lines once constructed.

Comment 48: Two commenters noted the discussion in the proposed rule of roads fragmenting bighorn sheep habitat in which Epps et al. (2005) is cited as ``showing that nuclear genetic diversity of desert bighorn sheep populations was negatively correlated with the presence of human-made barriers (highways), which essentially eliminated dispersal.'' The commenters believe this is incorrect, stating that the study found there was a negative effect with fenced highways (e.g., Interstates 10, 15, and 40; and State Highway 62), not roads in general.

Our Response: In light of the above comment, we revised our discussion of

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the effects of roads on Peninsular bighorn sheep and revised our citation of Epps et al. (2005) to reflect that the study was of fenced highways, not roads in general. Please see the ``Special Management Considerations or Protection'' section of this final rule.

Comment 49: One commenter believes the proposed critical habitat designation does not take into consideration the effects of either natural or anthropogenic environmental variations and perturbations on the habitat requirements and utilization of Peninsular bighorn sheep, including changes due to development, fire and fire management, exotic species infestations, and climate change. The commenter asserted that the Service should revise and re-analyze the proposed critical habitat designation, taking into account these factors and ensuring that any new designation includes sufficient critical habitat to allow for Peninsular bighorn sheep recovery in light of the changes brought by climate change and other natural and anthropogenic alterations to sheep habitat across its range.

Our Response: As discussed in the ``Special Management Considerations or Protection'' section of this rule, when designating critical habitat, we assessed whether the geographical area occupied at the time of listing contains features that are essential to the conservation of the DPS and that may require special management considerations or protection. We considered the effects of anthropogenic factors (i.e., development and expansion of urban areas, human disturbance related to recreation, construction of roadways and power lines, and mineral extraction and mining operations) on the essential features in the delineation of critical habitat. Additionally, we discussed the issue of climate change in our response to Comment 21 above. At this time, the available scientific evidence regarding potential effects of climate change on Peninsular bighorn sheep habitat does not warrant modification of this critical habitat delineation. We recognize that the threats faced by Peninsular bighorn sheep (including climate change and anthropogenic effects) may change in the future; however, we base our critical habitat designations on the best scientific information available at the time of the designation and do not speculate as to what areas may be found essential if better information becomes available or what areas may become essential over time.

Conservation (i.e., recovery) is achieved when a five-factor analysis performed pursuant to section 4(a)(1) of the Act indicates that current and future threats have been minimized to an extent that the species is no longer threatened with extinction in the foreseeable future. Recovery is a dynamic process requiring adaptive management of threats, and there are many paths to accomplishing recovery of a species. We recognize that recovery efforts will occur both within and

outside the boundaries of this final critical habitat designation. However, we believe that conservation of Peninsular bighorn sheep would be achieved if threats to this DPS, as described in the ``Special Management Considerations or Protection'' section of this rule, were reduced or removed due to management and protection of those areas.

Comment 50: One commenter stated that in recent years, climate science has advanced considerably, and the Service should take into account the current predictions for impacts to Peninsular bighorn sheep habitat based on global climate change, which includes dramatic vegetation shifts, significantly altered fire regimes, and effects on precipitation (California Climate Change Center 2006). The commenter believes that each of these climate change elements may adversely impact Peninsular bighorn sheep and its existing habitat. The commenter cited a study by Kelly and Goulden (2008) showing that the average elevation of the dominant plant species increased by 65 meters between the surveys of 1977 and 2006-2007 (a 30-year interval) in the Santa Rosa Mountains; this elevational shift in vegetation is attributable to global climate change. The commenter believes that this significant distributional movement of plant species in a relatively short time period indicates that a very dynamic change is occurring in Peninsular bighorn sheep habitat. The commenter also cited a study by Seeger et al. (2007) that concluded a broad consensus among climate models indicates that southwestern North America will become more arid in the 21st century due to global climate change. The commenter believes that as a result of these data, the Service should require additional areas and a robust critical habitat designation to provide refuge for Peninsular bighorn sheep during these changing times.

According to the commenter, a study on the effects of climate change on desert bighorn sheep in California by Epps et al. (2004, p. 110) concluded that ``global warming could have serious consequences for desert bighorn sheep, particularly if coupled with decreases in precipitation.'' The commenter further stated that the Epps et al. (2004) study found that an average increase of 3.6 degrees Fahrenheit combined with a 12 percent decrease in precipitation increased the likelihood of extinction in desert sheep from 20 percent to 30 percent over the next 60 years. Therefore, the commenter believes that the Service should revise and re-analyze the proposed critical habitat designation, while taking into account these climate change factors, to ensure that any new designation includes sufficient critical habitat that provides for bighorn recovery.

Our Response: We acknowledge that recent data indicate that plant distributional changes may be occurring in the Peninsular Ranges; however, we are unaware of data indicating a shift in the resource use and distribution of sheep in the Peninsular Ranges that would correlate with the change in plant distribution. By considering sheep occurrence data over the past 20 years, we are likely capturing recent shifts in sheep distribution that may have resulted from changes in plant distribution in the Peninsular Ranges. Additionally, we acknowledge that recent climate studies indicate that the Southwestern United States may experience decreases in precipitation and increases in temperature in the coming years. If in the future, data reveal that sheep are experiencing a shift in distribution to areas outside of the critical habitat designation, in association with changing plant distribution resulting from climate change, we may revise the critical habitat designation at that time, subject to available funding and other conservation priorities.

With regard to the citation of Epps et al. (2004), we agree that the study concluded that global warming could have serious consequences

for desert bighorn sheep populations. Here, we would like to expand on the commenter's shortened description of Epps et al. (2004). The modeled 2.0 degree Celsius temperature increase, combined with a 12 percent precipitation decrease, resulted in an average increased extinction risk of 0.21 to 0.30 for desert bighorn sheep across California; however, the modeled climate scenario did not appear to markedly change the extinction probability for sheep occupying the Peninsular Ranges. Epps et al. (2004, p. 111) reported a 0-0.2 extinction probability for sheep in the Peninsular Ranges over the next 60 years under two scenarios, one being no further climate change and the other being the 2 degree temperature increase combined with the 12 percent precipitation decrease (see also our response to Comment 21

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above). We cannot conclude from Epps et al. (2004) that the Peninsular bighorn sheep population will be under a greater risk of extinction from the modeled climate change scenario, and we do not believe it appropriate to revise and reanalyze our critical habitat designation at this time. Critical habitat designations do not signal that habitat outside of the designation is unimportant or may not contribute to recovery in the future. Should additional data become available, we may revise this critical habitat designation, subject to available funding and other conservation priorities.

Comment 51: A number of commenters believe that the proposed revision of critical habitat will have a negative impact on sheep recovery because it excludes habitat that supports processes essential to metapopulation survival. One commenter believes that maintaining and reestablishing habitat connectivity to provide long-term genetic and demographic connection between ewe groups is crucial to recovering the Peninsular bighorn sheep and notes that it is a Priority 1 strategy in the Recovery Plan (Service 2000, p. 113). Several commenters noted that connectivity of habitat, as well as the resulting facilitation of animal movements and gene flow among metapopulations, are recognized as crucial elements for recovery by the Service. Several commenters further stated that they believe the proposed rule fails to identify critical habitat in regions that are confirmed linkages between metapopulation subsegments, based on data and materials provided to the Service by the Bighorn Institute and by bighorn sheep researchers, such as Dr. Esther Rubin. Several commenters believe that the proposal would eliminate critical habitat crucial for maintaining connectivity between Unit 1 and Unit 2A (thereby isolating the Peninsular bighorn sheep population in the San Jacinto Mountains) and between Units 2B and 3 (thereby isolating the Carrizo Canyon population).

One commenter believes that connectivity between bighorn population sub-segments in the Peninsular Ranges has been predicted from preliminary genetic studies and verified by both radio tracking and GPS collar data. The commenter also stated that failure to identify critical habitat between the Northern Santa Rosa Mountains (Unit 2A) and the San Jacinto Mountains (Unit 1) and between the Fish Creek Mountains (Unit 2B) and Coyote Mountains (Unit 3) would result in a failure to apply the protections that the Service is required to afford to a recovering endangered species through the designation of essential habitat and critical habitat. The commenter further believes that such a failure would be especially pronounced in the case of the bighorn sheep, when the Recovery Plan and the best available science indicate that the protection of Peninsular bighorn sheep critical habitat connectivity is a crucial element for recovery to allow for its

downlisting or delisting. Another commenter believes that failing to maintain critical habitat in these areas is a serious flaw of the proposed revised critical habitat designation and could jeopardize the persistence of isolated herds and preclude recovery of the Peninsular bighorn sheep.

Our Response: We agree with the commenters that habitat connectivity is important to allow for movement between ewe groups and to maintain genetic variation; however, we do not have occurrence data suggesting specific travel corridors connecting the units discussed by the commenters, and we are unable to identify specific areas containing physical or biological features essential to the conservation of the DPS. Please see our responses to Comments 1, 5, and 7 and the ``Criteria Used To Identify Critical Habitat'' section of this final rule for further discussion.

Comment 52: One commenter indicated that the population of Peninsular bighorn sheep dropped from possibly two million in 1800 to about 1,200 in the 1970s, and then to about 300 at the time of listing in 1998. The commenter believes that limiting Peninsular bighorn sheep habitat to 420,487 ac (170,166 ha) (as stated in the proposed rule) would not protect the entire range of the species.

Our Response: Our understanding is that the commenter may be confusing a possible estimate of all bighorn sheep in North America in 1800 with the Peninsular bighorn sheep DPS. As we stated in our response to Comment 8 above, when rangewide estimates were made in the 1970's, the population was estimated as high as 1,171 in 1974 (Weaver 1974, p. 5). At no point in history was the population of Peninsular bighorn sheep near two million. In this rulemaking, we are designating critical habitat for the Peninsular bighorn sheep and not the entire population of bighorn sheep that exists in various parts of North America. We believe the acreage we are designating in this final rule (376,938 ac (152,542 ha)) is adequate to provide for the conservation of the Peninsular bighorn sheep DPS.

Comments Related to Proposed Exclusions Under Section 4(B)(2) of the Act

Comment 53: One commenter stated that conservation groups disagree with the Service's assertion that it is appropriate to exclude some habitats from critical habitat designation because those areas are encompassed by the Coachella Valley MSHCP and draft Agua Caliente Band of Cahuilla Indians Tribal HCP. The commenter also believes that tribal lands should be retained in critical habitat for many reasons, including that the Tribal HCP is in draft form and not yet approved, nor is it found to adequately conserve the DPS. The commenter asserted that critical habitat should be designated even in areas where these plans may overlap to some degree in order to provide a safety net for habitat conservation for this endangered DPS. Several additional commenters also questioned the proposed exclusion of lands owned by the Agua Caliente Band of Cahuilla Indians Tribe.

One commenter noted that the proposed rule states (as reason for excluding critical habitat encompassed by the Agua Caliente HCP), ``The designation of critical habitat would be expected to adversely impact our working relationship with the Tribe and we believe that Federal regulation through critical habitat designation would be viewed as an unwarranted intrusion into tribal natural resource programs (October 10, 2007, 72 FR 57750).'' The commenter believes this argument is not acceptable because it fails to take the conservation and recovery goals of the Act adequately into account.

Our Response: We believe the exclusion of lands under the Coachella

Valley MSHCP and Agua Caliente Band of Cahuilla Indians' lands is appropriate based on the potential impacts associated with designating these areas as critical habitat (see ``Exclusions Under Section 4(b)(2) of the Act'' section of this final rule for a detailed discussion). Section 4(b)(2) of the Act allows the Secretary to exclude areas from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. We believe that critical habitat designation could negatively impact the working relationships and conservation partnerships we have formed with the

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Coachella Valley MSHCP permittees, the Tribe, and other private landowners.

This belief is supported by the following statement from the Tribe received during the comment period for the proposed rule, ``Contrary to the requirements of the ESA, Executive Order 13175, and the Secretarial Order, the proposed rule fails to defer to the tribe's own established standards, it discourages the Tribe from developing its own policies, and it intrudes on tribal management of its lands. Designation of critical habitat could delay approval of the 2007 draft Tribal HCP, thus adding to the costs of preparing the Tribal HCP and undermining significant protections for the bighorn sheep. Designation of critical habitat also can be expected to increase the amount of time and financial resources necessary to undertake covered activities described in the Tribal HCP, yet it is unlikely to yield material benefits for the bighorn sheep.''

Additionally, as explained in detail in the ``Application of Section 4(b)(2)--Other Relevant Impacts--Conservation Partnerships'' section of this final rule, we believe these conservation partnerships through the Coachella Valley MSHCP and tribal conservation programs will provide as much or more benefit than consultation under section 7(a)(2) related to the critical habitat designation (the primary benefit of a designation). See our response to Comment 2 above for additional discussion. With regard to the commenter's assertion that this argument is not acceptable because it fails to take the conservation and recovery goals of the Act adequately into account, we take conservation into account when determining areas that meet the definition of critical habitat and in considering the benefits of specifying any particular area as critical habitat. After weighing the benefits of excluding a particular area against the benefits of including such area as critical habitat, the Secretary may exclude the area from critical habitat if he determines that the benefits of exclusion outweigh the benefits of inclusion and that the failure to designate such area as critical habitat will not result in the extinction of the species concerned. Thus, at the end of the analysis under section 4(b)(2) of the Act, we consider whether an exclusion will result in extinction of the species, not whether the exclusion could impact recovery goals.

Comment 54: One commenter stated opposition to the Service's policy of relying on section 4(b)(2) of the Act to exclude habitat that may be covered by management plans or conservation plans under the logic that these areas do not need ``special management'' pursuant to section 3(5)(A) of the Act. The commenter referred to this approach as ``belt and suspenders'' and reminded the Service that the district court of

Arizona struck down this approach in *Center for Biological Diversity, et al. v. Norton* (D. Ariz. 2003). The commenter believes that all Peninsular bighorn sheep essential habitat needs special management because of the variety of impacts to its habitat (e.g., impacts from development, grazing, fire management activities, and off-road vehicle use). The commenter believes that current or future management actions provided for the Peninsular bighorn sheep or its habitat by management plans or conservation plans are not a reasonable justification for excluding these areas from the protection that a designation of critical habitat provides. The commenter further stated that the Act defines critical habitat as an area that may need special management, and therefore areas that are receiving management under a management plan or conservation plan meet the definition of critical habitat and should not be excluded if the necessary management is being provided under a plan. The commenter concluded that the Service should include in the final critical habitat designation all areas within the boundaries of conservation or management plans for Peninsular bighorn sheep because these areas meet the definition of critical habitat by nature of their need for special management.

Our Response: The commenter appears to be confusing the purposes of sections 3(5)(A) and 4(b)(2) of the Act. Section 3(5)(A) provides the requirements for identifying critical habitat, while section 4(b)(2) directs the Secretary to consider the impacts of designating such areas as critical habitat and provides the Secretary with discretion to exclude particular areas if the benefits of exclusion outweigh the benefits of inclusion. In this final revised rule, we did not state that areas do not meet the definition of critical habitat under 3(5)(A) of the Act because they are being adequately managed. However, we consider the management of particular areas that do meet the definition of critical habitat in our analyses under section 4(b)(2) of the Act.

We explain our criteria for designating critical habitat in our response to Comment 6 above, as well as the ``Criteria Used To Designate Critical Habitat'' section below. We believe our criteria captures all areas that meet the definition of critical habitat under section 3(5)(A) of the Act, in particular those areas that were occupied at the time of listing, and contain the physical and biological features essential to the conservation of the DPS that may require special management considerations or protection. We will focus our response to this comment on our exclusion of lands under section 4(b)(2) of the Act that we determined met the definition of critical habitat under section 3(5)(A) of the Act.

Section 4(b)(2) of the Act states that the Secretary shall designate critical habitat, and make revisions thereto, under subsection (a)(3) on the basis of the best scientific data available and after taking into consideration the economic impact, the impact to national security, and any other relevant impact, of specifying any particular area as critical habitat. The Secretary may exclude any area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific and commercial data available, that the failure to designate such area as critical habitat will result in the extinction of the species concerned. Therefore, consistent with the Act, we must consider the relevant impacts of designating areas that meet the definition of critical habitat using the best available scientific data prior to finalizing a critical habitat designation.

After determining the areas that meet the definition of critical habitat under section 3(5)(A) of the Act as described above, we took

into consideration the economic impact, the impact on national security, and other relevant impacts of specifying any particular area as critical habitat for Peninsular bighorn sheep. In this final revised designation, we recognize that designating critical habitat in areas where we have partnerships with landowners that have led to conservation or management of listed species on non-Federal lands has a relevant perceived impact to landowners and a relevant impact to future partnerships and conservation efforts on non-Federal lands. These impacts are described in detail in the ``Conservation Partnerships on Non-Federal Lands'' section below. Based on these relevant impacts, we weighed the benefits of designating areas as critical habitat against the benefits of excluding these areas from the critical habitat designation. Please see the ``Application of Section 4(b)(2) of the Act'' and ``Exclusions Under Section 4(b)(2) of the

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Act'' sections of this final revised rule for a detailed discussion of the benefits of excluding lands covered by management plans versus the benefits of including these areas in a critical habitat designation.

Upon weighing the specific benefits of inclusion against specific benefits of exclusion, we determined that the benefits of excluding a portion of Units 1 and 2A outweigh the benefits of including these areas in the final critical habitat designation. When weighing the benefits of including an area in the critical habitat designation, we fully consider the regulatory benefits provided to the species under section 7(a)(2) of the Act based on the statutory difference between a jeopardy analysis and an adverse modification analysis. In this analysis, we consider the recovery standards and the benefits associated with designation. Further, we determined that the exclusion of these areas will not result in extinction of Peninsular bighorn sheep. This determination to exclude areas where the benefits of exclusion outweigh the benefits of inclusion and where we determined that the exclusion will not result in the extinction of the DPS, is consistent with the statutory obligations of the Act. Therefore, we believe these exclusions are in full compliance with the Act.

Comment 55: One commenter stated that the exclusion of areas covered under the Coachella Valley MSHCP has some merit, but notes that the conservation areas in that plan are based on the 2001 critical habitat designation for bighorn sheep, which the commenter asserts incorporated the 0.5-mi. (0.8-km) buffer zone from areas of 20 percent slope as described in the 2000 Recovery Plan. The commenter asserted that this presents a potential inconsistency of conservation boundaries and recommends that the Service take steps to assure that the inappropriate buffer zone is removed from the Coachella Valley MSHCP.

Our Response: It is inappropriate to compare the boundaries of HCP conservation areas to the boundaries of a critical habitat designation. These two areas serve two different functions with regard to the conservation of species and should not be synonymized. Furthermore, critical habitat designations do not signal that habitat outside of the designation is unimportant or may not contribute to recovery. This includes habitat outside of the critical habitat designation but inside Coachella Valley MSHCP modeled Peninsular bighorn sheep habitat.

Comment 56: One commenter supported the exclusion of lands covered by HCPs under section 4(b)(2) of the Act and suggested that the Service exclude from critical habitat lands covered under the East County MHCP.

Our Response: At this time, the HCP for east San Diego County (East County MHCP) is being developed, and a draft plan is not available for

public review. We understand the commenters' concern that a designation of critical habitat in areas that may be addressed in the future by the East County MHCP may have a negative effect on entities pursuing the HCP and deter its completion. This concern is consistent with our discussion of conservation partnerships in the ``Exclusions Under Section 4(b)(2) of the Act'' section of this final rule. However, we also recognize that there is a regulatory and recovery benefit to designating critical habitat in areas that are not protected through existing management or conservation plans. Exclusions under section 4(b)(2) of the Act must be considered on a case-by-case basis. Because a draft of the East County MHCP has not been released for public comment or formally evaluated by the Service, it is not clear that this framework plan will adequately address the conservation needs of Peninsular bighorn sheep. Additionally, it is unclear to us at this time which areas will actively develop subarea plans under the East County MHCP. Therefore, we cannot determine that the regulatory and recovery benefits of a critical habitat designation in these areas would be minimized by the measures provided under this future plan, and as such, we did not exclude these lands from critical habitat (portions of Units 2B and 3 in San Diego County). However, if this designation is revised in the future, we will re-evaluate these areas for potential exclusion at that time. We are committed to continue working with all East County MHCP partners to minimize any additional regulatory burden attributable to this critical habitat designation.

Comment 57: One commenter supported the exclusion of lands within the boundaries of the Coachella Valley MSHCP. The commenter suggested that all lands, including lands owned by such entities as the California Department of Fish and Game and the BLM, should be excluded from critical habitat. The commenter further stated that the Service agreed, in signing the Implementing Agreement, that all lands within the boundary of the Coachella Valley MSHCP would be excluded from critical habitat designation. The commenter indicated that failure to exclude these lands will violate the Service's agreement with the cities and signatories to the Implementing Agreement. Another commenter stated that Federal lands within the Coachella Valley MSHCP area owned by the BLM and Forest Service should be excluded from critical habitat designation, and failure to do so could result in unnecessary duplication of regulatory requirements. The commenter further stated that the BLM and Forest Service are participating in the Coachella Valley MSHCP as partners and that each of these agencies will participate in cooperative management and coordination of habitat conservation for covered species.

Our Response: Contrary to the commenter's assertion, Section 14.9 of the Implementing Agreement does not absolutely preclude critical habitat designation, and we disagree with the assertion that the failure to exclude all lands within the Coachella Valley MSHCP boundary will violate the Service's agreement with the signatories to the Implementing Agreement.

Consistent with the Implementing Agreement, we excluded lands under the jurisdiction of the permittees addressed by the Coachella Valley MSHCP in Unit 1 and Unit 2A from this final revised critical habitat designation because the benefits of exclusion outweigh the minimal benefits of inclusion. See our responses to Comments 53 and 55 above, and ``Application of Section 4(b)(2)--Other Relevant Impacts--Conservation Partnerships'' section below for more information regarding why we excluded 38,759 ac (15,685 ha) in Unit 1 and Unit 2A.

Finally, regarding the commenter's concern that Federal lands

(owned by the BLM and the Forest Service) within the Coachella Valley MSHCP area should also be excluded from critical habitat designation, we acknowledge that these Federal landowners are Cooperating Agencies of the Coachella Valley MSHCP, and as such, are providing Complementary Conservation according to section 7.3 of the Implementing Agreement. We appreciate and commend the efforts of the BLM and the Forest Service to work with the Coachella Valley MSHCP permittees and to conserve federally listed species on their lands.

The Secretary has the discretion to exclude an area from critical habitat under section 4(b)(2) of the Act after taking into consideration the economic impact, the impact on national security, and any other relevant impact if he determines that the benefits of such exclusion outweigh the benefits of

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designating such area as critical habitat, unless he determines that the exclusion would result in the extinction of the species concerned. Based on the record before us, we have elected not to exclude the BLM and Forest Service lands and are designating these lands as critical habitat for the Peninsular bighorn sheep.

Consistent with the ``No Surprises'' assurances provided to the Coachella Valley MSHCP permittees under section 10 of the Act, we do not expect that additional regulatory actions or measures will be required by the BLM or Forest Service due to designation of these lands as critical habitat.

#### Comments on Lands Designated as Critical Habitat

Comment 58: One commenter believes that if both the area north of Chino Canyon and near Interstate 8 are to be included in the final designation, then the observations used in support of these ``expansions'' should be presented in a table and copies of the original field notes used in support of this observation should be available for public inspection. Two commenters stated that if critical habitat is to be ``expanded,'' the raw data used to make such decisions should be made publicly available and open to inspection and independent validation.

Our Response: All occurrence data and other information used in the delineation of critical habitat for Peninsular bighorn sheep were available to the public during the comment periods and are on file at the Carlsbad Fish and Wildlife Office and available for public inspection (see FOR FURTHER INFORMATION CONTACT section of this rule).

Comment 59: Several commenters believe that the proposed critical habitat designation fails to protect habitat essential for Peninsular bighorn sheep recovery. One commenter stated the proposed rule excludes significant areas of habitat essential for the DPS and fails to support the goals called for in the Recovery Plan to promote population growth and protect, acquire, enhance, and restore habitat. Several commenters believe the proposal is contrary to the Recovery Plan as well as inconsistent with promoting the survival and recovery of the DPS. One commenter asserted that if Peninsular bighorn sheep were recovered within the newly proposed critical habitat, it would still be threatened or endangered in a significant portion of its range. The same commenter indicated that for critical habitat to facilitate recovery as it was designed to do, the designation should maintain all current critical habitat and be expanded to include reaches in all other areas identified as having recovery value as identified in the Recovery Plan. The commenter further stated that by proposing to exclude currently designated critical habitat, they believe the Service

is failing in its obligation to provide for the recovery of Peninsular bighorn sheep because the value of the critical habitat to the recovery of the DPS will be diminished by these omissions. Finally, another commenter believes the Service should designate as critical habitat sufficient areas to allow for full recovery of Peninsular bighorn sheep.

Our Response: It is important to note that the designation of critical habitat is a different process than the development of a recovery plan. A critical habitat designation is a specific regulatory action that defines specific areas within the geographical area occupied by the species at the time of listing containing physical or biological features essential to the conservation of a species, and areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of the species. In contrast, a recovery plan is a guidance document developed in cooperation with partners and provides a roadmap with detailed site-specific management actions to help conserve listed species and their ecosystems.

Conservation (i.e., recovery) is defined in section 3 of the Act as the ``use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this Act are no longer necessary.'' In accordance with section 4(a)(1) of the Act, we determine if any species is an endangered or threatened species (or revise its listed status) because of any of the five threat factors identified in the Act. Therefore, conservation, or recovery, is achieved when a five-factor analysis indicates that current and future threats are minimized to an extent that the species is no longer in danger of extinction or likely to become endangered in the foreseeable future. Recovery is a dynamic process requiring adaptive management of threats, and there are many paths to accomplishing recovery of a species. We believe that the lands identified in this rule as meeting the definition of critical habitat are adequate to ensure the conservation of Peninsular bighorn sheep throughout their extant range based on the best available scientific information at this time.

Additionally, we recognize that the designation of critical habitat may not include all of the habitat that may be determined to be necessary for the recovery of Peninsular bighorn sheep, and critical habitat designations do not signal that habitat outside of the designation is unimportant or may not contribute to recovery. Areas outside the final critical habitat designations will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act, as well as regulatory protections afforded by the section 7(a)(2) jeopardy standard and the prohibitions of section 9 of the Act if actions occurring in these areas may affect sheep. See the ``Criteria Used To Identify Critical Habitat,'' ``Summary of Changes From the 2001 Critical Habitat Designation To the 2007 Proposed Rule To Revise Critical Habitat,'' and ``Summary of Changes From the 2007 Proposed Rule To Revise Critical Habitat To This Final Rule To Revise Critical Habitat'' sections of this final rule for more information. Please also see additional discussion regarding recovery plans and conservation of Peninsular bighorn sheep in our responses to Comments 1, 5, 6, 7, and 53 above.

Comment 60: Several commenters stated that the proposed rule calls for eliminating large swaths of essential habitat, including a large area of low-elevation habitat along the eastern slopes of the bighorn's range that is considered by scientists familiar with Peninsular bighorn sheep to be essential habitat for the DPS and requisite for their

recovery. Several commenters stated that the proposed critical habitat designation would eliminate alluvial-fan habitat (about 249,000 ac (100,767 ha), as noted by several commenters), much of which is the most important Peninsular bighorn sheep habitat in need of protection due to threats of housing and golf course projects. One commenter believes that not including these areas stands in stark contrast to the discussion in the proposed rule itself which acknowledges that: ``Special management considerations or protection may be needed to alleviate the effects of development on Peninsular bighorn sheep habitat, especially lower elevation habitat, alluvial fans, and areas of possible ewe group connectivity near urban areas (October 10, 2007, 72 FR 57746).'' The same commenter believes that this retraction of habitat ignores management actions currently in place (e.g., restrictions on trails, prohibitions on dogs) to limit disturbance in habitat so that this DPS could re-colonize historically used areas. Several commenters indicated that it is

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important to the sheep's recovery that low-elevation alluvial areas remain critical habitat.

Our Response: We agree that low-elevation habitat is important for Peninsular bighorn sheep, and where occurrence data indicated sheep use, we revised our proposed revision of critical habitat to include additional areas, including habitat along the eastern edge of the Santa Rosa Mountains (August 26, 2008, 73 FR 50498). We included low-elevation, low-slope, and alluvial-fan habitat in the designation of critical habitat where the available data support a determination that those areas contain the physical and biological features essential to the conservation of the DPS. See our response to Comment 3 and the ``Criteria Used To Identify Critical Habitat'' and ``Summary of Changes From the 2007 Proposed Rule To Revise Critical Habitat To This Final Rule To Revise Critical Habitat'' sections of this final rule for further discussion of this topic.

Comment 61: One commenter believes that the Service eliminated from critical habitat a number of important water sources for Peninsular bighorn sheep. The commenter asserted that most of the 20 springs and seeps documented by the South Coast Regional Water Quality Control Board within existing Peninsular bighorn sheep habitat in the Santa Rosa and San Jacinto National Monument would not be in the proposed critical habitat designation. These springs include Agua Alta Spring, Cottonwood Spring, Potrero Spring, Agua Bonita Spring, Mesquite Flats Spring, Mad Women Spring, Dos Palmas Spring, Indian Spring, East Fork Spring, Palm Canyon Spring, Palm Canyon Hot Spring, West Fork Creek, Engbacha Spring, Trading Post Spring, and Murray Canyon Spring. The commenter further stated that important perennial streams such as Andreas Creek, West Fork Palm Canyon Creek, Cedar Creek, and Snow Creek have also been eliminated in the proposed designation. Finally, the commenter believes that these water sources should remain in critical habitat due to their present value to bighorn sheep recovery and because they will become increasingly important as climate change alters bighorn habitat and likely reduces available water.

Our Response: During the process of delineating critical habitat, we used water source information from U.S. Geological Survey's National Hydrography Dataset geodatabase (downloaded January 2007). When delineating boundaries of critical habitat, we made sure to include water sources within critical habitat (see ``Criteria Used To Identify Critical Habitat'' section of this rule). We believe we included

sufficient water sources within the designation to account for the water needs of Peninsular bighorn sheep. Additionally, the commenter failed to provide: (1) Supporting information that the specific water sources identified in the comment are essential to Peninsular bighorn sheep; (2) data that sheep have been observed and documented to use these water sources; or (3) data indicating that climate change will lead to a reduction in water availability in the Peninsular Ranges. At this point in time, the available scientific evidence does not suggest that the scenario described above by the commenter will result from climate change in the Peninsular Ranges (see our response to Comment 21 above).

Comment 62: One commenter believes that the Service made an erroneous determination that all land in Unit 2A is currently occupied by the DPS. The commenter stated that the proposed critical habitat rule is flawed because it does not justify the inclusion of unoccupied areas, in contravention of both the Act and its implementing regulations. The commenter asserted that the criteria used to identify critical habitat clearly included criteria that leads to the inclusion of unoccupied habitat within the critical habitat delineation. The commenter added that the Service's effort to justify inclusion of unoccupied areas also crosses the line of reasonableness, as identified in *Home Builders v. U.S. Fish and Wildlife Service*, 268 F. Supp. 1197, 1214 (E.D. Cal. 200).

The same commenter opposed the delineation of critical habitat on private property in Riverside County, stating that property-specific surveys and reports by experts reflect that the property neither contains necessary PCEs nor exhibits characteristics consistent with critical habitat. The commenter provided biological reports in support of their assertion that the property is not occupied by Peninsular bighorn sheep, does not contain features essential to the conservation of the species, and does not require special management considerations. Finally, the commenter believes that as unoccupied territory, the property is not essential for the conservation of the DPS, and that the Service erroneously determined that the property contains resources essential to the conservation of Peninsular bighorn sheep.

Our Response: All of the critical habitat units (including Unit 2A) are occupied; however, bighorn sheep have large home ranges, and not all areas within their range (or the critical habitat units) will be occupied at all times of the day, season, or year. Additionally, all critical habitat units contain the PCEs in a continuous patch of habitat that allows the population distribution of Peninsular bighorn sheep within the units to shift and move based on the resource needs of the DPS. Consequently, individual survey results for Peninsular bighorn sheep within the critical habitat units may be negative in any given year, even though surveyed areas still contain habitat required for the long-term conservation of the DPS.

With regard to the property specific claims from the commenter, we agree that portions of the property in question do not contain the PCEs for Peninsular bighorn sheep. We also recognize that the majority of occurrence data considered in the delineation of critical habitat (local to the property in question) lies to the west of the property in the Santa Rosa Mountains. For reasons discussed in the above paragraph, negative survey results do not automatically indicate an area is not essential to the DPS. We determined that a portion of the property (approximately 46 ac (19 ha) in the southwest corner of section 7) does meet the definition of critical habitat; however, those 46 ac (19 ha) fall within the Coachella Valley MSHCP area and are excluded from this

final designation (see ``Exclusions Under Section 4(b)(2) of the Act'' section of this final rule for a detailed discussion). Other areas in the property, including some areas previously designated as critical habitat in 2001, do not meet the definition of critical habitat and are not included in this designation.

Comment 63: One commenter stated that the revision of critical habitat is justified and overdue. The commenter added that the 2001 designation included areas that did not have documentation of use by Peninsular bighorn sheep and the commenter further suggested that the revision is more definitive of the actual critical habitat needs than was the previous designation.

Our Response: We agree with the commenter that some areas in the 2001 critical habitat designation did not have documented sheep use. Further, we believe the criteria we used to identify critical habitat in this final rule yields a more precise identification of the areas within the geographical area occupied by Peninsular bighorn sheep containing the physical or biological features essential to the conservation of this DPS. Please see the ``Criteria Used To Identify Critical Habitat,'' ``Summary of Changes From the 2001 Critical Habitat

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Designation To the 2007 Proposed Rule To Revise Critical Habitat,'' and ``Summary of Changes From the 2007 Proposed Rule To Revise Critical Habitat To This Final Rule To Revise Critical Habitat'' sections of this rule for more detailed discussions.

Comment 64: Two commenters believe that property owned by Cornishe of Bighorn is not Peninsular bighorn sheep habitat, does not meet the definition of critical habitat, and any benefits associated with designating the property as critical habitat are outweighed by the benefits of exclusion. The commenters indicated the property lies within the approved Coachella Valley MSHCP area and should be excluded from designation pursuant to section 4(b)(2) of the Act.

Our Response: Although we disagree with the commenter's assertion that the area in question does not meet the definition of critical habitat, we acknowledge that the property falls within the boundaries of the Coachella Valley MSHCP from which we are excluding all private lands and permittee-owned or controlled lands. As a result, the property in question is excluded from the designation of critical habitat for Peninsular bighorn sheep. Please see the ``Application of Section 4(b)(2)--Other Relevant Impacts--Conservation Partnerships'' section of this final rule for additional discussion of the Coachella Valley MSHCP and the benefits provided to Peninsular bighorn sheep.

Comment 65: In response to our addition of critical habitat to Unit 3 near Interstate 8 in the August 26, 2008, NOA, one commenter stated, ``In the October 2007 Proposed Rule, the USFWS made an appropriate proposal for critical habitat near [Interstate 8] based on currently occupied habitat rather than transiently used areas or potential habitat, both of which were not essential to the recovery of this DPS.'' The commenter believes that there are no data to suggest more than transient use by a handful of bighorn sheep in Unit 3 near Interstate 8 based on his review of information provided by us under the Freedom of Information Act, the historic record, and the commenter's fieldwork in this area. The commenter further stated that there is no evidence that there was ever a permanent bighorn sheep population of 20 to 30 individuals between Interstate 8 and the U.S.-Mexico border. The commenter wrote, ``During my on-the-ground surveys for bighorn sheep in the [Interstate 8] Island and south of it, no

bighorn sheep were observed. That the USFWS has only produced speculative `evidence' of potential bighorn sheep fecal pellets (which could also be from deer) from this relatively small area clearly shows that it is not permanently occupied by bighorn sheep or that more than a few individuals occasionally visit it.'" To illustrate the ``transient'' nature of bighorn sheep use of the Interstate 8 island area, the commenter described finding ungulate tracks and pellet groups (a preliminary DNA test yielded the ND5 sequence, presumably a positive test for bighorn sheep) concentrated around a sand hill with numerous brittlebush (*Encelia farinosa*) plants; six months later the forage was consumed or desiccated, and no additional ungulate sign was present.

Our Response: We determined that the area of concern near Interstate 8 to the U.S.-Mexico border meets the definition of critical habitat and is used more than ``transiently'' by Peninsular bighorn sheep (Botta 2008b, pp. 1-3; Botta 2008c, p. 1; Botta 2009, pp. 1-4; Davenport 2009, pp. 6-7; James 2007, pp. 1-4; Kim 2008, p. 2; Roblek 2008a, p. 1-12; Roblek 2008b, p. 1; Wagner 2007, p. 1; Wagner 2008, pp. 1-3). According to data in our files, there are numerous and repeated sightings of bighorn sheep over several years in the Jacumba Mountains around the area known as Mountain Springs. A recent aerial survey (conducted on November 17, 2008) counted 14 bighorn sheep, including ewes, lambs, yearlings, and rams in the approximately 3,000-acre area of habitat existing between the east- and west-bound lanes of Interstate 8 (Botta 2009, p. 1). An additional 36 bighorn sheep were counted within less than a mile of the area. Bighorn sheep were also counted in the area during the aerial census conducted in 2006 (Botta 2008b, p. 1). Finally, there are multiple sightings in the area reported by other agencies and individuals, some of which have occurred south of Interstate 8 (Davenport 2009, p. 5). The commenter furnishes no objective, repeatable method for deciding that sheep use of the area is ``transient,'' nor does he explain how he quantified the number of sheep in the area.

Approximately 50 bighorn sheep were visually detected in the Interstate 8 island area during the last aerial survey. Additionally, the 2006 aerial survey recorded bighorn sheep in the area, and data have been repeatedly obtained from other agencies and individuals (Davenport 2009, p. 5; James 2007, p. 1; Kim 2007, p. 2). The commenter implies that occasional observations of mule deer in the area justifies concluding that the area ``is not permanently occupied by bighorn sheep.'" However, the commenter furnishes no objective method that is accepted by the scientific community for determining ``permanent'' occupancy. Given that aerial surveys and other site visits have repeatedly recorded bighorn sheep in the area, we consider the area occupied by bighorn sheep, and sightings of mule deer do not confound these direct observations of bighorn.

In regard to the commenter's assertions based on the ground surveys of the Interstate 8 island area, we believe that this type of survey is an unreliable method for estimating bighorn sheep population levels or distribution in the Peninsular Ranges. Although it may be a viable methodology for some locations, the conditions needed for such surveys to be effective do not exist in the Peninsular Ranges. The topography is rugged and vast, and the animals blend with their habitat extremely well, making it easy for an observer to miss bighorn sheep. A group of animals can easily be hidden within the vegetation and topography, and a human (on foot) can only view a small fraction of the area. Furthermore, bighorn sheep are capable of detecting hikers and quickly moving out-of-view before being seen.

The brittlebush scenario described above by the commenter in

support of ``transient'' sheep use illustrates how Peninsular bighorn sheep, a relatively large mammal, exist in one of the harshest deserts in North America. They move across the landscape in response to changing resource conditions and need large intact blocks of habitat to recover and persist through time. Although brittlebush is a Peninsular bighorn sheep forage species, it is not the only one present in the area. The scenario described by the commenter actually lends support to the designation of the area as critical habitat.

Comment 66: One commenter stated that the supposed connectivity between the U.S. bighorn sheep population and those in northern Baja has no basis in fact. The commenter added that south of the U.S.-Mexico border, there are only a handful of bighorn sheep sightings within 25 mi (40 km) of the border within the mountains of northern Baja (Sierra Cucapa and Sierra de Juarez), and the commenter believes there is no evidence that these areas constitute more than transient use.

Our Response: Bighorn sheep populations are found along the eastern escarpment of the Peninsular Ranges extending most of the length of the Baja Peninsula. An examination of the topography on both sides of the border reveals the type of steep, rugged topography and vegetation typical of bighorn sheep habitat. We find no

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reason to believe that prior to European settlement bighorn sheep failed to move across what is now the international boundary. To our knowledge, the mountainous areas south of the border have not been surveyed since the mid 1990's, and the commenter is correct in pointing out our lack of recent information concerning bighorn sheep distribution and abundance in Baja Norte, Mexico. The mid 1990's corresponded with the low point of bighorn sheep population levels in the United States and bighorn sheep were not regularly observed in some areas where they are currently present. Bighorn sheep in Mexico may have experienced similar population fluctuations and changes in distribution over time.

It has been hypothesized that the bighorn sheep we are seeing around Interstate 8 and south are originating from Carrizo Gorge to the north. Although plausible, none of the observed Peninsular bighorn sheep have been radio-collared or ear-marked, as some are in Carrizo Gorge. Therefore, we cannot be certain of the origin of the sheep observed in the U.S. Jacumba Mountains. Interaction with bighorn sheep in the Peninsular Ranges of Mexico is the only possible route for a natural connection with other bighorn sheep populations for the DPS in the United States. All other routes are precluded in the United States by human developments.

Comment 67: One commenter states that the area south of Interstate 8 is not essential to the recovery of this DPS because the Carrizo subpopulation has already exceeded the minimum population number needed for recovery (approximately fourfold based on California Department of Fish and Game census data).

Our Response: The Recovery Plan for Peninsular bighorn sheep establishes downlisting and delisting criteria that go beyond just attaining a minimum population number, including maintaining at least 25 ewes for 6 and 12 consecutive years, respectively, in each of 9 recovery regions. The goal of maintaining 25 ewes for 6 and 12 years is a minimum, not an upper limit. The designation of critical habitat in the Jacumba Mountains will also contribute to the preservation of habitat connectivity and the ability of Peninsular bighorn sheep to move freely throughout the Peninsular Ranges.

Comment 68: Upon examination of our data used in the delineation process obtained by a commenter through the Freedom of Information Act process, the commenter stated the Service and others assume that tracks and pellets found in the Interstate 8 area are from bighorn sheep rather than mule deer and that ``tracks and pellets of bighorn sheep and mule deer are not reliably distinguishable.''

Our Response: We agree with the commenter that it is not possible to reliably distinguish bighorn sheep and mule deer fecal pellets (by themselves) because there is too much variation. However, in the context of a field situation there is frequently other information present. Most biologists with extensive field experience believe they can identify the respective tracks reliably when there are several sets or the substrate allows for a distinct impression. Additionally, the physical characteristics of the hooves differ; therefore, the tracks are distinguishable by a trained biologist. As previously mentioned, the elevation, topography, and vegetation also provide a context for identification. Given that the vast majority of animal sightings in typical bighorn sheep habitat are Peninsular bighorn sheep, it would be reasonable to conclude that the majority of sign was left by Peninsular bighorn sheep (Botta 2008b, pp. 1-3; Botta 2008c, p. 1; Botta 2009, pp. 1-4; Davenport 2009, pp. 6-7; James 2007, pp. 1-4; Kim 2008, p. 2; Roblek 2008a, pp. 1-12; Roblek 2008b, p. 1; Wagner 2007, p. 1; Wagner 2008, pp. 1-3). As mentioned previously, just because deer are observed near water or at higher elevations in bighorn habitat does preclude the occurrence of Peninsular bighorn sheep in the area.

Comment 69: One commenter stated that the proposed critical habitat near Interstate 8 lacks permanent sources of water (one of the PCEs necessary for bighorn sheep survival). The commenter stated that the area south of Interstate 8 proposed for critical habitat does not have any sources of permanent water that would allow for year-round occupancy by bighorn sheep, referencing correspondence from U.S. Border Patrol Supervisor Palmer as evidence.

The commenter also wrote, ``The area proposed for critical habitat south of [Interstate 8] lacks adequate escape terrain for permanent bighorn sheep occupancy. My preliminary GIS analysis shows that the escape terrain falls far short of the necessary contiguous 15 square kilometers as defined by McKinney et al. (2003) that are needed to sustain a bighorn sheep population. The suggestion in the proposed rule that slopes greater than 20 percent somehow qualify as bighorn sheep escape terrain is erroneous.''

Our Response: Upon examination of the correspondence with the Border Patrol that was supplied with the commenter's letter, the correspondence mentions a possible permanent water source south of Interstate 8, approximately one mile from Mountain Springs. Additionally, the correspondence notes that free-standing water was observed in this area from a helicopter on November 17, 2008, and that the surrounding range appears quite dry, which would indicate the water source may be ``permanent.''

Supervisor Palmer confirms that under drought conditions the springs listed by the commenter are typically dry. The Service's surveys throughout the Peninsular Ranges have shown that many water sources that have historically been considered ``permanent'' are now frequently dry. As Supervisor Palmer mentions in his correspondence, many of these water sources fill or flow following rains. After a rain event the duration of time that free-standing water continues to be available is highly variable, and sheep distribution may reflect variations in water persistence. Currently, many water sources throughout the Peninsular Ranges, including those listed in the

Jacumba Mountains, are overgrown with salt cedar (Tamarix sp.), and in areas where managers have removed this exotic species, free-standing water has often returned.

Regarding the commenter's assertions about escape terrain, our GIS analysis shows there are 3.5 square mi (9 square km) of 40 to 60 percent terrain and 1.4 square mi (3.6 square km) of greater than or equal to 60 percent terrain south of Interstate 8, for a total of 4.9 square mi (12.6 square km). Bighorn sheep in the area use the Interstate 8 island and the area to the north of the west-bound lanes. If these areas are also included, there are 6.2 square mi (16.2 square km) of 40 to 60 percent terrain and 2.3 square mi (6.1 square km) of terrain greater than or equal to 60 percent for a total of 8.6 square mi (22.3 km). McKinney et al. (2003, p. 1233) reported that 12 of 14 populations of desert bighorn sheep persisted, and 8 of the 12 persisting populations occupied areas with greater than 5 square mi (13 km) of escape terrain. Therefore, 4 populations (or a third) persisted with greater than 5 square mi (13 km) of escape terrain. Consequently, we question the commenter's use of the word ``necessary.' ' McKinney et al. (2003, p. 1235) offered the 5.8 square mi (15 km) figure as a general guideline for planning translocations and management interventions. Such a recommendation highlights the importance of escape terrain to bighorn sheep, but the number does not

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represent an absolute requirement. McKinney et al. (2003, p. 1235) showed that bighorn sheep populations with access to larger areas of escape terrain experienced less variability in population metrics and a greater probability of persistence. In summary, we believe there is adequate escape terrain in the area to support bighorn sheep, as evidenced by their present occurrence and re-colonization of the area, our GIS analysis, and historical accounts.

We were unable to locate anywhere in the proposed rule where areas of 20 percent slope were described as escape terrain for Peninsular bighorn sheep. Therefore, we assume the commenter was confused by the general description of bighorn sheep habitat, which did contain the 20 percent figure. Bighorn regularly use areas of 20 percent slope (and less) to access important resources. Escape terrain is one essential component of Peninsular bighorn sheep habitat, but there are other essential components, as listed in the proposed revised critical habitat designation. In the Peninsular Ranges, Peninsular bighorn sheep have frequented areas far from classically defined escape terrain for extended periods of time. Therefore, only conserving the very steepest areas is not a viable strategy for ensuring the recovery and persistence of bighorn sheep in the Peninsular Ranges.

#### Comments From Tribes

Comment 70: The Agua Caliente Band of Cahuilla Indians stated that the Service should not have designated any of their lands as critical habitat in the proposed rule in light of the relationship between the United States and the Tribe as set forth, inter alia, in Executive Order 13175 and Secretarial Order 3206 and because (1) The reservation falls within the Tribe's sovereign jurisdiction, and (2) the land within the reservation does not require special management considerations or protection since it has been and will continue to be conserved pursuant to the Tribal HCP. The Tribe also believes that the benefits of excluding all tribal lands within the Tribal HCP Plan Area from Units 1 and 2A outweigh the benefits of including these lands as critical habitat for the bighorn sheep based on the balancing

requirement of section 4(b)(2) of the Act. 16 U.S.C. 1533(b)(2).

Our Response: In the proposed rule, we did not finalize any designation of Agua Caliente Band of Cahuilla Indians tribal lands as critical habitat, but proposed them as critical habitat, as required by our regulations at 50 CFR 424.19, and concurrently proposed those lands for exclusion from critical habitat under section 4(b)(2) of the Act. We believe the conservation benefits for Peninsular bighorn sheep that would occur as a result of designating the 4,790 ac (1,938 ha) in Units 1 and 2A as critical habitat (e.g., protection afforded through the section 7(a)(2) consultation process) are minimal compared to the overall conservation benefits for the DPS that have been realized through the implementation of the 2001 Tribal Conservation Strategy and that will continue to be realized through the Tribe's ongoing commitment to conserve Peninsular bighorn sheep habitat.

Furthermore, the benefits to recovery of inclusion of these lands primarily have already been met through the identification of those areas most important to the DPS. By excluding these lands from the designation, we are honoring our responsibility to work with the Tribe on a government-to-government basis and acknowledging the Tribe's management of its resources, and helping to preserve our ongoing partnerships with the Tribe and to encourage new partnerships with other Tribes, landowners, and jurisdictions. Those partnerships (and the landscape-level, multiple-species conservation planning efforts they promote) are critical for the conservation of Peninsular bighorn sheep. Designating critical habitat on non-Federal lands within the Tribe's 2001 Tribal Conservation Strategy and 2007 draft Tribal HCP boundary could have a detrimental effect on our partnership and could be a significant disincentive to the establishment of future partnerships and HCPs with other Tribes and landowners. Therefore, we are excluding all Agua Caliente Band of Cahuilla Indians tribal lands from the final designation of critical habitat for Peninsular bighorn sheep. See our response to Comment 2 above and the ``Application of Section 4(b)(2)--Other Relevant Impacts--Conservation Partnerships'' section of this final rule.

Comment 71: The Agua Caliente Band of Cahuilla Indians believes that the proposed rule fails to exclude from designation all tribal lands lying inside portions of proposed Unit 2A (North Santa Rosa Mountains). The Tribe stated these off-reservation tribal lands fall within the geographic region covered by the Tribal HCP, and the Tribal HCP includes conservation measures and actions that will be of greater benefit to the bighorn sheep than designation and piecemeal section 7 consultations. The Tribe suggested that the benefits of excluding these off-reservation tribal lands from designation in Unit 2A outweigh the benefits of designation, thus satisfying the requirements for exclusion pursuant to section 4(b)(2) of the Act. The Tribe also believes that contrary to the requirements of the Act, Executive Order 13175, and the Secretarial Order, the proposed rule fails to defer to the Tribe's own established standards, thus discouraging the Tribe from developing its own policies and intruding on tribal management of its lands. Additionally, the Tribe believes that designation of critical habitat could delay approval of the Tribal HCP, thus adding to the costs of preparing the Tribal HCP and undermining significant protections for the bighorn sheep. Finally, the Tribe believes that designation of critical habitat can be expected to increase the amount of time and financial resources necessary to undertake covered activities described in the Tribal HCP, yet it is unlikely to yield material benefits for the bighorn sheep.

Our Response: The Agua Caliente Band of Cahuilla Indians is correct

in that we did not propose their lands within Unit 2A for exclusion. At the time of the proposed rule, we were not aware of tribal ownership in this unit. In light of the above comment, we re-analyzed our ownership data for Unit 2A and found that tribal land exists within that unit. In the NOA published in the Federal Register on August 26, 2008 (73 FR 50498), we revised our proposed exclusion to include approximately 467 ac (189 ha) of tribal land in Unit 2A. Furthermore, we are excluding all tribal lands from the final revised designation of critical habitat for Peninsular bighorn sheep as stated above in our responses to Comments 2 and 70, and the ``Application of Section 4(b)(2)--Other Relevant Impacts--Conservation Partnerships'' section of this final rule.

Comment 72: The Agua Caliente Band of Cahuilla Indians agrees with the Service insofar as we state that ``fish, wildlife, and other natural resources on Tribal lands are better managed under Tribal authorities, policies, and programs than through Federal regulation \* \* \*.'' But the Tribe does not believe that it is appropriate to limit the preceding statement by adding the final phrase ``wherever possible and practicable.'' The Tribe stated that tribal sovereignty goes further than precluding Federal regulation of reservation lands ``wherever possible and practicable.''

Our Response: We believe our position is consistent with the Act and all applicable policies and guidance (i.e., Secretarial Order 3206, ``American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the

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Endangered Species Act'' (June 5, 1997); the President's memorandum of April 29, 1994, ``Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951); Executive Order 13175; and the relevant provision of the Departmental Manual of the Department of the Interior (512 DM 2)). There were situations in the past, and there will continue to be situations in the future, where it is necessary to designate critical habitat on tribal lands. The Service is not prohibited from designating critical habitat on tribal lands and can only exclude lands meeting the definition of critical habitat from designation when we can demonstrate that the benefits of exclusion outweigh the benefits of inclusion of such lands and that the exclusion will not result in the extinction of the species concerned. By caveating our position with the statement ``wherever possible and practicable,'' we recognize that there may be situations where we must designate critical habitat on tribal lands. We believe that, in most cases, designation of tribal lands as critical habitat provides very little additional benefit to threatened and endangered species. Conversely, such designation is often viewed by tribes as unwarranted and an unwanted intrusion into tribal self governance, thus compromising the government-to-government relationship essential to achieving our mutual goals of managing for healthy ecosystems upon which the viability of threatened and endangered species populations depend.

#### Comments Related to Critical Habitat Designation Process

Comment 73: One commenter believes the public hearing was not adequately publicized, as there was no notice in a local newspaper.

Our Response: Public involvement in the activities and proposals of the Service is very important to us. We made every effort to ensure that the public was adequately apprised of Peninsular bighorn sheep hearings at least 15 days prior to the hearings occurring. First, in

our Federal Register notice published on August 26, 2008 (73 FR 50498), we provided information about the date, time, and location of the public hearings for the Peninsular bighorn sheep proposed revision of critical habitat. Second, we issued a press release on August 25, 2008, which was distributed to more than 100 stakeholders, including elected officials, local governments, species experts, interested members of the public, and all local media outlets. Third, we posted the press release and other information about the Peninsular bighorn sheep on the Service's Region 8 Web site. Fourth, a copy of the August 26, 2008, Federal Register notice was posted on the <http://www.regulations.gov> Web site. Finally, announcements of the public hearings on September 10, 2008, were carried in news stories that published in the Riverside Press-Enterprise on August 28, 2008, the San Diego Union-Tribune on August 29, 2008, and the Los Angeles Times on September 2, 2008. Although legal notices were not specifically published in local newspapers, such notices are not required and we believe that adequate notice of the hearings was provided to the public in a timely manner through a variety of conduits.

#### Comments From Other Federal Agencies

Comment 74: The California Desert District of the BLM stated that the proposed changes to critical habitat affect BLM management of public lands within the jurisdiction of their El Centro and Palm Springs/South Coast Field Offices. The BLM stated they have no objections to the revised boundaries of critical habitat in the Palm Springs/South Coast Field Office and added that they support the use of the best available scientific information when designating regulatory boundaries such as for critical habitat pursuant to the Act. The BLM stated that in the El Centro Field Office jurisdiction, they agree that the revised boundaries near the Coyote Mountains that exclude the Ocotillo aggregate mining operations better reflect the actual use areas for bighorn sheep. Additionally, the BLM stated that in the Fish Creek Mountains the boundary appears to be drawn through the existing mining pit of U.S. Gypsum Corporation, which is partially permitted by BLM. The BLM requested that revisions be made at this location to exclude the mine.

Our Response: We determined that BLM lands in the Fish Creek Mountains contain physical or biological features essential to the conservation of Peninsular bighorn sheep, and therefore, meet the definition of critical habitat (see ``Criteria Used To Identify Critical Habitat'' section below). Occurrence data used in the delineation of critical habitat indicates that areas adjacent to the mining pit are utilized by Peninsular bighorn sheep. However, we recognize that lands within active mining pits do not generally provide suitable habitat or suitable conditions for this DPS. Thus, we are not designating lands in the Fish Creek Mountains within the existing active mining pit of U.S. Gypsum Corporation. When determining the critical habitat boundaries within this final revised rule, we made every effort to avoid including developed areas such as lands covered by buildings, pavement, active mining pits, and other structures because such lands lack essential features for the Peninsular bighorn sheep. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such structures and the land under them inadvertently left inside critical habitat boundaries shown on the maps of this final revised critical habitat are excluded by text in this final rule. Therefore, a Federal action involving these lands would not trigger section 7 consultation with respect to critical

habitat and the requirement of no adverse modification unless the specific action may affect adjacent critical habitat.

#### Comments From State Agencies

Comment 75: Two commenters from the California Department of Parks and Recreation stated that the proposed critical habitat does not include approximately 249,000 ac (100,767 ha) of alluvial-fan habitat previously designated as critical habitat, much of which is the most important sheep habitat in the range in need of protection due to threats of housing development and golf course projects.

Our Response: As discussed in our responses to Comments 3 and 60 above, we agree that low-elevation habitat is important for Peninsular bighorn sheep. We acknowledge there are some low-elevation areas included in the 2001 designation of critical habitat that are not included in this final designation. Although we received limited new information during the public comment period indicating sheep use of low-elevation and low-slope habitat, the available data do not indicate that the areas of low-elevation and low-slope habitat not included in this designation meet the definition of critical habitat. Please see the ``Criteria Used To Identify Critical Habitat,'' the ``Summary of Changes From the 2001 Critical Habitat Designation to the 2007 Proposed Rule To Revise Critical Habitat,'' and the ``Summary of Changes From the 2007 Proposed Rule To Revise Critical Habitat to This Final Rule To Revise Critical Habitat'' sections of this final rule for further discussion of this topic.

Comment 76: Two commenters from the California Department of Parks and Recreation indicated that the proposed critical habitat delineation proposes to create two areas of metapopulation fragmentation: one isolating the San

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Jacinto Mountains (Unit 1) and the other isolating the Carrizo Canyon (Unit 3) population in the south end of the range.

Our Response: As discussed in our responses to Comments 1, 6, and 51, the best scientific data currently available do not support a determination that specific areas containing the physical or biological features essential to the conservation of the Peninsular bighorn sheep connect Units 1 and 3 to the remainder of the range. Please see the ``Criteria Used To Identify Critical Habitat'' and ``Summary of Changes From the 2001 Critical Habitat Designation to the 2007 Proposed Rule To Revise Critical Habitat'' sections of this final rule for further discussion.

Comment 77: Two commenters from the California Department of Parks and Recreation expressed concern that the proposed revision to critical habitat was completed without the consultation and support of the Peninsular bighorn sheep recovery team or any other group of biologists with in-depth knowledge of bighorn sheep or Peninsular bighorn sheep habitat.

Our Response: We followed the appropriate guidance and regulations regarding inclusion of expert biologists and others during development of this critical habitat designation. In accordance with our policy on peer review, published on July 1, 1994 (59 FR 34270), we solicited expert opinions from five knowledgeable individuals (some of which were on the recovery team) with scientific expertise that included familiarity with the DPS, the geographic region in which it occurs, and conservation biology principles. Furthermore, on May 14, 2007, representatives from the Carlsbad Fish and Wildlife Office and the Regional Office, including the Regional Director, met with recovery

team members in part to inform members that we were initiating work to propose revisions to designated critical habitat for Peninsular bighorn sheep. At that meeting, we requested that recovery team members submit any data they wanted us to consider in our proposed revision. For further discussion of this topic, see our responses to Comments 11 and 39 above.

#### Comments Related to the Draft Economic Analysis

Comment 78: One commenter asserts that in assessing the costs of the designation of critical habitat for Peninsular bighorn sheep the Service must look only at the incremental cost of the proposed designation and must not consider the costs attributable to listing alone when considering exclusion of habitat areas.

Our Response: The U.S. Office of Management and Budget's (OMB) guidelines for conducting economic analysis of regulations direct Federal agencies to measure the costs of a regulatory action against a baseline, which it defines as the ``best assessment of the way the world would look absent the proposed action.'' In other words, the baseline includes the existing regulatory and socio-economic burden imposed on landowners, managers, or other resource users potentially affected by the designation of critical habitat. Impacts that are incremental to that baseline (i.e., occurring over and above existing constraints) are attributable to the proposed regulation. Significant debate has occurred regarding whether assessing the impacts of the Service's proposed regulations using this baseline approach is appropriate in the context of critical habitat designations.

In order to address the divergent opinions of the courts and to provide the most complete information to decision-makers, the economic analysis reports both: (a) The baseline impacts of Peninsular bighorn sheep conservation from protections afforded the DPS absent critical habitat designation; and (b) the estimated incremental impacts precipitated specifically by the designation of critical habitat for the species. Summed, these two types of impacts comprise the fully co-extensive impacts of Peninsular bighorn sheep conservation in areas considered for critical habitat designation. When considering the economic impacts of a designation under section 4(b)(2) of the Act, we consider only the incremental economic impacts of the proposed designation.

Incremental effects of critical habitat designation are determined using the Service's December 9, 2004, interim guidance on ``Application of the `Destruction or Adverse Modification' Standard Under Section 7(a)(2) of the Endangered Species Act'' and information regarding what potential consultations and project modifications may potentially occur as a result of critical habitat designation over and above those associated with the listing. In *Gifford Pinchot Task Force v. United States Fish and Wildlife Service*, the Ninth Circuit invalidated the Service's regulation defining destruction or adverse modification of critical habitat, and the Service no longer relies on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, the Service determines destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional to serve its intended conservation role for the species. A detailed description of the methodology used to define baseline and incremental impacts is provided in the ``Economic Analysis'' section of this final rule and the DEA.

Comment 79: One commenter stated that the Service should consider both the revised designation of critical habitat and possible economic

exclusions together. Additionally, the commenter asserted that it is very difficult to comment on the impact of the critical habitat designation, either individually or globally, without an understanding of which properties will ultimately be included in critical habitat. The commenter requested that the Service provide an adequate comment period for review of the economic exclusions.

Our Response: We are not excluding any areas from this final critical habitat rule based on economics. Furthermore, we fully articulated our proposed critical habitat designation and presented this proposal to the public in the October 10, 2007, proposed rule (73 FR 57740) and the August 26, 2008 NOA (73 FR 50498). We opened two comment periods to allow the public an adequate opportunity to review and comment on the proposed critical habitat designation and the DEA. The first comment period opened October 10, 2007 (72 FR 57740), and closed December 10, 2007, and was associated with the publication of the proposed revised rule. The second comment period opened August 26, 2008 (73 FR 50498), and closed October 27, 2008, and was associated with the notice of availability of the DEA, announcement of revisions to the proposed critical habitat, and a notice of public hearings that were held September 10, 2008.

Comment 80: Several commenters suggested that if economics are considered in the critical habitat designation, then the Service should consider the economic impact to desert tourism if the Peninsular bighorn sheep become extinct. Another commenter suggested that the economic impacts of potential extinction or reduction in population size be considered as they relate to the tourism industry.

Our Response: The commenters' suggestions are outside the realm of what we are required to consider when evaluating the economic effects of a critical habitat designation. The economic analysis for Peninsular bighorn sheep calculates baseline costs associated with listing and the

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incremental costs of critical habitat designation, not the economic effects of a potential population decrease or extinction.

#### Summary of Changes From the 2001 Critical Habitat Designation to the 2007 Proposed Rule To Revise Critical Habitat

The areas identified in the October 10, 2007 (72 FR 57740), proposed revision constitute a revision of the areas designated as critical habitat for Peninsular bighorn sheep on February 1, 2001 (66 FR 8650). The main differences in areas we designated as critical habitat for the Peninsular bighorn sheep in 2001 and areas we proposed as critical habitat in the 2007 proposed revision include the following:

(1) We re-evaluated and revised the PCEs in light of the Alameda whipsnake court case (Homebuilder's Ass'n of Northern Cal. v. U.S. Fish and Wildlife Service, 268 F. Supp.2d 1197 (E.D. Cal. 2003)) and other relevant case law, and followed current Service guidelines and policies. The PCEs differ from those in the 2001 critical habitat rule in that they are reorganized into five separate PCEs for clarity. Furthermore, we added specific information on elevational range, plant species used for foraging, and range of slopes required by the DPS. This additional specificity was gained by evaluating the Recovery Plan and examining all recent sheep information, including data from radio collars and GPS collars providing precision to the identification of habitats used and preferred by Peninsular bighorn sheep. Applying the

more precise PCEs to the mountain ranges inhabited by Peninsular bighorn sheep allowed us to fine tune the proposed revision to those areas containing preferred habitat for sheep use and remove those areas that we have determined, based on the best scientific data currently available, do not meet the definition of critical habitat for the Peninsular bighorn sheep. For example, the 2001 final rule included high elevation (above 4,600 ft (1,402 m)), densely vegetated, and forested habitat that we now believe to be inappropriate for sheep use in the San Jacinto, Santa Rosa, and Vallecito Mountains, based on the new information.

(2) The 2001 final rule used a generalized methodology for delineating critical habitat that resulted in the designation of one critical habitat unit for Peninsular bighorn sheep totaling 844,897 ac (341,919 ha) (February 1, 2001, 66 FR 8650). The proposed revision was based on a more specific methodology utilizing more current and robust data that resulted in three critical habitat units including approximately 384,410 ac (155,564 ha) of land in Riverside, San Diego, and Imperial Counties, California, a reduction of 460,487 ac (186,355 ha) from the 2001 final rule (February 1, 2001, 66 FR 8650). The areas included in the proposed revised critical habitat were almost entirely within the boundaries of the existing (2001) critical habitat. Approximately 72 ac (29 ha) of BLM land in Unit 3 were outside the boundary of the 2001 critical habitat.

The reduction in total area from the 2001 final critical habitat designation was primarily the result of using the revised criteria to delineate critical habitat. In our 2001 final critical habitat designation, we delineated critical habitat based on the methodology used in the Recovery Plan for Bighorn Sheep in the Peninsular Ranges, California (Service 2000). In developing the 2007 proposed revision, we reexamined the methodology outlined in the 2000 Recovery Plan and the 2001 critical habitat designation, and updated that methodology based on the best available information (including more specific habitat information and additional occurrence data) to identify areas that meet the definition of critical habitat (see ``Criteria Used To Identify Critical Habitat'' section). Upon reevaluation of the data available at the time of the 2001 critical habitat designation, data obtained since, and our revised methodology for delineating critical habitat, we have determined that some areas (e.g., potential connectivity areas and low-elevation areas, and other expanses described below) included in the 2001 designation do not meet the definition of critical habitat because the available data we have for these specific areas do not support such a determination.

Potential connectivity areas were included in the 2001 designation because they were thought to allow sheep movement between ewe subpopulations and maintain genetic diversity in the metapopulation; however, the 2001 designation was overly broad and generalized, and the current available data do not support a determination that specific areas between Units 1 and 2A and Units 2B and 3 contain the physical or biological features essential to the conservation of the DPS. We have radio collar data of two individual rams indicating the rams spent time in both Unit 1 and Unit 2A and that both animals must have traveled through intervening habitat between these units. One ram traveled between the units multiple times between 1993-1996, while the other ram traveled between the units once in 2003. However, we do not have radio collar data of these rams in the intervening habitat. These data suggest that when traveling, the rams travel quickly and likely do not spend much time in the intervening habitat, otherwise animals likely

would have been detected in those areas. The available data showing rams traveling in the intervening habitat between Unit 1 and Unit 2A do not support the delineation of a migratory route between these units. Likewise, the available data do not support the accurate identification of specific areas used by the Peninsular bighorn sheep as potential corridors connecting Unit 3 to the remainder of the range.

Based on the current available scientific data, we have determined that some areas of low-elevation habitat, including alluvial fans and washes, that were included in the 2001 designation because of the seasonal abundance of potential resources in those areas do not meet the definition of critical habitat. Based on our evaluation of the available information indicating a lack of current or historical Peninsular bighorn sheep use in these areas, we have determined that these specific areas are not essential for the conservation of the DPS (see ``Criteria Used to Identify Critical Habitat'' section). Additionally, like our methodology for the 2007 proposed revision, the 2001 methodology used a minimum slope criterion of 20 percent to delineate essential habitat; however, a 0.5 mi (0.8 km) buffer was included around slopes of greater than or equal to 20 percent (Service 2000, p. 158). This contributed to the inclusion of expanses of unoccupied low-elevation habitat in the 2001 designation that we have determined are not essential for the conservation of the DPS (see ``Criteria Used to Identify Critical Habitat'' section). The 2007 proposed rule did not include a buffer zone area around habitat determined to be essential to the DPS.

Little consideration was given to the distribution of occurrence data and specific ewe group distributions in the methodology used to delineate the 2001 critical habitat boundary. This resulted in expanses of critical habitat (in addition to the potential connectivity areas and low-elevation habitat) in the 2001 designation in which we had little to no occurrence records that would indicate sheep use those areas. For example, we had occupancy data dating back to 1940, yet extensive areas along the length of the Peninsular Ranges within the boundary of the 2001 designation contained little to no data that would support those areas as meeting the definition of critical habitat.

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In general, some of the main areas previously designated as critical habitat that we have now determined are not essential for the conservation of the DPS include the following: The northern and western most portions of the San Jacinto Mountains; the western and eastern most portions of the Santa Rosa Mountains; and portions of the Pinyon, Sawtooth, In-Ko-Pah, Fish Creek, and Coyote mountains.

The Recovery Plan generally used two criteria, the presence of escape terrain and unobstructed view, as key habitat requirements when delineating boundaries of the areas essential to Peninsular bighorn sheep with little consideration of the presence of the PCEs required by this DPS. In the 2007 proposed revision, we considered all five of the revised PCEs in delineating proposed revised critical habitat boundaries, which results in a more precise determination of essential habitat (see ``Primary Constituent Elements for the Peninsular Bighorn Sheep'' and ``Criteria Used to Identify Critical Habitat'' sections). Because a detailed vegetation map was not available at the time of the Recovery Plan, a team of biologists flew the entire western boundary in a helicopter and visually assessed vegetation associations (Service 2000, p. 159). The western boundary was determined by consensus and recorded by GPS from the helicopter position every ten seconds (Service

2000, p. 159). A 0.5 mi (0.8 km) buffer was added to this line to account for the advent of fire suppression (Service 2000, p. 160). This method delineated a general approximation of Peninsular bighorn sheep habitat and resulted in an overbroad designation of critical habitat in these areas. In determining the western boundary of essential habitat in the 2007 proposed revision, we used recent vegetation maps that cover the entire range of the Peninsular bighorn sheep, along with detailed recent aerial photography, expert opinion, and sheep use data to delineate boundaries, which we determined more precisely captures the areas on which are found the physical or biological features essential to the DPS.

In summary, the recent data and methodology considered and used in the 2007 proposed revision and this final rule more accurately delineates the specific areas of Peninsular bighorn sheep habitat that meet the definition of critical habitat. The methods used in the 2000 Recovery Plan and the 2001 critical habitat designation resulted in a more inclusive delineation of essential habitat due to limited data. Application of the revised methodology, based on the best available information, identified 460,487 ac (186,355 ha) of previously designated critical habitat that do not meet the definition of critical habitat, and therefore we are not including these areas in this final revised critical habitat designation.

(3) Approximately 29,924 ac (12,110 ha) of designated critical habitat were vacated in the July 31, 2006, consent decree. A portion of those acres were within the 2007 proposed revised critical habitat. Of the 13,213 ac (5,347 ha) of vacated Agua Caliente Band of Cahuilla Indians tribal lands, approximately 4,512 ac (1,826 ha) were included in the 2007 proposed revision. However, in our proposed revision we proposed to exclude all tribal lands from the final designation. Approximately 16,691 ac (6,756 ha) of mining lands at Ocotillo Mineral Material Sites and Fish Canyon Quarry property were also vacated. In the 2007 proposed revision to critical habitat, we included roughly 50 percent of those vacated lands; specifically, we included lands along the northernmost portion of the Ocotillo Mineral Material Sites property and the middle to southern portion of the Fish Canyon Quarry property. Both of these mining properties contained actively mined lands, but also contained areas in which we have recent documented use by Peninsular bighorn sheep and areas that meet the criteria used to identify critical habitat. The Desert Riders lands vacated in the consent decree (approximately 20 ac (8 ha)) were not included in the proposed revision.

Our 2001 final critical habitat rule included the statement that ``\* \* \* we are not aware of any information suggesting that particular areas within designated critical habitat are currently unsuitable or unused over the generational timeframe needed for the long-term conservation of bighorn sheep in the Peninsular Ranges'' (February 1, 2001, 66 FR 8655). However, we reconsidered the information that was available to us at the time of the 2001 designation in light of additional information currently available to us. We determined that the methodology used in the 2007 proposed revision (and this final rule), which utilized the best available information, provides a more accurate delineation of the specific areas that meet the definition of critical habitat for the Peninsular bighorn sheep than that relied upon in the 2001 critical habitat designation (see ``Criteria Used to Identify Critical Habitat'' section).

Table 1 below outlines the changes in areas in each unit between the 2001 final critical habitat rule, the 2007 proposed revised critical habitat rule, and this 2009 final revised critical habitat

rule for Peninsular bighorn sheep. Table 2 provides the approximate area determined to meet the definition of critical habitat for Peninsular bighorn sheep in the 2007 proposed rule, areas added to the proposed rule announced in the NOA published in the Federal Register on August 26, 2008, areas excluded from the final revised critical habitat designation under section 4(b)(2) of the Act (please see ``Exclusions Under Section 4(b)(2) of the Act'' for a detailed discussion), and areas being designated as final revised critical habitat.

TABLE 1--Changes Between the February 1, 2001 (66 FR 8650), Critical Habitat Designation, the October 10, 2007 (72 FR 57740), Proposed Designation, and This Final Revised Designation.

Critical habitat unit in this final rule	County	2001 designation of critical habitat (66 FR 8650) and ac (ha)	2007 Proposed revision to the critical habitat designation (72 FR 57740) and ac (ha)	2009 Final revised critical habitat designation and ac (ha)
1. San Jacinto Mts.....	Riverside.....	Included as part of one large unit; 844,897 ac (341,919 ha).	Included as Unit 1; 15,273 ac (6,180 ha).	Included as Unit 1; 4,597 ac (1,860 ha).
2A. N. Santa Rosa Mts.....	Riverside.....	.....do.....	Included as Unit 2A; 74,998 ac (30,350 ha).	Included as Unit 2A; 45,100 ac (18,251 ha).
2B. S. Santa Rosa Mts. south to Vallecito Mts..	Riverside, San Diego, Imperial.	.....do.....	Included as Unit 2B; 226,211 ac (91,545 ha).	Included as Unit 2B; 248,021 ac (100,371 ha).
3. Carrizo Canyon.....	San Diego, Imperial.	.....do.....	Included as Unit 3; 67,928 ac (27,489 ha).	Included as Unit 3; 79,220 ac (32,059 ha).
Totals.....	.....	844,897 ac..... (341,919 ha).....	384,410 ac..... (155,564 ha).....	376,938 ac. (152,542 ha).

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Summary of Changes From the 2007 Proposed Rule To Revise Critical Habitat to This Final Rule To Revise Critical Habitat

The areas identified in this final revised rule constitute a revision of the areas we proposed to designate as critical habitat for Peninsular bighorn sheep on October 10, 2007 (72 FR 57740). In light of substantial public comments and a revision of our criteria used to identify critical habitat, we reevaluated and included in this final rule three general areas that were not included in the 2007 proposed rule. These additions (described below) were announced in the NOA published in the Federal Register on August 26, 2008, (73 FR 50498), and include the following: Areas along the eastern edge of the Santa Rosa Mountains in Units 2A and 2B; parts of the San Ysidro, Pinyon, and Vallecito Mountains in Unit 2B; and a portion of the Jacumba Mountains in Unit 3 (approximately 36,240 ac (14,666 ha)). The reduction in total area from the 2007 proposed critical habitat designation is primarily the result of habitat exclusions under section 4(b)(2) of the Act (described below). The main differences between the 2007 proposed

critical habitat rule and this final rule include the following:

(1) During the first and second comment periods for the proposed rule, we received significant comments from the public, including biologists familiar with Peninsular bighorn sheep, which led us to reevaluate and revise our criteria used to identify critical habitat. Please see the ``Changes to Proposed Revised Critical Habitat'' section of the August 26, 2008, NOA (73 FR 50498), and the ``Criteria Used To Identify Critical Habitat'' section of this final rule for more information on our revised criteria.

(2) During the first and second comment periods for the proposed rule, we received significant comments from the public, including biologists familiar with Peninsular bighorn sheep, on areas essential to the DPS that should be included in the designation. As a result of these comments, new information received, and revision of the criteria used to identify critical habitat, we reevaluated the following: Areas along the eastern edge of the Santa Rosa Mountains in Units 2A and 2B; parts of the San Ysidro, Pinyon, and Vallecito Mountains in Unit 2B; and a portion of the Jacumba Mountains in Unit 3. Over 98 percent of these areas are currently designated as critical habitat for Peninsular bighorn sheep (see 50 CFR 17.95(a); February 1, 2001, 66 FR 8650); however, we did not propose these areas as critical habitat in the October 10, 2007, proposed revision to critical habitat (72 FR 57740). Below we describe each area we reevaluated, explain why we did not include the areas in the 2007 proposed rule, and explain why we are including these areas in the final revised critical habitat designation.

#### Eastern Edge of the Santa Rosa Mountains

The eastern edge of the Santa Rosa Mountains stretches along developed and agricultural areas of the Coachella Valley from Palm Desert southeast to the Salton Sea. Along this interface, sheep currently exist near areas of high human activity where habitat is threatened by spreading development. We delineated proposed revised critical habitat along the eastern slope of the Santa Rosa Mountains where occurrence data supported a determination that these areas contained the physical or biological features essential to the conservation of the DPS, in some cases immediately adjacent to the edge of development and the existing critical habitat boundary (66 FR 8650, February 1, 2001). The eastern edge of the Santa Rosa Mountains contains low-elevation alluvial-fan habitat that may be important to Peninsular bighorn sheep. Therefore, we included low-elevation alluvial-fan habitat in the proposed revised designation in cases where occurrence data indicated sheep are using these areas. However, large expanses of currently designated critical habitat (2001) lack occurrence data to indicate current or historical use by sheep of those areas, including some low-elevation alluvial habitat. As such, we did not include all currently designated critical habitat along the eastern edge of the Santa Rosa Mountains in the proposed revised critical habitat designation.

During the first public comment period, we received a number of comments from biologists familiar with Peninsular bighorn sheep that included additional information regarding the importance of low-elevation and alluvial-fan habitat along the eastern edge of the Santa Rosa Mountains. We also received a limited amount of recently collected occurrence data in wash areas along the eastern edge of the south Santa Rosa Mountains. Additionally, we received comments from Peninsular

bighorn sheep biologists indicating that our consideration of data since the time of listing (1998 to present) was inadequate. We then revised our criteria used to identify critical habitat to include occurrence data since 1988 (an additional 10 years of data from what we considered in the proposed rule).

In light of the additional information received and the revision of our criteria used to identify critical habitat, we reevaluated and revised our proposed revised critical habitat boundary along the eastern edge of the Santa Rosa Mountains. We believe that low-elevation habitat is important for Peninsular bighorn sheep because these areas can provide seasonal abundance of forage vegetation and water resources. Where occurrence data indicated sheep use, we revised our proposed revision of critical habitat to include four additional areas along the eastern edge of the Santa Rosa Mountains. These areas include approximately 32 ac (13 ha) in two parcels along the urban interface between the cities of Cathedral City and Palm Desert in Unit 2A; 3,009 ac (1,218 ha) on and around Indio Mountain in Unit 2A; and 7,477 ac

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(3,026 ha) of low-elevation and wash habitat to the east of the southernmost portion of the Santa Rosa Mountains in Unit 2B.

Approximately 99 percent of these areas are currently designated as critical habitat (66 FR 8650, February 1, 2001); an approximately 77-ac (31-ha) parcel and a 3-ac (1-ha) parcel located near Palm Desert are outside of the area currently designated as critical habitat. Because we determined that these areas contain the features essential to the conservation of the DPS, providing seasonal abundance of forage vegetation and water resources, we are including approximately 10,518 ac (4,257 ha) along the eastern edge of the Santa Rosa Mountains in the final revised critical habitat designation for Units 2A and 2B.

#### San Ysidro, Pinyon, and Vallecito Mountains

The San Ysidro, Pinyon, and Vallecito Mountains roughly comprise the middle portion of the Peninsular bighorn sheep range in the United States. We included the majority of these mountains in the October 2007 proposed rule to revise critical habitat (October 10, 2007, 72 FR 57740). Although the areas were included in the existing critical habitat designation, we did not include some extreme western portions of the San Ysidro and Pinyon Mountains and the northeastern edge of the Vallecito Mountains in the proposed rule to revise critical habitat because we determined those areas did not meet the definition of critical habitat.

During the first public comment period, we received comments from several species experts who are currently studying the Peninsular bighorn sheep indicating that we did not consider a number of areas along the western San Ysidro and Pinyon Mountains and the northeastern edge of the Vallecito Mountains that are known to be occupied. The commenters indicated that we were provided occurrence data that indicated occupancy of these areas by bighorn sheep prior to publication of the October 10, 2007, proposed rule (72 FR 57740). Upon receiving these comments, we examined the occurrence data used to delineate the proposed revised critical habitat boundary and found that a set of data was missing from our GIS database. We have since included that occurrence data into our GIS database.

In light of this data and our revised criteria used to identify critical habitat to include data since 1988, we reevaluated the western

San Ysidro and Pinyon Mountains and the northeastern edge of the Vallecito Mountains and determined that certain areas do meet the definition of critical habitat. We revised our proposed designation of critical habitat to include approximately 6,503 ac (2,632 ha) in five areas along the western San Ysidro Mountains, 5,176 ac (2,095 ha) in the western Pinyon Mountains, and 2,751 ac (1,113 ha) along the northeastern edge of the Vallecito Mountains (all in Unit 2B). Approximately 97 percent of these areas are currently designated as critical habitat (February 1, 2001, 66 FR 8650). An approximately 53 ac (21 ha) parcel located near Parks Canyon and an approximately 360 ac (146 ha) parcel located in the San Ysidro Mountains west of Borrego Springs are outside of the area currently designated as critical habitat. We are including the approximately 14,430 ac (5,840 ha) along the San Ysidro, Pinyon, and Vallecito Mountains in the final revised critical habitat designation for Unit 2B.

#### Jacumba Mountains

The Jacumba Mountains represent the southernmost portion of the Peninsular Ranges in the United States, and the southernmost extent of Peninsular bighorn sheep's extant range in the United States. Part of the Jacumba Mountains were included in the 2007 proposed revised critical habitat designation, including an area known as the Interstate 8 ``island'' where there were multiple sheep sightings from 2008. However, we had limited data at the time of the proposed critical habitat rule indicating occupancy or sheep use in the rest of the southeast Jacumba Mountains and the rugged terrain extending east and south to the U.S.-Mexico border. Therefore, we included a small amount of the currently designated critical habitat just north of the U.S.-Mexico border in Imperial County in the October 10, 2007, proposed revision to critical habitat (72 FR 57740).

Since the proposed revised critical habitat designation was published, there have been additional sightings and reports of sheep activity around and within the Interstate 8 island, including suitable habitat areas that extend south to the U.S.-Mexico border. Data recently collected by Service biologists and other biologists familiar with the DPS include actual sightings of multiple sheep and reports of sheep scat and tracks throughout the area, indicating that this area is currently occupied by a group of Peninsular bighorn sheep. This area contains rugged habitat with the features essential to Peninsular bighorn sheep conservation and is contiguous with habitat in Mexico. Additionally, the Jacumba Mountains represent the only area of habitat connecting the DPS listed in the United States with other bighorn sheep populations that occupy the Peninsular Ranges in Mexico. Therefore, we revised our proposed designation of critical habitat for Peninsular bighorn sheep to include approximately 11,292 ac (4,570 ha) of habitat in the Jacumba Mountains (Unit 3), which is currently designated as critical habitat (February 1, 2001, 66 FR 8650). This revision was based on recent occurrence data and the need to be consistent with the critical habitat delineation process we used that includes areas of repeated sheep use.

In total, we added approximately 36,240 ac (14,666 ha) of private, Federal, and State land to the October 10, 2007, proposed revised critical habitat designation (72 FR 57740) for Peninsular bighorn sheep (Table 1).

(3) While reevaluating the boundaries of the proposed revised critical habitat designation as described above, we noticed three areas of high-elevation habitat above 4,600 ft (1,400 m) that did not

accurately follow the boundaries of the essential features and do not contain suitable habitat. Therefore, we removed approximately 66 ac (28 ha) in proposed Unit 1 and two parcels totaling approximately 97 ac (39 ha) in proposed Unit 2B from the October 10, 2007, proposed revision to critical habitat (72 FR 57740) for the Peninsular bighorn sheep (Table 1) and are not including these areas in the final revised critical habitat designation.

(4) Based on revised ownership data, we announced changes in the August 26, 2008, NOA (73 FR 50498) to the areas considered for exclusion from that which we stated in the 2007 proposed critical habitat rule. With the changes announced in the NOA, the proposed exclusion under section 4(b)(2) of the Act for Agua Caliente Band of Cahuilla Indians lands totaled approximately 4,790 ac (1,938 ha). We determined that the benefits of exclusion outweigh the benefits of inclusion on these lands; therefore, we excluded approximately 4,790 ac (1,938 ha) of Agua Caliente Band of Cahuilla Indians tribal lands in Units 1 and 2 under section 4(b)(2) of the Act (see ``Exclusions Under Section 4(b)(2) of the Act'' section of this final rule for a detailed discussion).

(5) In the proposed rule, we announced that we were considering the exclusion of lands covered under the then-draft Coachella Valley MSHCP under section 4(b)(2) of the Act. The Coachella Valley MSHCP has since been finalized, and we determined that the benefits of exclusion outweigh the benefits of inclusion on these lands; therefore, we excluded approximately 38,759 ac (15,685 ha) of private and

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permittee-owned or controlled lands within the Coachella Valley MSHCP under section 4(b)(2) of the Act (see ``Exclusions Under Section 4(b)(2) of the Act'' section of this final rule for a detailed discussion).

As a result of the above additions to the 2007 proposed revised critical habitat designation, removal of areas included in the 2007 proposed revised critical habitat designation, and exclusions under section 4(b)(2) of the Act, we are designating approximately 376,938 ac (152,542 ha) of land in Riverside, San Diego, and Imperial Counties as critical habitat in this final rule.

## Critical Habitat

Critical habitat is defined in section 3 of the Act as:

(i) The specific areas within the geographical area occupied by a species, at the time it is listed in accordance with the Act, on which are found those physical or biological features

(a) Essential to the conservation of the species and

(b) Which may require special management considerations or protection; and

(ii) specific areas outside the geographical area occupied by a species at the time it is listed, upon a determination that such areas are essential for the conservation of the species.

Conservation, as defined under section 3 of the Act, means the use of all methods and procedures that are necessary to bring any endangered or threatened species to the point at which the measures provided under the Act are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live

trapping, transplantation, and in the extraordinary case where population pressures within a given ecosystem cannot otherwise be relieved, may include regulated taking.

Critical habitat receives protection under section 7 of the Act through the prohibition against Federal agencies carrying out, funding, or authorizing the destruction or adverse modification of critical habitat. Section 7(a)(2) of the Act requires consultation on Federal actions that may affect critical habitat. The designation of critical habitat does not affect land ownership or establish a refuge, wilderness, reserve, preserve, or other conservation area. Such designation does not allow the government or public to access private lands. Such designation does not require implementation of restoration, recovery, or enhancement measures by private landowners. Where a landowner requests Federal agency funding or authorization for an action that may affect a listed species or critical habitat, the consultation requirements of section 7(a)(2) would apply, but even in the event of a destruction or adverse modification finding, the landowner's obligation is not to restore or recover the species, but to implement reasonable and prudent alternatives to avoid destruction or adverse modification of critical habitat.

For inclusion in a critical habitat designation, habitat within the geographical area occupied by the species at the time it was listed must contain the physical and biological features that are essential to the conservation of a species, and be included only if those features may require special management considerations or protection. Critical habitat designations identify, to the extent known using the best scientific data available, habitat areas that provide essential life-cycle needs of the species (i.e., areas on which are found the primary constituent elements laid out in the appropriate quantity and spatial arrangement essential to the conservation of the species).

Under the Act, we can designate an area outside the geographical area occupied by the species at the time of listing as critical habitat only when we determine that the best available scientific data demonstrate that the designation of that area is essential for the conservation of the species.

Section 4 of the Act requires that we designate critical habitat on the basis of the best scientific data available. Further, our Policy on Information Standards Under the Endangered Species Act (published in the Federal Register on July 1, 1994 (59 FR 34271)), the Information Quality Act (section 515 of the Treasury and General Government Appropriations Act for Fiscal Year 2001 (Pub. L. 106-554; H.R. 5658)), and our associated Information Quality Guidelines provide criteria, establish procedures, and provide guidance to ensure that our decisions are based on the best scientific data available. They require our biologists, to the extent consistent with the Act and with the use of the best scientific data available, to use primary and original sources of information as the basis for recommendations to designate critical habitat.

When we are determining which areas should be designated as critical habitat, our primary source of information is generally the information developed during the listing process for the species. Additional information sources may include the recovery plan for the species, articles in peer-reviewed journals, conservation plans developed by States and counties, scientific status surveys and studies, biological assessments, or other unpublished materials and expert opinion or personal knowledge.

Habitat is often dynamic, and species may move from one area to

another over time. Furthermore, we recognize that designation of critical habitat may not include all of the habitat areas that we may eventually determine, based on scientific data not now available to the Service, are necessary for the recovery of the species. For these reasons, a critical habitat designation does not signal that habitat outside the designated area is unimportant or may not be required for recovery of the species.

Areas that support populations, but are outside the critical habitat designations, will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act. They are also subject to the regulatory protections afforded by the section 7(a)(2) jeopardy standard, as determined on the basis of the best available scientific information at the time of the Federal agency action. Federally funded or permitted projects affecting listed species outside their designated critical habitat areas may still result in jeopardy findings in some cases. Similarly, critical habitat designations made on the basis of the best available information at the time of designation will not control the direction and substance of future recovery plans, habitat conservation plans (HCPs), or other species conservation planning efforts if information available at the time of these planning efforts calls for a different outcome.

#### Primary Constituent Elements (PCEs)

In accordance with section 3(5)(A)(i) of the Act and the regulations at 50 CFR 424.12, in determining which areas within the geographical area occupied by the species at the time of listing to designate as critical habitat, we consider the physical and biological features essential to the conservation of the species that may require special management considerations or protection to be the PCEs laid out in the appropriate quantity and spatial arrangement essential to the conservation of the species. These include, but are not limited to:

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- (1) Space for individual and population growth and for normal behavior;
- (2) Food, water, air, light, minerals, or other nutritional or physiological requirements;
- (3) Cover or shelter;
- (4) Sites for breeding, reproduction, or rearing (or development) of offspring; and
- (5) Habitats that are protected from disturbance or are representative of the historic, geographical, and ecological distributions of a species.

We derived the specific PCEs required for Peninsular bighorn sheep from its biological needs as described below and in the proposed rule to revise critical habitat published in the Federal Register on October 10, 2007 (72 FR 57740). Additionally, information can be found in the final listing rule published in the Federal Register on March 18, 1998 (63 FR 13134), and in the original final critical habitat rule published in the Federal Register on February 1, 2001 (66 FR 8650).

#### Space for Individual and Population Growth and Normal Behavior

Peninsular bighorn sheep occur on moderately steep to very steep open slopes, canyons, and washes in hot and dry desert regions where the land is rough and rocky, and sparsely vegetated (February 1, 2001,

66 FR 8650). This DPS is primarily restricted to the east-facing lower elevation slopes (generally below 4,600 ft (1,400 m)) of the Peninsular Ranges along the northwestern edge of the Sonoran Desert (Jorgensen and Turner 1975, p. 51; DeForge et al. 1997, p. 11; Rubin et al. 1998, p. 541; Ernest et al. 2002, p. 76). A wide range of topography provides a diversity of habitats and plant communities across the mountainous slopes, canyons, washes, and alluvial fans within the home range of Peninsular bighorn sheep (Service 2000, p. 156). This diverse topography is necessary to provide shelter from the elements and predators, areas for rearing, areas used to meet thermal requirements, seasonal water and forage sources, and space for mating and movement of this DPS.

Diverse topographic features are especially important because of the extreme temperatures Peninsular bighorn sheep must cope with in this desert region. During hot weather, desert bighorn sheep seek shade under boulders and cliffs, or move to north-facing slopes (Merritt 1974, p. 14; Andrew 1994, p. 52). In the event of inclement weather they may seek protected caves or overhangs, move to sunny, south-facing slopes (Andrew 1994, p. 52), or move to slopes that are protected from strong winds. Desert bighorn sheep are frequently found on, and show a preference for slopes greater than 20 percent (Elenowitz 1983, p. 87; Andrew 1994, p. 53; Dunn 1996, p. 5; Andrew and Bleich 1999, p. 13), and our GIS data and occurrence records confirm this observation for Peninsular bighorn sheep. According to GIS data and occurrence records, Peninsular bighorn sheep largely utilize habitat with 20 to 60 percent slopes, broken by canyons and washes. Nighttime bedding areas are chosen carefully according to the topography of the habitat and may be considered a limiting factor in bighorn sheep distribution (Hansen 1980, p. 78). These bedding areas are usually located along ridges and spurs with long distance visibility where bighorn sheep can escape, if necessary, in a matter of seconds (Hansen 1980, p. 78).

Bighorn sheep primarily rely on their sense of sight to detect predators. They prefer the lower elevations of the Peninsular Ranges where the vegetation associations are less dense and provide better visibility than those at higher elevations. Research shows that bighorn sheep will avoid habitat where dense vegetation reduces visibility and instead prefer to use habitat with vegetative canopy cover less than or equal to 30 percent (Risenhoover and Bailey 1985, p. 799; Etchberger et al. 1989, p. 906; Dunn 1996, p. 1). Bighorn sheep in the Peninsular Ranges avoid higher elevations (above 4,600 ft (1,400 m)), likely due to decreased visibility (and therefore increased predation risk) associated with denser vegetation (i.e., chaparral and conifer woodland) found at higher elevations (Service 2000, p. 10).

Along with occupying open habitat, bighorn sheep use steep, rugged terrain for predator evasion (Service 2000, p. 6). Bighorn sheep use their climbing abilities rather than speed to escape from predators, and mountainous slopes of greater than or equal to 60 percent (i.e., escape habitat) are steep enough to provide this function (Andrew 1994, p. 57; Dunn 1996, p. 1; Service 2000, p. 6; McKinney et al. 2003, p. 1231).

Steep escape habitat is also used for lambing (Service 2000, p. 6). As parturition approaches, ewes seek isolated sites (escape terrain with slopes 60 percent or greater) with shelter and unobstructed views (Turner and Hansen 1980, p. 148), and seclude themselves from other females while finding sites to give birth (Geist 1971, p. 239; Etchberger and Krausman 1999, p. 358). Ewes usually give birth to one lamb born after an approximately 6-month gestation period (Geist 1971, p. 239; Turner and Hansen 1980, p. 146). These areas of steep terrain

are vital to Peninsular bighorn sheep because lambs have increased vulnerability to predation, and these protective slopes are rarely visited by predators (Geist 1971, p. 239). Ewe groups with lambs usually stay close to escape terrain while feeding on lower gradient slopes. Berger (1991, p. 72) reported that when feeding on bajadas or away from escape terrain, ewes and lambs were greater than three times more vulnerable to predation. Predators of Peninsular bighorn sheep include mountain lion, bobcat, coyote, and domestic dogs (Hayes et al. 2000, p. 954; February 1, 2001, 66 FR 8650).

#### Metapopulation Structure

Within desert mountain ranges like the Peninsular Ranges, bighorn sheep habitat is patchy, and the population structure is naturally fragmented (Bleich et al. 1990, p. 384). This fragmentation leads to the application of a broad landscape approach to their population ecology, grouping geographically distinct herds into metapopulations, which are networks of interacting ewe groups or subpopulations (Schwartz et al. 1986, pp. 182-183; Bleich et al. 1990, p. 386). This broad approach considers long-term viability not of individual subpopulations, but rather of entire metapopulations; thus, both genetic and demographic factors are considered. Decreasing population sizes can lead to decreasing levels of heterozygosity that may have negative demographic effects through inbreeding depression (Lande 1988, p. 1,456) and loss of adaptability. A small amount of genetic exchange among herds by movements of males can counteract inbreeding and associated increases in homozygosity that might otherwise develop within small, isolated populations (Schwartz et al. 1986, p. 185). Males have larger home ranges and a much greater tendency than females to explore new areas, which they may do in search of females during the mating season. Movement by males occurs readily if no insurmountable barriers exist and geographic distances between female groups within metapopulations are not extreme (greater than 31 mi 50 km (Witham and Smith 1979, p. 24). If movement is precluded by human-constructed obstacles, populations will become isolated and the metapopulation structure dismantled.

A study of Peninsular bighorn sheep distribution and abundance by Rubin et al. (1998, p. 545) concludes that ewes exhibit a fragmented distribution within the Peninsular Ranges, making up at least eight ewe groups or

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subpopulations. Although the distribution of these ewe groups could be considered naturally fragmented, construction and use of roads through bighorn sheep habitat may have increased fragmentation within the Peninsular Ranges because ewes avoid crossing highways (Rubin et al. 1998, p. 547). Ewes show strong gregarious and philopatric behavior (i.e., faithful to natal home range), which limits their dispersal abilities (Boyce et al. 1999, p. 99; Service 2000, p. 10). Movement of ewes between ewe groups is infrequent, but direct observation and aerial-telemetry locations and genetic analysis reveal ram movement among at least six ewe groups (Boyce et al. 1999, p. 99; Rubin et al. 1998, pp. 543-544). Additionally, substructuring can occur within single herds (i.e., ewe groups) of bighorn sheep (Festa-Bianchet 1986, pp. 327-330; Andrew et al. 1997, pp. 74-75; Rubin et al. 1998, pp. 543-548). Such substructuring is defined by separate home range patterns. Although demonstrated more with females, it can occur in both sexes.

Another important long-term process in metapopulation dynamics is the balance between rates of natural extinction and colonization among subpopulations. Colonization rates must exceed extinction rates for a metapopulation to persist (Hanski and Gilpin 1991, pp. 8-9). In past decades this balance has not occurred for Peninsular bighorn sheep due to fragmentation, disease, predation, and low recruitment (Rubin et al. 1998, pp. 545-547; Rubin et al. 2002, p. 803-805). The remaining fragmented subpopulations consist of small, isolated groups of bighorn sheep that are more vulnerable to extirpation due to random naturally occurring events, disease, or predation because of their small population size. Local extinction of small subpopulations can be prevented by occasional immigrants from neighboring subpopulations (i.e., the rescue effect) (Brown and Kodric-Brown 1977, p. 445).

Because of the metapopulation structure of the Peninsular bighorn sheep population, it is important for genetic exchange and the conservation of the DPS to ensure space for movement and connectivity between ewe groups. Furthermore, maintaining connectivity within the metapopulation could help safeguard against local extinctions of the remaining subpopulations.

#### Food

A wide range of forage resources and vegetation associations are required by Peninsular bighorn sheep to meet annual and drought-related variations in forage quality and availability (Hansen 1980, p. 76). Valley floors, rolling hills, and alluvial fans and washes with productive soils provide seasonal vegetation and water resources important to Peninsular bighorn sheep. In a mountainous environment like the Peninsular Ranges, temperature and soil moisture vary widely with slope and elevation. This causes seasonal variation in plant growth throughout this DPS' habitat. Peninsular bighorn sheep must have access to the seasonal abundance of plant life at various elevations to maximize resources and survive in the desert environment.

Berger (1991, p. 70) found that bighorn sheep adjust their feeding ranges to exploit more nutritive portions of their home ranges, such as within bajadas, early in the season when high-protein grasses emerge. Due to high energetic costs of pregnancy and lactation, ewes are especially dependent on areas with nutritious forage to increase success of rearing offspring (Service 2000, p. 8). Berbach (1987, p. 97) reports that, when ewes are confined to an enclosure and prevented from using all vegetation associations during late gestation and early lactation, they and their lambs die of malnutrition. During the reproductive season for Peninsular bighorn sheep, nutritious forages are typically concentrated on specific sites (e.g., alluvial fans, bajadas, washes) where more productive, wetter soils support greater herbaceous growth than steeper, drier, rockier soils (Service 2000, p. 8). There is a tendency for plants that dry out during summer months on the mountain-sides to remain green longer (and thus more nutritious, higher in protein, and more easily digested) in the washes, because groundwater is generally closer to the surface and in greater quantity. Furthermore, the greater soil moisture supports a suite of nutritious plants that do not grow on the dry mountain sides. Therefore, washes and alluvial fans play an important role in providing desert bighorn sheep quality forage during the heat of summer months and through times of drought.

Scott (1986, p. 21) found that Peninsular bighorn sheep diets are dominated by shrub species (64 to 76 percent), with grasses and forbs

species making up a smaller portion of the diet (19 to 30 percent and 2 to 6 percent, respectively). In the following section, plant nomenclature is updated to conform to treatments in Hickman (1993). Common names generally conform with those given in Hickman (1993) or Abrams (1993-1960). Cited scientific names are retained in brackets for ease of reference. Foraging studies by Scott (1986, p. 21) and Cunningham (1982, p. 31) note that Peninsular bighorn sheep preferentially feed on different plants seasonally. Shrubs such as *Ambrosia dumosa* (burro bush), *Caesalpinia virgata* [*Hoffmannseggia microphylla*] (small-leaved *Hoffmannseggia*), *Hyptis emoryi* (desert lavender), *Sphaeralcea* spp. (globemallow), and *Simmondsia chinensis* (joboba) are primary food sources year round; grasses such as *Aristida adscensionis* (sixweeks threeawn) and *Bromus rubens* (red brome) along with cacti *Opuntia* spp. (cholla) are primary food sources in the fall; forbs such as *Plantago* spp. (woolly plantain), *Plantago ovata* [*insularis*] var. *fastigiata* (woolly plantain), and *Ditaxis neomexicana* (common ditaxis) are primary food sources in the spring.

However, Peninsular bighorn sheep are generalist foragers, browsing on a wide variety of plant species depending on seasonal availability. Other plants reportedly consumed by Peninsular bighorn sheep include *Encelia farinosa* (brittlebush), *Parkinsonia* spp. (Palo verde), *Ephedra* spp. (Mormon tea), *Agave deserti* (desert agave), *Quercus* spp. (scrub oak), *Phoradendron californicum* (desert mistletoe), *Eriogonum fasciculatum* (California buckwheat), *Prunus fremontii* (desert apricot), *Acacia greggii* (catclaw), *Prosopis juliflora* (mesquite), *Krameria grayi* (ratany), and *Malosma laurina* (laurel-leaf sumac) (Browning and Monson 1980, p. 88).

#### Water

In the Peninsular Ranges, the presence of perennial water is known to be a limiting factor only during prolonged droughts or summers without significant thunderstorm activity (Service 2000, p. 156). Water sources are most valuable to bighorn sheep if they occur in proximity to escape terrain with good visibility (Service 2000, p. 9). However, according to historical Peninsular bighorn sheep occurrence data, sheep are known to travel at least 10 mi (16 km) from sources of perennial water (Service 2000, p. 156). According to Service biologists familiar with the DPS, bighorn sheep usually visit a water source every 2 to 3 days, but it is not unusual for them to drink more often. During hot summer months, desert bighorn sheep typically stay close to reliable sources of water and drink large quantities at each visit. Some research has suggested that desert bighorn sheep can survive without a permanent water source (Krausman et al. 1985), although this view is not widely accepted (Turner and Weaver 1980, p. 104). In desert

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ranges like the Peninsular Ranges, rainwater can accumulate in natural collection tanks and potholes in the rock and provide seasonal or perennial water sources. Additionally, natural springs provide a reliable source of water for Peninsular bighorn sheep. Desert bighorn sheep also rely on consuming vegetation, including cacti, to meet water requirements when standing water sources are scarce (Turner and Weaver 1980, p. 102). Water sources contribute greatly to Peninsular bighorn sheep's ability to survive the hot and dry summer months.

#### Primary Constituent Elements for Peninsular Bighorn Sheep

Within the geographical area occupied by Peninsular bighorn sheep at the time of listing, we must identify the physical or biological features essential to the conservation of the DPS that may require special management considerations or protection. Based on the above needs and our current knowledge of the life-history, biology, and ecology of Peninsular bighorn sheep, we determined the Peninsular bighorn sheep PCEs are:

(1) Moderate to steep, open slopes (20 to 60 percent) and canyons, with canopy cover of 30 percent or less (below 4,600 ft (1,402 m) elevation in Peninsular Ranges) that provide space for sheltering, predator detection, rearing of young, foraging and watering, mating, and movement within and between ewe groups;

(2) Presence of a variety of forage plants, indicated by the presence of shrubs (e.g., *Ambrosia* spp., *Caesalpinia* spp., *Hyptis* spp., *Sphaeralcea* spp., *Simmondsia* spp.), that provide a primary food source year round, grasses (e.g., *Aristida* spp., *Bromus* spp.) and cacti (e.g., *Opuntia* spp.) that provide a source of forage in the fall, and forbs (e.g., *Plantago* spp., *Ditaxis* spp.) that provide a source of forage in the spring;

(3) Steep, rugged, slopes (60 percent slope or greater) (below 4,600 ft (1,402 m) elevation in Peninsular Ranges) that provide secluded space for lambing and terrain for predator evasion;

(4) Alluvial fans, washes, and valley bottoms that provide important foraging areas where nutritious and digestible plants can be more readily found during times of drought and lactation, and that provide and maintain habitat connectivity by serving as travel routes between and within ewe groups, adjacent mountain ranges, and important resource areas (e.g., foraging areas and escape terrain); and

(5) Intermittent and permanent water sources that are available during extended dry periods and provide relatively nutritious plants and drinking water.

This final revised critical habitat designation encompasses those areas containing the PCEs necessary to support one or more of the species' life history functions and laid out in the appropriate quantity and spatial arrangement essential to the conservation of the species. All units in this designation contain the PCEs and support multiple life processes. As stated in the ``Criteria Used To Identify Critical Habitat'' section of this rule, we believe that we can conserve Peninsular bighorn sheep within its extant range and are not including any areas outside of the geographical area occupied by the species.

#### Special Management Considerations or Protection

When designating critical habitat within the geographical area that is occupied at the time of listing, we identify the features that are essential to the conservation of the DPS and assess whether those features may require special management considerations or protection.

Peninsular bighorn sheep habitat and the features essential to their conservation are threatened by the direct and indirect effects of: development and expansion of urban areas; human disturbance related to recreation; construction of roadways and power lines; and mineral extraction and mining operations.

Habitat loss (especially in canyon bottoms), degradation, and fragmentation associated with the proliferation of residential and commercial development, roads and highways, water projects, and vehicular and pedestrian recreational uses threaten Peninsular bighorn

sheep and its habitat throughout its range (March 18, 1998, 63 FR 13134). Cities that occur along the eastern boundary of proposed revised critical habitat, from the base of the San Jacinto and Santa Rosa Mountains to the Salton Sea area (Units 1 and 2A), continue to grow. Development adjacent to and within Peninsular bighorn sheep habitat affects the quality and quantity of lower elevation habitat and associated vegetation, alluvial fans, and water sources (PCEs 1, 2, 4, and 5). By 2000, at least 18,500 ac (7,490 ha) of suitable Peninsular bighorn sheep habitat had been lost to urbanization and agriculture along the urban interface between the cities of Palm Springs and La Quinta (Service 2000, p. 38). Much of the lost habitat consisted of low-elevation alluvial fans and washes that provided important sources of nutrients to ewes when they were rearing their lambs (PCE 2 and 4) (February 1, 2001, 66 FR 8650). Moreover, in the northern Santa Rosa Mountains, from 1991 to 1996, 34 percent of Peninsular bighorn sheep adult mortalities were directly caused by urbanization (February 1, 2001, 66 FR 8650): five were killed by cars; five died from feeding on toxic, nonnative ornamental plants; and one was strangled in a wire fence (DeForge and Ostermann 1997, p. 1).

Continued urban and commercial development within the range of Peninsular bighorn sheep could fragment the metapopulation into isolated groups too small to maintain long-term viability. Maintenance of genetic diversity allows small ewe groups like those in the Peninsular Ranges to persist. The inability of rams and occasional ewes to move between groups erodes the genetic fitness of isolated groups (PCE 1 and 4) (March 18, 1998, 63 FR 13134). Special management considerations or protection may be needed to maintain the physical and biological features essential to the conservation of the Peninsular bighorn sheep and alleviate the effects of development on Peninsular bighorn sheep habitat, especially lower elevation habitat, alluvial fans, and areas of ewe group connectivity near urban areas. This management or protection could be accomplished by controlling the expansion of urban, industrial, and agricultural development into these areas.

In the Peninsular Ranges (Units 1, 2 and 3), increased human activity and disturbance adjacent to, and within Peninsular bighorn sheep habitat may threaten bighorn sheep by altering their normal behavior. This altered behavior can lead to bighorn sheep abandoning their habitat and preventing use of preferred habitat, including lambing areas, water sources, and foraging areas, and cause negative physiological effects (PCE 1, 2, 3, 4, and 5) (February 1, 2001, 66 FR 8650; March 18, 1998, 63 FR 13134). A variety of human activities (e.g., hiking, mountain biking, horseback riding, camping, hunting, livestock grazing, use of aircraft and off-road vehicles) have the potential to disrupt normal bighorn sheep social behaviors. Special management considerations or protection of the physical and biological features essential to the conservation of the DPS may be needed to alleviate the effects of human activity and disturbance to Peninsular bighorn sheep and ensure that the essential features remain available for use by Peninsular bighorn

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sheep. Restricting human use of trail systems and natural areas during lambing season, re-routing trails, and establishing exclusionary fencing around urban areas may reduce human effects on Peninsular bighorn sheep behavior.

Roads and highways may permanently fragment bighorn sheep habitat

or impede the movement of bighorns across the landscape, thus isolating subpopulations and disrupting the metapopulation structure of the DPS. Two major highways run through the Peninsular Ranges and fragment bighorn sheep habitat. In the northern portion of the Peninsular Ranges, State Route 74 runs through the Santa Rosa Mountains (Unit 2A). Further south, State Route 78 cuts through habitat between the San Ysidro Mountains and Pinyon Mountains (Unit 2B). These roadways have degraded habitat and generally impeded the movement of Peninsular bighorn sheep (especially ewes) between ewe groups in the surrounding areas (PCE 1, 2, 3, 4, and 5) (Rubin et al. 1998, p. 547), which can erode the genetic fitness of isolated groups (March 18, 1998, 63 FR 13134). However, some movement has been documented across State Route 74 (Service 2004, pp. 1-2).

Epps et al. (2005, p. 1035) showed that genetic diversity of desert bighorn sheep populations was negatively correlated with the presence of human-made barriers (in this case fenced highways), and suggested that anthropogenic barriers constitute a severe threat to the persistence of naturally fragmented populations (such as Peninsular bighorn sheep). Additionally, roads and highways represent an unnatural source of mortality. Collisions with automobiles can be a significant cause of Peninsular bighorn sheep mortality within portions of the DPS range (DeForge and Ostermann 1997, p. 1). Future construction of roadways should be avoided in critical habitat, and if unavoidable, should be constructed to minimize habitat effects and allow continued connectivity among ewe groups.

Degradation and fragmentation of bighorn sheep habitat may occur during the construction phase of power lines and their associated structures. Currently, a large power line (Sunrise Powerlink) is approved for construction through Peninsular bighorn sheep critical habitat. Special management considerations and protection of the physical and biological features essential to the conservation of the DPS will be implemented to alleviate the effects of power line structures and their construction on Peninsular bighorn sheep and their habitat. Future construction of major infrastructure, such as power lines, should be avoided in critical habitat, and if unavoidable, should be constructed to minimize habitat effects and allow continued connectivity among ewe groups.

Mining operations occur within southern portions of Peninsular bighorn sheep habitat in Units 2B and 3. Mining activities and associated facilities negatively impact Peninsular bighorn sheep by causing the loss of vegetation structure required for foraging activities and destroying habitats used for escape, bedding, lambing, or connectivity between ranges (PCE 1, 2, 3, 4, and 5). Disturbance could modify the sheep's behavior or cause bighorn sheep to flee an area. Special management considerations or protection of the physical and biological features essential to the conservation of the DPS may be needed to alleviate the effects of mining operations on Peninsular bighorn sheep habitat. Further mining operations should avoid (to the maximum extent possible) areas identified as meeting the definition of critical habitat for Peninsular bighorn sheep.

#### Criteria Used To Identify Critical Habitat

As required by section 4(b)(2) of the Act, we use the best scientific data available in determining within the geographical area occupied at the time of listing the specific areas on which are found the features essential to the conservation of the DPS which may require

special management considerations or protection, as well as in determining if any specific areas outside the geographical area occupied by the DPS are essential for the conservation of the DPS. We only designate areas outside the geographical area occupied by a species when a designation limited to its present range would be inadequate to ensure the conservation of the species (50 CFR 424.12(e)). We are designating critical habitat for the Peninsular bighorn sheep within areas that we determined were occupied at the time of listing and that contain the physical and biological features essential to the conservation of the DPS. Lands are designated based on sufficient essential features being present to support the life processes.

Based on the criteria used to identify critical habitat for the Peninsular bighorn sheep, we believe those areas designated as critical habitat within the geographical area occupied by the DPS at the time of listing are sufficient to conserve Peninsular bighorn sheep. The most recent estimate from 2006 puts the population at approximately 800 individuals (Torres 2007, p. 1). Delisting criterion 2 in the Recovery Plan for this DPS states that the rangewide population must average 750 individuals (adults and yearlings) with a stable or increasing population trend over 12 consecutive years (Service 2000, p. 66). The occupied areas identified as containing the features essential to the conservation of the DPS in this designation accurately represent the areas inhabited by the current population which is at a size approaching recovery levels. We believe that conservation of Peninsular bighorn sheep would be achieved if threats to this DPS, as described in the ``Special Management Considerations or Protection'' section of this rule, were reduced or removed due to management and protection of areas delineated as critical habitat in this rule. Although the current population trend is promising, it should be noted that the time horizon for the delisting criterion mentioned above has not been met and other downlisting and delisting criteria described in the Recovery Plan (such as the minimum number of ewes (25) present in each recovery region for six consecutive years) are yet to be achieved.

For areas outside the geographical area occupied by the DPS at the time of listing, there are no data on file to suggest any such areas are essential for the conservation of the DPS. We recognize this finding is different than what is outlined as essential habitat in the 2000 Recovery Plan and what was designated as critical habitat in the 2001 designation (which largely adopted the boundary delineated in the Recovery Plan). The Recovery Plan and 2001 critical habitat rule note that allowing for ram movement between ewe groups is important for maintaining genetic variation in the Peninsular bighorn sheep metapopulation, and alluvial fans can provide important resources for sheep. While we believe connectivity areas and additional low-elevation areas (alluvial-fan habitat) are important for the Peninsular bighorn sheep's recovery, we have significantly more data available today than when the Recovery Plan and 2001 critical habitat were finalized. We have utilized the currently available data to more precisely identify areas meeting the definition of critical habitat; in particular, areas related to connectivity and low-elevation habitat. Such areas are included in this designation where the data support the determination that such areas contain the physical and biological features

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essential to the conservation of the DPS. For other potential connectivity and low-elevation areas that were included in the 2001

designation, the available movement and occurrence data we have for those areas do not support the identification of specific areas that provide a movement corridor, or a determination that the broad expanse of low-elevation areas with no evidence of current or historical sheep use are essential for the conservation of the DPS.

We believe it is important to note that critical habitat designation is a different process than development of a recovery plan. A critical habitat designation is a specific regulatory action that defines specific areas as critical habitat in accordance with the statutory definition. A recovery plan is a guidance document developed in cooperation with partners, which provides a roadmap with detailed site-specific management actions to help conserve listed species and their ecosystems. The term "essential," as used in the recovery plan, is not necessarily used in the same manner as it is used in the definition of critical habitat. The recovery plan provides important information about the species and the actions that are needed to bring about its recovery, while critical habitat identifies specific areas that are essential for the species' conservation.

The deviation from the Recovery Plan boundary and the 2001 final critical habitat designation is primarily the result of using a revised methodology to delineate critical habitat. Our revised methodology incorporates new information to best identify areas that meet the definition of critical habitat (see "Summary of Changes From the 2001 Critical Habitat Designation To the 2007 Proposed Rule To Revise Critical Habitat" section for more discussion). As a result, the final revised critical habitat boundary does not include areas the Recovery Plan identified as necessary for the conservation of the Peninsular bighorn sheep that we since determined (based on the best available data at this time) are not essential for the conservation of this DPS. Therefore, we believe the final revised critical habitat boundary more precisely maps the physical and biological features that occur within the geographical area occupied by the Peninsular bighorn sheep at the time of listing, which includes those areas containing preferred habitat for sheep use.

There are likely additional areas outside of the final revised critical habitat boundary that contain some of the PCEs, including areas identified in the Recovery Plan and 2001 critical habitat. We recognize that areas outside of the critical habitat boundary are likely utilized by Peninsular bighorn sheep (primarily for movement of rams between ewe groups). However, as stated above, the data available at this time do not support the identification of specific areas containing the essential features that provide a movement corridor between Units 1 and 2A or between Units 2B and 3. Additionally, Unit 2A is continuous with Unit 2B and these units contain a large contiguous portion of the Peninsular Ranges allowing for movement between six ewe groups with these units. Furthermore, although we do not have information to identify specific movement corridors, the areas between Units 1 and 2A or between Units 2B and 3 are steep, rugged, and remote and there are no perceived threats in these areas. Therefore, we are confident that these areas will still be available for any natural sheep movements between units allowing for genetic connectivity. We also recognize that some areas below 20 percent slope (low-elevation areas such as alluvial fans, washes, and valley bottoms) may be used by sheep; however, available data do not support a determination that the broad expanse of low-elevation areas with no evidence of current or historical sheep use are essential for the conservation of the DPS (low-elevation areas on which are found features essential to the conservation of the DPS are included in this designation). Areas

outside the final revised critical habitat designation will continue to be subject to conservation actions implemented under section 7(a)(1) of the Act and regulatory protections afforded by the section 7(a)(2) jeopardy standard and the prohibitions of section 9 of the Act if actions occurring in these areas may affect sheep; these protections and conservation tools will continue to contribute to recovery of the DPS.

We utilize the best scientific and commercial data available to develop criteria that (at this point in time) identifies the PCEs laid out in the appropriate quantity and spatial arrangement essential to the conservation of the DPS. The PCEs incorporate those features needed by the Peninsular bighorn sheep as outlined in the Recovery Plan, including (1) Open slopes and canyons with minimal canopy cover; (2) presence of forage plants; (3) steep, rugged slopes; (4) foraging areas within alluvial fans, washes, and valley bottoms; and (5) intermittent and permanent water sources.

We used the following data to delineate critical habitat: (1) Areas that contain the PCEs required by the DPS as determined from aerial imagery and Geographic Information System (GIS) data on vegetation, elevation, and slope; (2) areas within the ewe group distribution (i.e., subpopulations) boundaries identified by Rubin et al. (1998); (3) areas with occupancy data indicating they are currently occupied or areas with occupancy data indicating they were occupied at some point between 1988 (i.e., the time of listing (1998) less 10 years, which is the average lifespan of Peninsular bighorn sheep) and 2008 (present time); and (4) areas where occupancy data points indicate repeated Peninsular bighorn sheep use, but which were not captured within the ewe group distribution boundaries identified by Rubin et al. (1998). Additionally, we gathered information from our files, staff biologists, the California Department of Fish and Game, the Bighorn Institute, known bighorn sheep experts, and the public. Our revision to critical habitat is designed to capture ewe groups; lambing areas; foraging areas, including alluvial fans; water sources; and areas used for natural sheep movements.

To determine the criteria used to identify critical habitat in this critical habitat designation, we identified areas we believe contain the PCEs essential to the conservation of Peninsular bighorn sheep and coupled this information with Peninsular bighorn sheep ewe group distribution and occurrence data that have been available since the time of listing. We believe this is the most appropriate way to accurately delineate the areas containing the PCEs laid out in the appropriate quantity and spatial arrangement essential to the conservation of the DPS. The broad-based methodology used to delineate critical habitat in the 2001 critical habitat rule (and 2000 Recovery Plan) included large expanses (hundreds of thousands of acres) of habitat (including very general connectivity areas and low-elevation habitat) which were determined to be essential at that time. However, upon reevaluation of the data available at that time, data obtained since, and our revised methodology for delineating critical habitat, we find that areas were included in the 2001 designation that do not meet the definition of critical habitat. Given the more detailed nature of the currently available scientific information, it is not appropriate to continue to use the broad-based methodology used in the 2001 designation. Incorporating the available updated occupancy data allowed us to examine sheep use during a period documented to exhibit large

fluctuations in the DPS population levels. As a result, we identified those areas that exhibit substantial sheep activity at a broad spatial distribution. In other words, the availability of sheep occurrence data provided us the opportunity to use this information as a proxy to better define and capture in the final revised critical habitat boundary those areas containing the physical and biological features essential to the conservation of the Peninsular bighorn sheep.

We delineated critical habitat boundaries using the following steps:

(1) We mapped areas that contain the PCEs required by the DPS as determined from aerial imagery and Geographic Information System (GIS) data on vegetation, elevation, and slope, and delineated our revised units to ensure that they capture the PCEs. Where appropriate, we expanded the boundaries to capture the extent of an alluvial fan or water source (PCE 4 or 5, respectively). We also removed areas that we determined do not contain PCEs or otherwise do not contain suitable Peninsular bighorn sheep habitat, such as areas above 4,600 ft (1,400 m) elevation (PCE 1), areas containing conifer woodland with canopy cover greater than 30 percent (PCE 1), and slopes less than 20 percent (PCE 1), unless those areas overlapped specifically with Rubin et al.'s (1998, pp. 539-561) ewe group distributions and had documented use by Peninsular bighorn sheep as evidenced by occurrence data, as further described in the following steps.

(2) We mapped ewe group areas from Rubin et al. (1998) over GIS imagery of the Peninsular Ranges to delineate the distribution of ewe groups in the proposed revised critical habitat. We consider Rubin et al. (1998) to be the best available data on Peninsular bighorn sheep ewe group distribution. The ewe group delineations presented in Rubin et al. (1998) were based on data collected during 1993 to 1996, when the population of Peninsular bighorn sheep was at historically low levels. Therefore, the ewe group delineations present a minimum distribution of bighorn sheep in the Peninsular Ranges. This is the only data we are aware of that identifies the distribution of ewe groups and subgroups within the Peninsular Ranges. Furthermore, we believe that the ewe groups presented in Rubin et al. (1998) accurately depict the general locations of the known ewe groups in these ranges, providing a logical proxy to help identify those areas containing the physical and biological features essential to the conservation of the Peninsular bighorn sheep.

(3) We compared the ewe group delineation from Rubin et al. (1998, pp. 539-561) with all occupancy data collected since 1988 on GIS imagery maps to: (1) Ensure that Rubin et al. (1998, pp. 539-561) accurately represents the boundaries of the ewe groups at larger population levels; (2) capture possible ram movement; and (3) capture other areas used by bighorn sheep in recent years. Subsequently, we expanded the delineated ewe group areas to include areas where occupancy data points indicate repeated Peninsular bighorn sheep use and sheep movements (pre- and post-Rubin et al. 1998, pp. 539-561), and to include areas that contain the PCEs for Peninsular bighorn sheep. We delineated the critical habitat boundaries at these locations to capture the majority of occurrence points while still following the boundaries of the PCEs, such as elevations below 4,600 ft (1,400 m) (PCE 1), areas with 30 percent canopy cover or less (PCE 1), escape terrain (PCE 3), slopes of 20 percent or greater (PCE 1), alluvial fans (PCE 4), washes (PCE 4), and water sources (PCE 5) immediately adjacent to the identified ewe groups. When it was not possible to follow boundaries of the PCEs, we delineated the border around occurrence

points to follow natural breaks in the terrain such as ridgelines, canyon bottoms, and toe of slope.

Specifically, we expanded the area representing the northernmost ewe group delineation (i.e., San Jacinto Mountains) to include the area north of Chino Canyon where (1) We have evidence of recent ewe and ram movements; and (2) the Bighorn Institute has released, and continues to release, captive-born sheep to help recover this DPS. We also expanded the area representing the southernmost ewe group delineation (i.e., Carizzo Canyon area) to the southeast to capture water sources (PCE 5), including habitat near the Interstate 8 island southwest of Ocotillo, California, south towards the U.S.-Mexico border where there are consistent, recent sightings of uncollared Peninsular bighorn sheep. Finally, we expanded ewe group delineations to include areas of occupied habitat between the ewe groups in the Santa Rosa Mountains continuing south along the Peninsular Ranges to the Vallecito Mountains ewe group. Documented Peninsular bighorn sheep use of these intervening habitat areas is consistent with the Rubin et al. (1998, pp. 539-561) demographic study, which indicated possible connectivity between ewe groups through this area.

(4) We examined all pre-listing occurrence data in our files to determine if our revised critical habitat missed any areas of historical repeated Peninsular bighorn sheep use. As a result, we identified an area of historical repeated use that was occupied at the time of listing between two ewe subgroups documented in Rubin et al. (1998, pp. 539-561) as (1) Santa Rosa Mountains east of State Route 74 (Martinez Canyon); and (2) Santa Rosa Mountains east of State Route 74 (south). Documented Peninsular bighorn sheep use of these intervening habitat areas is consistent with the Rubin et al. (1998, pp. 539-561) demographic study, which indicated possible connectivity between these subgroups through this area. This area is important in light of genetic findings by Boyce et al. (1999, pp. 99-106) that indicate ewe groups within these ranges maintain genetic connectivity, probably through male-mediated nuclear gene flow. Based on the importance of this area for connectivity between subgroups, we expanded the critical habitat boundaries to include areas where occupancy data points indicate historically occupied habitat. Since the number of occurrence data points in historically occupied areas is relatively small, likely due to minimal survey effort in those remote areas, we delineated the unit boundaries in these areas to follow the boundaries of the PCEs, such as elevations below 4,600 ft (1,400 m) (PCE 1), areas with 30 percent canopy cover or less (PCE 1), escape terrain (PCE 3), alluvial fans (PCE 4), washes (PCE 4), and water sources (PCE 5) immediately adjacent to the identified ewe groups.

When determining the critical habitat boundaries within this final revised rule, we made every effort to avoid including developed areas such as lands covered by buildings, pavement, mining pits, and other structures because such lands lack essential features for the Peninsular bighorn sheep. The scale of the maps we prepared under the parameters for publication within the Code of Federal Regulations may not reflect the exclusion of such developed lands. Any such structures and the land under them inadvertently left inside critical habitat boundaries shown on the maps of this final revised critical habitat are excluded by text in this final rule. Therefore, a Federal action involving these lands would not trigger section 7 consultation with respect to critical habitat and the requirement of no destruction or adverse modification unless the specific action may affect adjacent critical habitat.

Final Critical Habitat Designation

We are designating approximately 376,938 ac (152,542 ha) of critical habitat for Peninsular bighorn sheep in four units that were proposed as revised critical habitat. Table 2 provides the approximate area determined to meet the definition of critical habitat for Peninsular bighorn sheep in the 2007 proposed rule, areas added to the proposed rule announced in the NOA published in the Federal Register on August 26, 2008, areas excluded from the final revised critical habitat designation under section 4(b)(2) of the Act (please see ``Exclusions Under Section 4(b)(2) of the Act'' for a detailed discussion), and areas being designated as final revised critical habitat.

Table 2--Critical Habitat Units for Peninsular Bighorn Sheep in Riverside, San Diego, and Imperial Counties, California; Land Ownership and Evolution of Final Size in Acres (Hectares)  
 [Area estimates reflect all land within proposed critical habitat unit boundaries]

Critical habitat unit	Land ownership.....	2007 Proposed critical habitat (72 FR 57740) \10\			2008 NOA changes to proposed critical habitat (73 FR 50498) \11\			Areas excluded under section 4(b)(2) of the Act Final critical habitat		
1. San Jacinto Mts.....	Tribal \1\.....	4,323	(1,749)	0	.....	4,323	(1,749)	0	.....	
	BLM \2\.....	3,135	(1,269)	0	.....	0	.....	3,135	(1,269)	
	USFS \3\.....	1,237	(501)	-66	(27)	0	.....	1,171	(474)	
	State \4\.....	276	(112)	0	.....	276	(112)	0	.....	
	Private \5\.....	6,302	(2,322)	0	.....	6,011	(2,433)	291	(118)	
Subtotal.....		15,273	(6,181)	-66	(27)	10,610	(4,294)	4,597	(1,860)	
2A. N. Santa Rosa Mts.....	Tribal \1\.....	467	(189)	0	.....	467	(189)	0	.....	
	BLM.....	44,485	(18,003)	613	(248)	0	.....	45,098	(18,251)	
	State \6\.....	17,547	(7,101)	1,490	(603)	19,037	(7,704)	0	.....	
	Private \5\.....	12,499	(5,058)	938	(380)	13,435	(5,437)	2	(1)	
Subtotal.....		74,998	(30,350)	3,041	(1,231)	32,939	(13,330)	45,100	(18,251)	
2B. S. Santa Rosa Mts.....	BLM.....	16,266	(6,583)	0	.....	0	.....	16,266	(6,583)	
south to Vallecito Mts.....	State \7\.....	197,509	(79,929)	19,697	(7,971);	0	.....	217,206	(87,901)	
	.....	.....	.....	-97	(39)	.....	.....	.....	.....	
	Private.....	12,436	(5,033)	2,113	(855)	0	.....	14,549	(5,888)	
Subtotal.....		226,211	(91,545)	21,810	(8,826)	0	.....	248,021	(100,371)	
3. Carrizo Canyon.....	BLM.....	27,762	(11,235)	9,985	(4,041)	0	.....	37,747	(15,276)	
	State \8\.....	35,475	(14,356)	58	(23)	0	.....	35,533	(14,380)	
	Private.....	4,177	(1,690)	1,249	(505)	0	.....	5,426	(2,196)	
	Local \9\.....	514	(208)	0	.....	0	.....	514	(208)	

Subtotal.....	67,928	(27,489)	11,292	(4,570)	0	.....	79,220	(32,059)
Total.....	384,410	(155,564)	36,077	(14,600)	43,549	(17,624)	376,938	(152,542)

- \1\ Tribal = Agua Caliente Band of Cahuilla Indians Reservation and tribal lands.
- \2\ BLM = Bureau of Land Management.
- \3\ USFS = United States Forest Service.
- \4\ State = Coachella Valley Mountains Conservancy (CVMC), California Department of Fish and Game (CDFG) and California State Lands Commission (CSLC).
- \5\ Private = Private or Coachella Valley MSHCP permittee.
- \6\ State = University of California Natural Reserve System, CVMC, Wildlife Conservation Board, and State unpermitted.
- \7\ State = CDFG, CSLC, and California Department of Parks and Recreation (CDPR).
- \8\ State = CDPR.
- \9\ Local = City/County Park.
- \10\ Proposed critical habitat acreages for ownership types reported in this column do not match those reported in the October 10, 2007, proposed rule (72 FR 57740) because they are revised to reflect updated ownership information obtained since the proposed rule published.
- \11\ Minus (-) symbols in this column indicate areas removed from proposed revised critical habitat.

Below, we present brief descriptions of the units designated as critical habitat for Peninsular bighorn sheep. For more information about the areas excluded from critical habitat, please see the ``Exclusions Under Section 4(b)(2) of the Act'' section of this final rule.

Unit 1: San Jacinto Mountains

Unit 1 consists of approximately 4,597 ac (1,860 ha) in the San Jacinto Mountains, Riverside County. Unit 1 is generally located within an area bounded on the east by the city of Palm Springs, bounded on the north by Windy Point and Snow Canyon, and extends south to the northern Palm Canyon area. Land ownership within the unit includes approximately 3,135 ac (1,269 ha) of BLM land; 1,171 ac (474 ha) of USFS land; and 291 ac (118 ha) of Desert Water Authority (DWA) land (Table 2).

Unit 1 begins at a low-elevation of about 450 ft (137 m) on the eastern slope and rises to about 4,600 ft (1,400 m) to the west. It is the northernmost unit of revised critical habitat for Peninsular bighorn sheep. This unit was occupied at the time of listing and is currently occupied. Unit 1 contains the physical and biological features essential to the

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conservation of Peninsular bighorn sheep including a range of vegetation types (PCE 2), foraging and watering areas including alluvial fans (PCE 4 and 5), and steep rocky terrain with elevations and slopes that provide for sheltering, lambing, mating, movement among and between ewe groups (PCE 1), and predator evasion (PCE 3).

The physical and biological features essential to the conservation of Peninsular bighorn sheep in Unit 1 may require special management considerations or protection to ameliorate the threats of urban and industrial development (particularly in lower elevation areas) due to the proximity of this unit to the Palm Springs area, and to decrease the direct and indirect effects of human disturbance to Peninsular bighorn sheep and its habitat. Please see the ``Special Management Considerations or Protection'' section of this final rule for a detailed discussion of the threats to Peninsular bighorn sheep habitat and potential management considerations.

We excluded approximately 4,323 ac (1,749 ha) of tribal land that

meets the definition of critical habitat for Peninsular bighorn sheep from the final revised designation. We believe the designation of critical habitat would adversely impact our working relationship with the Tribe, and that Federal regulation through critical habitat designation would be viewed as an unwarranted and unwanted intrusion into tribal natural resource programs. Furthermore, the approximately 4,323 ac (1,749 ha) of tribal land within critical habitat are currently managed in a manner that provides conservation benefits to Peninsular bighorn sheep through implementation of a Tribal Council-approved management plan currently being implemented (2001 Tribal Conservation Strategy; MBA, 2001). The Tribe is also implementing a number of smaller scale habitat- and activity-specific plans that provide some benefit to Peninsular bighorn sheep: Indian Canyons Master Plan, 2002; Tahquitz Canyon Wetland Conservation Plan, 2000; Trail Plan, 2000; and the draft Tribal Fire Management Plan. Furthermore, the 4,323 ac (1,749 ha) of tribal land are within the plan area of the 2007 draft Tribal HCP (Helix Environmental Planning, 2007) that will incorporate additional conservation measures once finalized. See the ``Application of Section 4(b)(2)--Other Relevant Impacts--Conservation Partnerships'' section of this final rule for a detailed discussion of the tribal management plans.

We also excluded lands within the plan area for the Coachella Valley MSHCP from Unit 1. In both the 2007 proposed revised rule and NOA published in the Federal Register on August 26, 2008, we stated we would consider the possible exclusion of approximately 6,287 ac (2,544 ha) of private land and Coachella Valley MSHCP permittee-owned land from the final critical habitat designation in Unit 1. We are excluding these areas from this final revised designation based on partnerships developed during the development of the Coachella Valley MSHCP that was finalized on October 1, 2008 (see the ``Application of Section 4(b)(2)--Other Relevant Impacts--Conservation Partnerships'' section for a detailed discussion).

#### Unit 2A: North Santa Rosa Mountains

Unit 2A consists of approximately 45,100 ac (18,251 ha) in the northern Santa Rosa Mountains, Riverside County. Unit 2A is generally located on the east-facing slopes of the northern Santa Rosa Mountains, and extends from near the City of Rancho Mirage in the north to Martinez Canyon in the south, limited to the east by the communities of the northern Coachella Valley. Land ownership within the unit includes approximately 45,098 ac (18,251 ha) of BLM land and 2 ac (1 ha) of DWA land (Table 2).

Unit 2A begins at a low-elevation of about 50 ft (15 m) on the eastern slope and rises to about 4,600 ft (1,400 m) to the west. This unit was occupied at the time of listing and remains occupied. Unit 2A contains the physical and biological features that are essential to the conservation of the Peninsular bighorn sheep including a range of vegetation types (PCE 2), foraging and watering areas including alluvial fans (PCE 4 and 5), and steep to very steep, rocky terrain with elevations and slopes that provide for sheltering, lambing, mating, movement among and between ewe groups (PCE 1), and predator evasion (PCE 3).

The physical and biological features essential to the conservation of Peninsular bighorn sheep in Unit 2A may require special management considerations or protection to ameliorate the threats of urban, industrial, and agricultural development, and to decrease the direct

and indirect effects of human disturbance to Peninsular bighorn sheep and its habitat, due to the proximity of this unit to the highly developed northern Coachella Valley. In particular, the essential features in this unit may require special management considerations or protection to alleviate threats to Peninsular bighorn sheep and its habitat associated with roadways, such as State Route 74 that cuts through the midsection of this unit and may impede movement between ewe groups. Please see the ``Special Management Considerations or Protection'' section of this final rule for a detailed discussion of the threats to Peninsular bighorn sheep habitat and potential management considerations.

We excluded approximately 467 ac (189 ha) of Agua Caliente Band of Cahuilla Indians tribal lands meeting the definition of critical habitat for Peninsular bighorn sheep from the final revised designation. As stated above under the description of Unit 1, the designation of critical habitat would likely adversely impact our working relationship with the Tribe, and we believe that Federal regulation through critical habitat designation would be viewed as an unwarranted and unwanted intrusion into tribal natural resource programs. Furthermore, these approximately 467 ac (189 ha) of tribal land within critical habitat are currently managed in a manner that provides conservation benefits to Peninsular bighorn sheep through implementation of a Tribal Council-approved management plan currently being implemented (2001 Tribal Conservation Strategy; MBA, 2001). The 467 ac (189 ha) of tribal land are within the plan area of the 2007 draft Tribal HCP (Helix Environmental Planning, 2007) that will incorporate additional conservation measures once finalized. See the ``Application of Section 4(b)(2)--Other Relevant Impacts--Conservation Partnerships'' section of this final revised rule for a detailed discussion of the tribal management plans.

We also excluded lands within the plan area for the Coachella Valley MSHCP from Unit 2A. In the 2007 proposed revised rule and the NOA published in the Federal Register on August 26, 2008, we stated we would consider the possible exclusion of approximately 32,472 ac (13,141 ha) of private land and Coachella Valley MSHCP permittee-owned land from the final critical habitat designation in Unit 2A. We are excluding these areas from this final revised designation based on partnerships developed during the development of the Coachella Valley MSHCP that was finalized on October 1, 2008 (see the ``Application of Section 4(b)(2)--Other Relevant Impacts--Conservation Partnerships'' section for a detailed discussion).

#### Unit 2B: South Santa Rosa Mountains South to Vallecito Mountains

Unit 2B consists of approximately 248,021 ac (100,371 ha) in the southern Santa Rosa Mountains, Coyote Canyon,

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San Ysidro Mountains, Pinyon Mountains, and Vallecito Mountains, in Riverside, San Diego, and Imperial Counties. Unit 2B is generally located on the east-facing slopes of the above ranges, loosely bounded on the east by the Coachella Valley floor, and extends from the southern Santa Rosa Mountains in the north to the Fish Creek Mountains in the south. Land ownership within the unit includes approximately 16,266 ac (6,583 ha) of BLM land; 217,206 ac (87,901 ha) of land owned by the State of California (including portions of Anza-Borrego Desert State Park); and 14,549 ac (5,888 ha) of private land (Table 2).

Unit 2B begins at a low-elevation of about 150 ft (45 m) on the eastern slope and rises to about 4,600 ft (1,400 m) to the west. This unit was occupied at the time of listing and remains occupied. This unit contains the physical and biological features that are essential to the conservation of Peninsular bighorn sheep including a range of vegetation types (PCE 2), foraging and watering areas including alluvial fans (PCE 4 and 5), and steep to very steep, rocky terrain with elevations and slopes that provide for sheltering, lambing, mating, movement among and between ewe groups (PCE 1), and predator evasion (PCE 3).

The physical and biological features essential to the conservation of Peninsular bighorn sheep in Unit 2B may require special management considerations or protection to: (1) Ameliorate threats of urban, industrial, and agricultural development due to the proximity of this unit to the Coachella Valley, especially the lower elevation areas in the northeastern portions of this unit; (2) decrease the direct and indirect effects of human disturbance to Peninsular bighorn sheep and its habitat due to recreational activity, since most of this unit includes lands within Anza-Borrego Desert State Park, which is open to recreational activities; (3) alleviate threats to Peninsular bighorn sheep and its habitat associated with State Route 78, which cuts through the southern portion of this unit and may impede movement between ewe groups; and (4) alleviate threats to Peninsular bighorn sheep and its habitat associated with mining operations at Fish Canyon Quarry and various mining claims in the unit. Please see the ``Special Management Considerations or Protection'' section of this final rule for a detailed discussion of the threats to Peninsular bighorn sheep habitat and potential management considerations.

### Unit 3: Carrizo Canyon

Unit 3 consists of approximately 79,220 ac (32,059 ha) in the Carrizo Canyon area of San Diego and Imperial Counties, extending south to the U.S.-Mexico border. Unit 3 is generally located in Carrizo Canyon and the surrounding In-Ko-Pah Mountains, Jacumba Mountains, Coyote Mountains, and Tierra Blanca Mountains; it is loosely bounded on the north, east, and west by the Coachella Valley floor. Land ownership within the unit includes approximately 37,747 ac (15,276 ha) of BLM land; 35,533 ac (14,380 ha) of land owned by the State of California (including portions of Anza-Borrego Desert State Park); 5,426 ac (2,196 ha) of private land; and 514 ac (208 ha) of local park land (Table 2).

Unit 3 begins at a low-elevation of about 400 ft (122 m) on the eastern slope and rises to about 4,600 ft (1,400 m) to the west. This unit was occupied at the time of listing and is currently occupied. This unit contains the physical and biological features that are essential to the conservation of Peninsular bighorn sheep including a range of vegetation types (PCE 2), foraging and watering areas including alluvial fans (PCE 4 and 5), and steep to very steep, rocky terrain with elevations and slopes that provide for sheltering, lambing, mating, movement among and between ewe groups (PCE 1), and predator evasion (PCE 3).

The physical and biological features essential to the conservation of Peninsular bighorn sheep in Unit 3 may require special management considerations or protection to: (1) Decrease the direct and indirect effects of human disturbance to Peninsular bighorn sheep and its habitat due to recreational activity, since most of this unit includes lands within Anza-Borrego Desert State Park, which is open to recreational activities; (2) alleviate threats to Peninsular bighorn

sheep and its habitat associated with Interstate 8, which cuts through the southern portion of this unit and may impede movement between ewe groups; and (3) alleviate threats to Peninsular bighorn sheep and its habitat associated with mining operations at Ocotillo Mineral Material Site and other mining claims that may occur in the unit. Please see the ``Special Management Considerations or Protection'' section of this final rule for a detailed discussion of the threats to Peninsular bighorn sheep habitat and potential management considerations.

## Effects of Critical Habitat Designation

### Section 7 Consultation

Section 7(a)(2) of the Act requires Federal agencies, including the Service, to ensure that actions they fund, authorize, or carry out are not likely to jeopardize the continued existence of a listed species or destroy or adversely modify designated critical habitat. Decisions by the 5th and 9th Circuit Courts of Appeals have invalidated our definition of ``destruction or adverse modification'' (50 CFR 402.02) (see Gifford Pinchot Task Force v. U.S. Fish and Wildlife Service, 378 F. 3d 1059 (9th Cir 2004) and Sierra Club v. U.S. Fish and Wildlife Service et al., 245 F.3d 434, 442F (5th Cir 2001)), and we do not rely on this regulatory definition when analyzing whether an action is likely to destroy or adversely modify critical habitat. Under the statutory provisions of the Act, we determine destruction or adverse modification on the basis of whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional to serve its intended conservation role for the species.

Under section 7(a)(2) of the Act, if a Federal action may affect a listed species or its critical habitat, the responsible Federal agency (action agency) must enter into consultation with us. As a result of this consultation, we document compliance with the requirements of section 7(a)(2) through our issuance of:

- (1) A concurrence letter for Federal actions that may affect, but are not likely to adversely affect, listed species or critical habitat; or
- (2) A biological opinion for Federal actions that are likely to adversely affect listed species or critical habitat.

When we issue a biological opinion concluding that a project is likely to jeopardize the continued existence of a listed species or destroy or adversely modify critical habitat, we also provide reasonable and prudent alternatives to the project, if any are identifiable. We define ``Reasonable and prudent alternatives'' at 50 CFR 402.02 as alternative actions identified during consultation that:

- (1) Can be implemented in a manner consistent with the intended purpose of the action;
- (2) Can be implemented consistent with the scope of the Federal agency's legal authority and jurisdiction;
- (3) Are economically and technologically feasible; and
- (4) Would, in the Director's opinion, avoid jeopardizing the continued existence of the listed species or

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destroying or adversely modifying critical habitat.

Reasonable and prudent alternatives can vary from slight project modifications to extensive redesign or relocation of the project. Costs associated with implementing a reasonable and prudent alternative are

similarly variable.

Regulations at 50 CFR 402.16 require Federal agencies to reinitiate consultation on previously reviewed actions in instances where a new species is listed or critical habitat is subsequently designated that may be affected and the Federal agency has retained discretionary involvement or control over the action or such discretionary involvement or control is authorized by law. Consequently, Federal agencies may need to request reinitiation of consultation with us on actions for which formal consultation has been completed, if those actions may affect subsequently listed species or designated critical habitat.

Federal activities that may affect Peninsular bighorn sheep or its designated critical habitat will require section 7(a)(2) consultation under the Act. Activities on State, tribal, local or private lands requiring a Federal permit (such as a permit from the U.S. Army Corps of Engineers under section 404 of the Clean Water Act (33 U.S.C. 1251 et seq.) or a permit from us under section 10(a)(1)(B) of the Act) or involving some other Federal action (such as funding from the Federal Highway Administration, Federal Aviation Administration, or the Federal Emergency Management Agency) are examples of agency actions that may be subject to the section 7(a)(2) consultation process. Federal actions not affecting listed species or critical habitat, and actions on State, tribal, local, or private lands that are not federally funded, authorized, or permitted, do not require section 7(a)(2) consultations.

#### Application of the ``Adverse Modification'' Standard

The key factor related to the adverse modification determination is whether, with implementation of the proposed Federal action, the affected critical habitat would remain functional to serve its intended conservation role for the species. Activities that may destroy or adversely modify critical habitat are those that alter the physical and biological features to an extent that appreciably reduces the conservation value of critical habitat for Peninsular bighorn sheep. Generally, the conservation role of Peninsular bighorn sheep critical habitat units is to support viable core area populations.

Section 4(b)(8) of the Act requires us to briefly evaluate and describe in any proposed or final regulation that designates critical habitat, activities involving a Federal action that may destroy or adversely modify such habitat, or that may be affected by such designation.

Activities that, when carried out, funded, or authorized by a Federal agency, may affect critical habitat and therefore should result in consultation for Peninsular bighorn sheep include, but are not limited to:

(1) Actions that would significantly reduce ongoing management and conservation efforts that benefit Peninsular bighorn sheep on public lands. Such activities could include, but are not limited to, the sale, exchange, or lease of lands managed by BLM or other Federal agencies, and the State of California. These activities could reduce the amount of space that is available for individual and population growth and normal behavior, as well as reduce or eliminate the number and extent of sites for foraging, watering, breeding, reproduction, and rearing of offspring. These activities could also reduce the opportunities available to Federal agencies to exercise their section 7(a)(1) of the Act responsibilities to carry out programs to conserve listed species.

(2) Actions that would significantly reduce the availability of or

accessibility to seasonal ranges. Such activities could include, but are not limited to, grazing, mining, and power line and road construction activities. These activities could degrade, reduce, fragment, or eliminate available foraging resources or alter current foraging activities of Peninsular bighorn sheep.

(3) Actions that would result in the significant expansion of dense vegetation communities within Peninsular bighorn sheep habitat. Such activities could include, but are not limited to, fire suppression. These activities could allow expansion of vegetation cover such that movement patterns of bighorn sheep are altered by avoidance of these areas. Tall, dense vegetation decreases visibility for bighorn sheep and provides cover for predators such as the mountain lion, a common predator of Peninsular bighorn sheep.

(4) Actions that would create significant barriers to movement. Such activities could include, but are not limited to, road construction, residential development, and resort or campground facility development or expansion. These activities could interfere with movement within and between habitats, thereby reducing the availability of habitat for foraging, watering, breeding, reproduction, sheltering, and rearing of offspring. These activities could also reduce opportunities for movement between existing populations, dispersal, and genetic interchange between ewe groups.

(5) Actions that would significantly degrade habitat or cause a disturbance to Peninsular bighorn sheep. Such activities could include, but are not limited to, recreational activities, such as off-road vehicle use, hiking, camping, rock climbing, horseback riding, and outfitter guided activities. These activities could displace animals from foraging areas, water sources, and escape terrain, and could impact the quality and quantity of forage.

#### Exemptions

#### Application of Section 4(a)(3) of the Act

The Sikes Act Improvement Act of 1997 (Sikes Act) (16 U.S.C. 670a) required each military installation that includes land and water suitable for the conservation and management of natural resources to complete an integrated natural resources management plan (INRMP) by November 17, 2001. An INRMP integrates implementation of the military mission of the installation with stewardship of the natural resources found on the base. Each INRMP includes:

An assessment of the ecological needs on the installation, including the need to provide for the conservation of listed species;

A statement of goals and priorities;

A detailed description of management actions to be implemented to provide for these ecological needs; and

A monitoring and adaptive management plan.

Among other things, each INRMP must, to the extent appropriate and applicable, provide for fish and wildlife management; fish and wildlife habitat enhancement or modification; wetland protection, enhancement, and restoration where necessary to support fish and wildlife; and enforcement of applicable natural resource laws.

The National Defense Authorization Act for Fiscal Year 2004 (Pub. L. 108-136) amended the Act to limit areas eligible for designation as critical habitat. Specifically, section 4(a)(3)(B)(i) of the Act (16 U.S.C. 1533(a)(3)(B)(i)) now provides: ``The Secretary shall not designate as critical habitat any lands or other geographical areas owned or controlled by the Department of Defense, or designated for its

use, that

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are subject to an integrated natural resources management plan prepared under section 101 of the Sikes Act (16 U.S.C. 670a), if the Secretary determines in writing that such plan provides a benefit to the species for which critical habitat is proposed for designation.'

There are no Department of Defense lands with a completed INRMP within the critical habitat designation.

Exclusions Under Section 4(b)(2) of the Act

Application of Section 4(b)(2) of the Act

Section 4(b)(2) of the Act states that the Secretary must designate and revise critical habitat on the basis of the best available scientific data after taking into consideration the economic impact, national security impact, and any other relevant impact of specifying any particular area as critical habitat. The Secretary may exclude an area from critical habitat if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of the critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. In making that determination, the legislative history is clear that the Secretary has broad discretion regarding which factor(s) to use and how much weight to give to any factor. In the following sections, we address a number of general issues that are relevant to our analysis under section 4(b)(2) of the Act.

Economic Analysis

Following the publication of the proposed revised critical habitat designation, we conducted an economic analysis to estimate the potential economic effect of the designation. The draft economic analysis (DEA; dated June 9, 2008) was made available for public review and comment from August 26, 2008, to October 27, 2008 (73 FR 50498). Substantive comments and information received on the DEA are summarized above in the ``Public Comment'' section and are incorporated into the final analysis, as appropriate. Taking any relevant new information into consideration, the Service completed a final economic analysis (FEA) (dated November 25, 2008) of the designation that updates the DEA by removing impacts that were not considered probable or likely to occur.

The primary purpose of the economic analysis is to estimate the potential incremental economic impacts associated with the designation of critical habitat for Peninsular bighorn sheep. This information is intended to assist the Secretary in making decisions about whether the benefits of excluding particular areas from the designation outweigh the benefits of including those areas in the designation. The economic analysis considers the economic efficiency effects that may result from the designation. In the case of habitat conservation, efficiency effects generally reflect the ``opportunity costs'' associated with the commitment of resources to comply with habitat protection measures (such as lost economic opportunities associated with restrictions on land use).

The economic analysis also addresses how potential economic impacts

are likely to be distributed, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation activities on government agencies, private businesses, and individuals. The economic analysis measures lost economic efficiency associated with residential and commercial development and public projects and activities, such as economic impacts on water management and transportation projects, Federal lands, small entities, and the energy industry. This information can be used by the Secretary to assess whether the effects of the designation might unduly burden a particular group or economic sector. Finally, the economic analysis looks retrospectively at costs that have been incurred since the date we listed the Peninsular bighorn sheep as endangered (March 18, 1998, 63 FR 13134), and considers those costs that may occur in the years following the revised designation of critical habitat, with the timeframes for this analysis varying by activity.

The economic analysis focuses on the direct and indirect costs of the rule. However, economic impacts to land use activities can exist in the absence of critical habitat. These impacts may result from, for example, local zoning laws, State and natural resource laws, and enforceable management plans and best management practices applied by other State and Federal agencies. Economic impacts that result from these types of protections are not included in the analysis as they are considered to be part of the regulatory and policy baseline.

The economic analysis examines activities taking place both within and adjacent to the designation. It estimates impacts based on activities that are ``reasonably foreseeable'' including, but not limited to, activities that are currently authorized, permitted, or funded, or for which proposed plans are currently available to the public. Accordingly, the analysis bases estimates on activities that are likely to occur within a 20-year timeframe, from when the proposed rule became available to the public (October 10, 2007, 72 FR 57740). The 20-year timeframe was chosen for the analysis because, as the time horizon for an economic analysis is expanded, the assumptions on which the projected number of projects and cost impacts associated with those projects are based become increasingly speculative.

The economic analysis is intended to quantify the baseline and incremental economic impacts of all potential conservation efforts for Peninsular bighorn sheep associated with the following activities: (1) Habitat management; (2) development; (3) mining; (4) recreation; (5) transportation; and (6) utility construction. Baseline impacts include the potential economic impacts of all actions relating to the conservation of the Peninsular bighorn sheep, including costs associated with sections 7, 9, and 10 of the Act. Baseline impacts also include the economic impacts of protective measures taken as a result of other Federal, State, and local laws that aid habitat conservation in the area evaluated in the DEA. In other words, those impacts associated with the listing of the species and not associated with critical habitat. Incremental impacts are those potential future economic impacts of conservation actions relating to the designation of critical habitat; these impacts would not be expected to occur without the designation of critical habitat.

Baseline economic impacts are those impacts that result from listing and other conservation efforts for Peninsular bighorn sheep. Conservation efforts related to development activities constitute the majority of total baseline costs to areas proposed for critical habitat (more than 70 percent). Mining-related impacts comprise 20 percent of the impacts; these impacts result from potential conservation effort costs associated with mine operations. Recreation and habitat

management related impacts comprise about 9 percent of the impacts. Post-designation baseline impacts are estimated to be approximately \$92.5 million in present value terms using a 3 percent discount rate (\$6.22 million annualized) over the next 20 years (2008 to 2027) in areas proposed as critical habitat (not including areas proposed or considered for exclusion under section 4(b)(2) of the Act). Stated in other terms, these post-designation baseline impacts are estimated to be approximately \$67.4 million (\$6.36 million annualized) in

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present value terms using a 7 percent discount rate.

Post-designation baseline impacts for areas proposed for exclusion are calculated separately from areas proposed as critical habitat. These impacts are related to continued habitat management practices within areas managed by the Agua Caliente Band of Cahuilla Indians Tribe and are estimated to be approximately \$499,000 (\$33,500 annualized) using a 3 percent discount rate. Stated in present value terms using a 7 percent discount rate, these impacts are estimated at \$369,000 (\$34,800 annualized). Additionally, post-designation baseline impacts for areas considered for exclusion were calculated separately from areas proposed as critical habitat. These impacts are related to habitat management, development, and transportation, and are estimated to be approximately \$86.3 million (\$4.95 million annualized) using a 3 percent discount rate. Assuming a 7 percent discount rate, post-designation baseline impacts are estimated at \$59.7 million (\$5.15 million annualized).

The majority of potential incremental impacts attributed to the proposed revised critical habitat designation are related to habitat management conservation efforts. The economic analysis estimates potential incremental economic impacts in areas proposed as revised critical habitat over the next 20 years to be \$411,000 (\$27,600 annualized) assuming a 3 percent discount rate (not including areas proposed or considered for exclusion under section 4(b)(2) of the Act). Assuming a 7 percent discount rate, these impacts were estimated to be approximately \$306,000 (\$28,900 annualized).

Incremental impacts for the tribal lands proposed for exclusion in the proposed revised critical habitat rule were calculated separately from other areas proposed as critical habitat. These impacts are related to habitat management and development and were estimated to be approximately \$11.3 million (\$758,000 annualized) assuming a 3 percent discount rate. Assuming a 7 percent discount rate, incremental impacts for areas proposed for exclusion are estimated at \$8.31 million (\$785,000 annualized). Additionally, incremental impacts for areas considered for exclusion (Coachella Valley MSHCP) in the proposed revised critical habitat rule were also calculated separately from areas proposed as critical habitat. These impacts are related to forecast section 7 consultations and were estimated to be approximately \$8,850 (\$595 annualized) assuming a 3 percent discount rate. Assuming a 7 percent discount rate, incremental impacts for areas considered for exclusion were estimated at \$7,920 (\$747 annualized).

The economic analysis considers both economic efficiency and distributional effects. In the case of habitat conservation, efficiency effects generally reflect the ``opportunity costs'' associated with the commitment of resources to comply with habitat protection measures (such as lost economic opportunities associated with restrictions on land use). The economic analysis also addresses how potential economic

impacts are likely to be distributed, including an assessment of any local or regional impacts of habitat conservation and the potential effects of conservation activities on government agencies, private businesses, and individuals. The analysis measures lost economic efficiency associated with residential and commercial development and public projects and activities, such as economic impacts on water management and transportation projects, Federal lands, small entities, and the energy industry. This information can be used by decision-makers to assess whether the effects of the revised designation might unduly burden a particular group or economic sector.

The Service completed a final economic analysis (FEA) (November 25, 2008) of the proposed designation that updates the DEA by removing impacts that were not considered probable or likely to occur. The FEA estimates that the potential economic effects of actions relating to the conservation of this DPS, including costs associated with sections 4, 7, and 10 of the Act (baseline costs, not attributable to critical habitat), over the next 20 years will be \$92.5 million applying a 3 percent discount rate, or \$67.4 million using a discount rate of 7 percent. The FEA also estimates total costs attributable solely to the designation of critical habitat for Peninsular bighorn sheep (incremental costs) to be \$411,000 (present value at a 3 percent discount rate). After consideration of the impacts under section 4(b)(2) of the Act, we have not excluded any areas from the final critical habitat designations based on the identified economic impacts.

The final economic analysis is available at <http://www.regulations.gov> or upon request from the Carlsbad Fish and Wildlife Office (see ADDRESSES section).

#### Benefits of Designating Critical Habitat

The process of designating critical habitat as described in the Act requires that the Service identify those lands within the geographical area occupied by the species at the time of listing on which are found the physical or biological features essential to the conservation of the species that may require special management considerations or protection, and those areas outside the geographical area occupied by the species at the time of listing that are essential for the conservation of the species. In identifying those lands, the Service must consider the recovery needs of the species, such that, on the basis of the best scientific data available at the time of designation, the habitat that is identified, if protected or managed appropriately, could provide for the survival and recovery of the species.

The identification of areas that contain features essential to the conservation of the species that can, if managed or protected, provide for the recovery of a species, is beneficial. The process of proposing and finalizing a critical habitat rule provides the Service with the opportunity to determine the physical and biological features essential to the conservation of the species within the geographical area occupied by the species at the time of listing, as well as to determine other areas essential for the conservation of the species. The designation process includes peer review and public comment on the identified physical and biological features and areas. This process is valuable to land owners and managers in developing conservation management plans for identified areas, as well as any other occupied habitat or suitable habitat that may not be included in the areas the Service identifies as meeting the definition of critical habitat.

The consultation provisions under section 7(a)(2) of the Act

constitute the regulatory benefits of critical habitat. As discussed above, Federal agencies must consult with the Service on actions that may affect critical habitat and must avoid destroying or adversely modifying critical habitat. Federal agencies must also consult with us on actions that may affect a listed species and refrain from undertaking actions that are likely to jeopardize the continued existence of such species. The analysis of effects to critical habitat is a separate and different analysis from that of the effects to the species. Therefore, the difference in outcomes of these two analyses represents the regulatory benefit of critical habitat. For some species, and in some locations, the outcome of these analyses will be similar, because effects to habitat will often result in effects to the species. However, the regulatory standard is different, as the jeopardy

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analysis investigates the action's impact on survival and recovery of the species, while the adverse modification analysis investigates the action's effects to the designated habitat's contribution to conservation. This will, in many instances, lead to different results and different regulatory requirements. Thus, critical habitat designations may provide greater benefits to the recovery of a species than would listing alone.

There are two limitations to the regulatory effect of critical habitat. First, a consultation is only required where there is a Federal nexus (an action authorized, funded, or carried out by any Federal agency)--if there is no Federal nexus, the critical habitat designation of private lands itself does not restrict any actions that destroy or adversely modify critical habitat. Second, the designation only limits destruction or adverse modification. By its nature, the prohibition on adverse modification is designed to ensure that the conservation role and function of those areas that contain the physical and biological features essential to the conservation of the species or of unoccupied areas that are essential for the conservation of the species are not appreciably reduced. Critical habitat designation alone, however, does not require private property owners to undertake specific steps toward recovery of the species.

Once an agency determines that consultation under section 7(a)(2) of the Act is necessary, the process may conclude informally when the Service concurs in writing that the proposed Federal action is not likely to adversely affect critical habitat. However, if we determine through informal consultation that adverse impacts are likely to occur, then formal consultation is initiated. Formal consultation concludes with a biological opinion issued by the Service on whether the proposed Federal action is likely to result in destruction or adverse modification of critical habitat.

For critical habitat, a biological opinion that concludes in a determination of no destruction or adverse modification may contain discretionary conservation recommendations to minimize adverse effects to primary constituent elements, but it would not suggest the implementation of any reasonable and prudent alternative. We suggest reasonable and prudent alternatives to the proposed Federal action only when our biological opinion results in an adverse modification conclusion.

As stated above, the designation of critical habitat does not require that any management or recovery actions take place on the lands included in the designation. Even in cases where consultation is initiated under section 7(a)(2) of the Act, the end result of

consultation is to avoid jeopardy to the species and adverse modification of its critical habitat, but not necessarily to manage critical habitat or institute recovery actions on critical habitat. Conversely, voluntary conservation efforts implemented through management plans institute proactive actions over the lands they encompass and are put in place to remove or reduce known threats to a species or its habitat and, therefore, implement recovery actions.

We believe that in many instances the regulatory benefit of critical habitat is minimal when compared to the conservation benefit that can be achieved through implementing Habitat Conservation Plans (HCPs) under section 10 of the Act or other habitat management plans. The conservation achieved through such plans is typically greater than what we achieve through multiple site-by-site, project-by-project, section 7(a)(2) consultations involving consideration of critical habitat. Management plans commit resources to implement long-term management and protection to particular habitat for at least one and possibly other listed or sensitive species. Section 7(a)(2) consultations only commit Federal agencies to preventing adverse modification of critical habitat caused by the particular project, and they are not committed to provide conservation or long-term benefits to areas not affected by the proposed action. Thus, implementation of an HCP or management plan that incorporates enhancement or recovery as the management standard may often provide as much or more benefit than a consultation for critical habitat designation.

Another benefit of including lands in critical habitat is that designation of critical habitat serves to educate landowners, State and local governments, and the public regarding the potential conservation value of an area. This helps focus and promote conservation efforts by other parties by clearly delineating areas of high conservation value for Peninsular bighorn sheep. In general, critical habitat designation always has educational benefits; however, in some cases, they may be redundant with other educational effects. For example, HCPs have significant public input and may largely duplicate the educational benefits of a critical habitat designation. Including lands in critical habitat also would inform State agencies and local governments about areas that could be conserved under State laws or local ordinances.

#### Conservation Partnerships on Non-Federal Lands

Most federally listed species in the United States will not recover without cooperation of non-Federal landowners. More than 60 percent of the United States is privately owned (National Wilderness Institute 1995), and at least 80 percent of endangered or threatened species occur either partially or solely on private lands (Crouse et al. 2002, p. 720). Stein et al. (1995, p. 400) found that only about 12 percent of listed species were found almost exclusively on Federal lands (90 to 100 percent of their known occurrences restricted to Federal lands) and that 50 percent of federally listed species are not known to occur on Federal lands at all.

Given the distribution of listed species with respect to land ownership, conservation of listed species in many parts of the United States is dependent upon working partnerships with a wide variety of entities and the voluntary cooperation of many non-Federal landowners (Wilcove and Chen 1998, p. 1407; Crouse et al. 2002, p. 720; James 2002, p. 271). Building partnerships and promoting voluntary cooperation of landowners are essential to understanding the status of species on non-Federal lands, and are necessary to implement recovery actions such as reintroducing listed species, habitat restoration, and

habitat protection.

Many non-Federal landowners derive satisfaction from contributing to endangered species recovery. We promote these private-sector efforts through the Department of the Interior's Cooperative Conservation philosophy. Conservation agreements with non-Federal landowners (HCPs, safe harbor agreements, other conservation agreements, easements, and State and local regulations) enhance species conservation by extending species protections beyond those available through section 7 consultations. In the past decade, we encouraged non-Federal landowners to enter into conservation agreements, based on a view that we can achieve greater species conservation on non-Federal land through such partnerships than we can through regulatory methods (December 2, 1996, 61 FR 63854).

Many private landowners, however, are wary of the possible consequences of encouraging endangered species to their property, and there is mounting evidence that some regulatory actions by the Federal Government, while well-intentioned and required by law, can

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(under certain circumstances) have unintended negative consequences for the conservation of species on private lands (Wilcove et al. 1996, pp. 5-6; Bean 2002, pp. 2-3; Conner and Mathews 2002, pp. 1-2; James 2002, pp. 270-271; Koch 2002, pp. 2-3; Brook et al. 2003, pp. 1639-1643). Many landowners fear a decline in their property value due to real or perceived restrictions on land-use options where threatened or endangered species are found. Consequently, harboring endangered species is viewed by many landowners as a liability. This perception results in anti-conservation incentives because maintaining habitats that harbor endangered species represents a risk to future economic opportunities (Main et al. 1999, pp. 1264-1265; Brook et al. 2003, pp. 1644-1648).

According to some researchers, the designation of critical habitat on private lands significantly reduces the likelihood that landowners will support and carry out conservation actions (Main et al. 1999, p. 1263; Bean 2002, p. 2; Brook et al. 2003, pp. 1644-1648). The magnitude of this negative outcome is greatly amplified in situations where active management measures (such as reintroduction, fire management, and control of invasive species) are necessary for species conservation (Bean 2002, pp. 3-4). We believe that the judicious exclusion of specific areas of non-federally owned lands from critical habitat designations can contribute to species recovery and provide a superior level of conservation than critical habitat alone.

The purpose of designating critical habitat is to contribute to the conservation of threatened and endangered species and the ecosystems upon which they depend. The outcome of the designation, triggering regulatory requirements for actions funded, authorized, or carried out by Federal agencies under section 7(a)(2) of the Act, can sometimes be counterproductive to its intended purpose on non-Federal lands. Thus the benefits of excluding areas that are covered by partnerships or voluntary conservation efforts can often be high.

#### Benefits of Excluding Lands With HCPs or Other Approved Management Plans

The benefits of excluding lands with HCPs or other approved long-term management plans from critical habitat designation include relieving landowners, communities, and counties of any additional

regulatory burden that might be imposed as a result of the critical habitat designation. Most HCPs and other conservation plans take many years to develop, and upon completion, are consistent with the recovery objectives for listed species that are covered within the plan area. Many also provide conservation benefits to unlisted sensitive species. Imposing an additional regulatory review as a result of the designation of critical habitat may undermine our efforts and partnerships as well. Our experience in implementing the Act has found that designation of critical habitat within the boundaries of management plans that provide conservation measures for a species is a disincentive to many entities which are either currently developing such plans, or contemplating doing so in the future, because one of the incentives for undertaking conservation is greater ease of permitting where listed species are affected. Addition of a new regulatory requirement would remove a significant incentive for undertaking the time and expense of management planning.

A related benefit of excluding lands covered by approved HCPs and management plans that cover listed species from critical habitat designation is the unhindered, continued ability it gives us to seek new partnerships with future plan participants, including States, counties, local jurisdictions, conservation organizations, and private landowners, which together can implement conservation actions that we would be unable to accomplish otherwise. Designating lands within approved management plan areas as critical habitat would likely have a negative effect on our ability to establish new partnerships to develop these plans, particularly plans that address landscape-level conservation of species and habitats. By excluding these lands, we preserve our current partnerships and encourage additional conservation actions in the future.

Both HCPs and Natural Communities Conservation Plan (NCCP)-HCP applications require consultation, which would review the effects of all HCP-covered activities that might adversely impact the species under a jeopardy standard, including possibly significant habitat modification, even without the critical habitat designation. Additionally, all other Federal actions that may affect the listed species still require consultation under section 7(a)(2) of the Act, and we review these actions for possibly significant habitat modification in accordance with the jeopardy standard under section 7(a)(2) of the Act.

Information provided in the previous sections applies to all the following discussions of benefits of inclusion or exclusion of critical habitat.

#### Application of Section 4(b)(2)--Other Relevant Impacts--Conservation Partnerships

Section 4(b)(2) of the Act allows the Secretary to exclude areas from critical habitat for other relevant impacts if he determines that the benefits of such exclusion outweigh the benefits of specifying such area as part of critical habitat, unless he determines, based on the best scientific data available, that the failure to designate such area as critical habitat will result in the extinction of the species. As discussed above in the ``Conservation Partnerships on Non-Federal Lands'' section, we believe that designation can negatively impact the working relationships and conservation partnerships we have formed with private landowners. The Service recognizes that 80 percent of endangered or threatened species occur either partially or solely on

private lands (Crouse et al. 2002) and we will only achieve recovery of federally listed species with the cooperation of private landowners.

In making the following exclusions, we evaluated the benefits of designating these non-Federal lands that may not have a Federal nexus for consultation while considering if our existing partnerships have resulted, or will result, in greater conservation benefits to the Peninsular bighorn sheep and the physical or biological features essential to its conservation than a critical habitat designation. As discussed in the ``Benefits of Designating Critical Habitat'' section above, conservation partnerships that result in implementation of an HCP or other management plan that considers enhancement or recovery as the management standard often provide as much or more benefit than consultation for critical habitat designation (the primary benefit of a designation).

In considering the benefits of including lands in a designation that are covered by a current HCP or other management plan, we evaluate a number of factors to help us determine if the plan provides equivalent or greater conservation benefit than would likely result from consultation on a designation:

- (1) Whether the plan is complete and provides protection from destruction or adverse modification;
- (2) Whether there is a reasonable expectation the conservation management strategies and actions will be implemented for the foreseeable future, based on past practices, written guidance, or regulations; and
- (3) Whether the plan provides conservation strategies and measures

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consistent with currently accepted principles of conservation biology.

We balance the benefits of inclusion against the benefits of exclusion by considering the benefits of preserving partnerships and encouraging development of additional HCPs and other conservation plans in the future.

#### Exclusion of Agua Caliente Band of Cahuilla Indians Tribal Lands

The Agua Caliente Band of Cahuilla Indian's Reservation encompasses over 31,400 acres (12,707 ha) of land in the Coachella Valley, Riverside County, California (MBA 2001, p. 1-6). The Reservation contains tribal trust land, allotted trust land, and both tribal and non-Indian fee land, which is in a checkerboard pattern and interspersed among public lands owned or under the control of various Federal and state agencies, and privately owned land under the jurisdiction of the County of Riverside or one of three municipalities (the cities of Palm Springs, Cathedral City, and Rancho Mirage) (MBA 2001, p. 1-6). The reservation includes 19,200 ac (7,770 ha), or 15 percent, of modeled Peninsular bighorn sheep habitat within the Coachella Valley (MBA 2001, p. 4-4). The Tribe regularly coordinates and works with the Service to ensure maximum protection of tribal trust resources, managing activities in such a way as to ensure compliance with the Act (MBA 2001, p. ES-2). This cooperative relationship provides the Tribe an opportunity to acknowledge the Service's duty and authority while preserving tribal sovereignty and honoring traditional tribal land management practices.

The Tribe identified 16 sensitive wildlife species (including Peninsular bighorn sheep) and two sensitive plant species that are covered by the conservation recommendations included in the 2001 Tribal

Conservation Strategy (MBA 2001, p. ES-4). This conservation strategy includes: (1) Establishment of two Conservation Areas from which a Habitat Preserve shall either be created or funded; and (2) conservation measures for covered species (MBA 2001, p. ES-4). One of the conservation areas is the Mountains and Canyons Conservation Area (MCCA) from which a multiple species Habitat Preserve will be created, the main component of the 2001 Tribal Conservation Strategy (MBA 2001, p. 5-1). The MCCA includes core habitat for Peninsular bighorn sheep in the San Jacinto and Santa Rosa Mountains, including undeveloped canyon mouths and alluvial fans (MBA 2001, p. 5-2). The other conservation area is the Valley Floor Conservation Area, which applies a development mitigation fee program to fund acquisition of a Habitat Preserve benefitting species known to exist on the valley floor (MBA 2001, p. 5-1). The conservation measures include avoidance and minimization measures, assurances for establishment of the Habitat Preserve, adaptive management and monitoring, implementation and funding, amendment procedures, and conditions for changed and unforeseen circumstances (MBA 2001, p. ES-4).

Habitat conservation within the MCCA has, to some extent, already been established by the Tribe with the creation of the Indian Canyons Heritage Park and controlled access to Tahquitz Canyon (MBA 2001, p. 5-2). Existing tribal conservation programs for Indian Canyons Heritage Park and Tahquitz Canyon (the Indian Canyons Master Plan and Tahquitz Canyon Wetland Conservation Plan, respectively) reflect the importance of natural resources to the Tribe and the Tribe's intent and ability to manage these resources (MBA 2001, p. 5-2). The Tribe will continue to manage these areas for their habitat values, including protection of covered species (MBA 2001, p. 5-2). Peninsular bighorn sheep, several of the covered species, and natural communities protected within the 2001 Tribal Conservation Strategy are known to occur in these canyon areas (MBA 2001, p. 5-2). Together these protected canyon areas provide over 2,600 ac (1,052 ha) of habitat to covered species (MBA 2001, p. 5-2).

The primary goal of the Indian Canyons Heritage Park is to provide for long-term preservation of major natural and cultural resources (MBA 2001, p. 5-9). Secondary objectives are to preserve the ecological setting for the unique palm oases, and to preclude any development in the park that could have negative impacts (MBA 2001, p. 5-9). Other objectives are to restore the oases to their pristine ecological condition; provide adequate interpretation of the cultural resources; and provide adequate vehicular, foot, and equestrian access to the area (MBA 2001, p. 5-9). The management plan developed for the Indian Canyons Heritage Park (Dangermond Group, 2002) emphasizes the preservation of the following key habitats: wetland and riparian habitats found in canyons; desert scrub communities at the mouth of the Palm Canyon in the northern reaches of the Indian Canyons Heritage Park boundaries; and the Peninsular bighorn sheep migration corridor that runs east-west between the San Jacinto and Santa Rosa Mountains (MBA 2001, p. 5-9).

Tahquitz Canyon is located in the San Jacinto Mountains north of Indian Canyon Heritage Park (MBA 2001, p. 5-10). The Tribe owns approximately 500 ac (202 ha) that includes Tahquitz Canyon and the alluvial fan at the mouth of the canyon (MBA 2001, p. 5-11). In the 1990's, the Tribe commissioned a program aimed at the restoration of Tahquitz Creek (MBA 2001, p. 5-10). Litter and other debris were removed, the effects of vandalism were mitigated, and human access to the area was controlled by gating the entrance to the canyon and implementing regular patrols by Tribal Rangers (MBA 2001, p. 5-10). To

ensure the continued protection and restoration of the Tahquitz Canyon area, the Tribe prepared a Wetlands Conservation Plan (Connolly and Associates, 2000). With the plan's adoption, the Tribe formalized its goals toward the maintenance and preservation of Tahquitz Canyon, including utilizing various measures to control the influx of exotic plant species (MBA 2001, p. 5-10).

The 2001 Tribal Conservation Strategy provides adequate certainty that the Habitat Preserve will provide sufficient mitigation for species impacts and provide for conservation of the covered species and their habitat by meeting the following objectives: (1) Protecting a minimum of 90 percent of the habitat in the MCCA for each of the covered species and natural communities addressed in the 2001 Tribal Conservation Strategy; (2) maintaining the viability of essential ecological processes; and (3) maintaining the viability of linkages within conservation areas (MBA 2001, p. 5-13). Species specific avoidance and minimization measures for Peninsular bighorn sheep include the following:

(1) Construct fences for projects adjacent to Peninsular bighorn sheep habitat to exclude sheep from urban areas where they might otherwise use urban sources of food and water;

(2) Avoid the use of non-native vegetation along unfenced habitat interfaces where it may attract or concentrate bighorn sheep;

(3) Promote the use of locally native vegetation and limit the planting of exotic species to areas not accessible by bighorn sheep;

(4) Discourage the use of plants known to invade and degrade Peninsular bighorn sheep habitat;

(5) Prohibit the use of any known toxic plants where they may be accessible to sheep or may potentially invade bighorn sheep habitat;

(6) Prohibit illumination of mountain slopes with artificial lighting; and

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(7) Eliminate bluetongue and other vector-carried diseases by complying with the University of California guidelines for water features in new projects (MBA 2001, p. 5-28 and 5-29). Additionally, the Tribe commits to cooperating with State and Federal land management agencies to develop and implement a trails management program that reduces or eliminates trail-related activities that are detrimental to Peninsular bighorn sheep habitat (MBA 2001, p. 5-28 and 5-29).

The Draft Agua Caliente Band of Cahuilla Indians Trail Plan (Trails Management Plan), dated October 1, 2000, is currently being implemented and was developed by the Tribe to provide trails use throughout the Reservation, including Peninsular bighorn sheep habitat. The Trails Management Plan is compatible with bighorn sheep conservation goals as well as affording a reasonable level of access to the public (MBA 2001, p. 4-4). Management of trails on tribal lands may include trail re-routings, limitations on trail use, and seasonal closures for some areas to benefit Peninsular bighorn sheep and other wildlife by decreasing human impact on habitat and disturbance to wildlife (MBA 2001, p. 4-4).

The Tribe is currently cooperating with the Service to finalize the 2007 draft Tribal HCP, which encompasses and updates the existing 2001 Tribal Conservation Strategy, as well as includes all of the other existing management plans described above that provide conservation to Peninsular bighorn sheep and their habitat. The 2007 draft Tribal HCP covers approximately 36,720 ac (14,860 ha) of tribal lands (compared to 31,400 acres (12,707 ha) in the 2001 Tribal Conservation Strategy, an

increase of 5,320 acres (2,153 ha)), and includes conservation for 23 sensitive and federally listed species ('`covered species') (Helix Environmental Planning 2007, p. ES-4). The primary conservation mechanism provided by the 2007 draft Tribal HCP is the protection of significant areas of covered species habitat through creation of a habitat preserve and adoption of new development standards (Helix Environmental Planning 2007, p. ES-1).

The Tribe's purposes in adopting the 2007 draft Tribal HCP are to: (1) Continue to exercise its long-standing tradition as a land use manager and steward of the natural resources in and around the Reservation by assuming a role as the primary manager of such resources and the land uses that impact them; and (2) establish consistency and streamline permitting requirements with respect to protected species by establishing one process that the Tribe oversees and implements (Helix Environmental Planning 2007, p. ES-1). In summary, the 2007 draft Tribal HCP will streamline the conservation for Peninsular bighorn sheep and other covered species by incorporating and updating the conservation and management practices identified in the existing management plans that have been implemented throughout the reservation to date.

We are currently processing the Tribe's application for a section 10(a)(1)(B) permit based on the 2007 draft Tribal HCP. We published a Notice of Availability for public review and comment in the Federal Register on October 12, 2007, with the public comment period closing January 10, 2008. The approximately 4,790 ac (1,938 ha) of tribal lands in critical habitat Units 1 (4,323 ac (1,749 ha)) and 2A (467 ac (189 ha)) fall within the 2007 draft Tribal HCP area. The Tribe's goals for conservation of Peninsular bighorn sheep are: (1) Conserving habitat within the 2007 draft Tribal HCP plan area (PCEs 1, 2, 3, 4, and 5); (2) maintaining connectivity, preventing fragmentation, and allowing movement within key linkage areas (PCEs 1 and 4); and (3) adaptively managing habitat quality and subpopulations/ewe groups to alleviate threats in the 2007 draft Tribal HCP plan area (Helix Environmental Planning 2007, p. 4-8).

The 2007 draft Tribal HCP and associated implementing agreement, when finalized, will impose minimization and mitigation requirements in order to facilitate assembly of the habitat preserve and assure minimization and mitigation for impacts to covered species, including Peninsular bighorn sheep. This will provide for significant preservation and management of the physical and biological features essential to the conservation of Peninsular bighorn sheep and will help reach the recovery goals for this DPS. The 2007 draft Tribal HCP is comprehensive and addresses a broad range of management needs at the preserve and species levels that are intended to reduce the threats to Peninsular bighorn sheep.

Peninsular bighorn sheep are primarily threatened by the direct and indirect effects of development and expansion of urban areas; human disturbance related to recreation; construction of roadways and power lines; and mineral extraction and mining operations. In order to remove or reduce threats to Peninsular bighorn sheep and the physical and biological features essential to the conservation of this DPS, conservation objectives of the 2007 Draft Tribal HCP for Peninsular bighorn sheep include the following:

- (1) Ensure implementation of the 2007 draft Tribal HCP is consistent with the recovery plan (Service 2000);
- (2) Conserve a minimum of 17,692 ac (7,160 ha) of habitat within the plan area;

- (3) Conserve 100 percent of Use Areas (areas defined by the 2007 draft Tribal HCP to have high functional value);
- (4) Conserve land necessary to maintain linkages/connectivity;
- (5) Minimize direct and indirect impacts from covered activities by ensuring implementation of development standards, including avoidance and minimization measures;
- (6) Minimize impacts from recreational activities;
- (7) Alleviate threat of disease transfer from livestock or nonnative wildlife;
- (8) Monitor population size and mortality rates;
- (9) Fund or undertake additional studies regarding this DPS;
- (10) Ensure that management action thresholds are routinely assessed;
- (11) Implement adaptive management; and
- (12) Conserve habitat quality through plan implementation (Helix Environmental Planning 2007, p. 4-9).

The Tribe continues to work with the Service in a coordinated fashion in the context of government-to-government consultation, in part due to the development and finalization of the 2007 draft Tribal HCP. This cooperation will ensure maximum protection of the trust resources of the Tribe and its members, allowing for an approach that acknowledges the duty and authority of the Service with respect to the Act while preserving tribal sovereignty and honoring traditional tribal land management practices (Helix Environmental Planning 2007, p. ES-2). The Tribe has provided assurances that adequate funding is available for implementation of the 2007 draft Tribal HCP throughout the duration of the proposed Section 10(a)(1)(B) permit and that conservation, mitigation, and management measures will be carried out as proposed (Helix Environmental Planning 2007, p. ES-11). The Tribe will provide administrative support to accomplish management responsibilities as well as funding to support the Tribe's baseline assessment, inventory, and monitoring efforts defined in the plan (Helix Environmental Planning 2007, p. ES-11). Acquisition and management of the habitat preserve will be funded primarily through obligations of covered projects, with an endowment fund

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established that provides funding for the Tribe's ongoing costs to administer, manage, and monitor the habitat preserve in perpetuity (Helix Environmental Planning 2007, p. ES-11).

The 1998 final listing rule for Peninsular bighorn sheep identified habitat loss (especially in canyon bottoms), degradation, and fragmentation associated with the proliferation of residential and commercial development, roads and highways, water projects, and vehicular and pedestrian recreational uses as primary threats to the Peninsular bighorn sheep. As described above, the Tribe's ongoing management and conservation efforts provide enhancement of habitat by removing or reducing threats to this DPS and the physical and biological features essential to the conservation of the DPS. The tribal preserve encompasses habitat that supports identified core populations of this DPS and therefore provides for recovery. Based on the reasoning provided below, we excluded from Unit 1 and Unit 2A approximately 4,790 ac (1,938 ha) of Agua Caliente Band of Cahuilla Indians tribally-owned or controlled lands from the Peninsular bighorn sheep final revised critical habitat designation under section 4(b)(2) of the Act.

## Benefits of Inclusion--Agua Caliente Band of Cahuilla Indians Tribal Lands

The inclusion of the approximately 4,790 ac (1,938 ha) of tribally-owned or controlled lands in the final designation could be beneficial because it identifies lands that require management for conservation of Peninsular bighorn sheep. The process of proposing and finalizing the revised critical habitat rule provided the Service with the opportunity to evaluate and refine the features essential to the conservation of the DPS within the geographical area occupied by the Peninsular bighorn sheep at the time of listing, as well as to evaluate whether there are other areas essential for the conservation of the DPS. The designation process included peer review and public comment on the identified features and areas. This process is valuable to land owners and managers in developing conservation management plans for identified areas, as well as any other occupied habitat or suitable habitat that may not have been included in the Service's determination of essential habitat.

The educational benefits of designation are small and largely redundant to those derived through conservation efforts currently being implemented on tribal lands under the 2001 Tribal Conservation Strategy, as well as those being planned and implemented in the approximately 4,790 ac (1,938 ha) of tribally-owned or controlled lands within the 2007 draft Tribal HCP. The educational benefits of critical habitat designation derived through informing our tribal partners and other members of the public of areas important for the long-term conservation of the Peninsular bighorn sheep have already been and continue to be achieved through: (1) Development of the 2001 Tribal Conservation Strategy and 2007 draft Tribal HCP; (2) the original critical habitat designation process in 2001; and (3) publication of the proposed revisions to critical habitat in 2007 and 2008, along with notices of public comment periods, and the public hearing.

The consultation provisions under section 7(a) of the Act constitute the regulatory benefits of inclusion for critical habitat. As discussed above, Federal agencies must consult with us on actions that may affect critical habitat and must avoid destroying or adversely modifying critical habitat. There is the potential for future activities within the lands being excluded having a Federal nexus for the Peninsular bighorn sheep as a result of actions by the BLM (i.e., land exchange) and the Bureau of Indian Affairs (BIA). Therefore, including this area may provide some regulatory benefits under section 7(a) of the Act.

However, the habitat management provided by the Agua Caliente Band of Cahuilla Indians through the 2001 Tribal Conservation Strategy and the management measures it has memorialized in the 2007 draft Tribal HCP address conservation issues from a coordinated, integrated perspective rather than a piecemeal, project-by-project approach and will achieve more Peninsular bighorn sheep conservation on these tribal lands than we would likely achieve through section 7 consultations involving consideration of critical habitat. The PCEs required by the Peninsular bighorn sheep benefit from the conservation measures implemented by the Tribe and outlined in the 2001 Tribal Conservation Strategy and 2007 draft Tribal HCP. In summary (and as identified above), the conservation measures currently being implemented by the Tribe through the 2001 Tribal Conservation Strategy, and consistent with management actions memorialized in the draft 2007 Tribal HCP, include:

- (1) Ensure management measures are consistent with the recovery

plan (Service 2000);

(2) Conserve a minimum of 17,692 ac (7,160 ha) of habitat on tribal lands;

(3) Conserve 100 percent of Use Areas (areas defined by the 2007 draft Tribal HCP to have high functional value);

(4) Conserve land necessary to maintain linkages/connectivity;

(5) Minimize direct and indirect impacts from covered activities by ensuring implementation of development standards, including avoidance and minimization measures;

(6) Minimize impacts from recreational activities;

(7) Alleviate threat of disease transfer from livestock or nonnative wildlife;

(8) Monitor population size and mortality rates;

(9) Fund or undertake additional studies regarding this DPS;

(10) Ensure management action thresholds are routinely assessed;

(11) Implement adaptive management; and

(12) Conserve habitat quality (Helix Environmental Planning 2007,

p. 4-9).

Such measures will remove or reduce known threats to Peninsular bighorn sheep and its PCEs in Units 1 and 2A. The Tribe is committed to implementing conservation and management actions that would not generally result from the critical habitat designation (see ``Benefits of Designating Critical Habitat'' section above). For example, critical habitat designation does not ensure: Habitat enhancement and restoration; functional connections to adjoining habitat; or monitoring of the Peninsular bighorn sheep (see discussion above).

The Agua Caliente Band of Cahuilla Indians highly values its wildlife and natural resources, and is charged to preserve and protect these resources under the Tribal Constitution. Consequently, the Tribe historically has been committed to managing the habitat of wildlife on its lands, including the habitat of endangered and threatened species. In light of the demonstrated commitment by the Tribe to manage Peninsular bighorn sheep habitat to provide for the conservation of the DPS, the preferable regional scale of conservation planning utilized in the development of the 2001 Tribal Conservation Strategy and 2007 draft Tribal HCP, and the conservation that has been achieved through implementation of the 2001 Tribal Conservation Strategy and will occur through implementation of the 2007 draft Tribal HCP, we conclude that the potential regulatory benefit of designating these areas in Units 1 and 2A as critical habitat is minimal.

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#### Benefits of Exclusion--Agua Caliente Band of Cahuilla Indians Tribal Lands

In accordance with the Secretarial Order 3206, ``American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997); the President's memorandum of April 29, 1994, ``Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951); Executive Order 13175; and the relevant provision of the Departmental Manual of the Department of the Interior (512 DM 2), we believe that fish, wildlife, and other natural resources on tribal lands are better managed under tribal authorities, policies, and programs than through Federal regulation wherever possible and practicable. Based on this philosophy, we believe that, in most cases, designation of tribal lands as critical habitat provides very little additional benefit to threatened and endangered

species. Conversely, such designation is often viewed by tribes as unwarranted and an unwanted intrusion into tribal self governance, thus compromising the government-to-government relationship essential to achieving our mutual goals of managing for healthy ecosystems upon which the viability of threatened and endangered species populations depend.

This is supported by the following statement from the Tribe received during the comment period for the proposed rule: ``Contrary to the requirements of the ESA, Executive Order 13,175, and the Secretarial Order, the proposed rule fails to defer to the Tribe's own established standards, it discourages the Tribe from developing its own policies, and it intrudes on tribal management of its lands. Designation of critical habitat could delay approval of the [2007 draft] Tribal HCP, thus adding to the costs of preparing the Tribal HCP and undermining significant protections for the bighorn sheep. Designation of critical habitat also can be expected to increase the amount of time and financial resources necessary to undertake covered activities described in the [2007 draft] Tribal HCP, yet it is unlikely to yield material benefits for the bighorn sheep.''

We developed a close partnership with the Agua Caliente Band of Cahuilla Indians through the development of the 2001 Tribal Conservation Strategy and 2007 draft Tribal HCP, which incorporate appropriate protections and management for Peninsular bighorn sheep, its habitat, and the features essential to the conservation of this DPS. These protections are consistent with statutory mandates under section 7 of the Act to avoid destroying or adversely modifying critical habitat, and go beyond that prohibition by including active management and protection of connected habitat areas. By excluding 4,790 ac (1,938 ha) of lands in Units 1 and 2A from designation, we would (1) Eliminate an essentially redundant layer of regulatory review for projects covered by the 2001 Tribal Conservation Strategy and 2007 draft Tribal HCP; (2) help preserve our ongoing partnership with the Agua Caliente Band of Cahuilla Indians; (3) demonstrate our commitment and responsibilities in accordance with the President's memorandum of April 29, 1994, ``Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951), Executive Order 13175, and Secretarial Order 3206; and (4) encourage new partnerships with other tribes, landowners, and jurisdictions. These partnerships with HCP participants are critical for the conservation of Peninsular bighorn sheep.

#### The Benefits of Exclusion Outweigh the Benefits of Inclusion--Agua Caliente Band of Cahuilla Indians Tribal Lands

In accordance with the Secretarial Order 3206, ``American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997); the President's memorandum of April 29, 1994, ``Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951); Executive Order 13175; and the relevant provision of the Departmental Manual of the Department of the Interior (512 DM 2), we recognize the importance of tribal self-governance and the fundamental rights of tribes to set their own priorities and make decisions affecting their resources and distinctive ways of life. Because of the unique government-to-government relationship between Indian tribes and the United States, it is important for us to establish and maintain an effective working relationship and mutual partnership with the Agua Caliente Band of

Cahuilla Indians to promote the conservation of the Peninsular bighorn sheep and other sensitive species. As stated above, we believe that fish, wildlife, and other natural resources on tribal lands are better managed under tribal authorities, policies, and programs than through Federal regulation wherever possible and practicable. Based on this philosophy, we believe that, in most cases, designation of tribal lands as critical habitat provides very little additional benefit to threatened and endangered species.

Furthermore, as discussed in the ``Benefits of Inclusion'' section above, we believe the regulatory benefit of designating critical habitat on tribally-owned or controlled lands would be low. The management plans that were developed by the Tribe in cooperation with the Service currently implement the Tribe's conservation strategies and address conservation issues from a coordinated, integrated perspective rather than a piecemeal project-by-project approach. As a result, current management efforts and future management (as demonstrated through coordination to finalize the 2007 draft Tribal HCP) will achieve more Peninsular bighorn sheep conservation than we would achieve through multiple site-by-site, project-by-project, section 7 consultations involving consideration of critical habitat.

Conservation and management of Peninsular bighorn sheep habitat is essential to the survival and recovery of this DPS. Such conservation needs are typically not addressed through the application of the statutory prohibition on destruction or adverse modification of critical habitat. The specific conservation actions, avoidance and minimization measures, and management for Peninsular bighorn sheep and the features essential to its conservation provided by the Tribe's management actions, and outlined in the 2001 Tribal Conservation Strategy and 2007 draft Tribal HCP, exceed any conservation value provided as a result of regulatory protections that may be afforded through a critical habitat designation.

The Tribe's conservation strategies provide as much or more benefit than a consultation for critical habitat designation conducted under the standards required by the Ninth Circuit in the Gifford Pinchot decision. The benefits for the conservation of Peninsular bighorn sheep that would occur as a result of designating critical habitat (e.g., protection afforded through the section 7(a)(2) consultation process) are minimal compared to the overall conservation benefits for the DPS that have been realized through the implementation of the 2001 Tribal Conservation Strategy and will be realized through implementation of the 2007 draft Tribal HCP. Furthermore, educational benefits that may be derived from a critical habitat designation are minimal and largely redundant to the educational benefits achieved through significant public, State, and local government input during the development of the tribal plans.

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While it is likely that at least some future activities occurring on the lands being excluded would have a Federal nexus as a result of actions by the BLM (i.e., land exchange) and the BIA, we believe the benefits of including these lands in the designation are small. The Tribe currently implements the 2001 Tribal Conservation Strategy that requires conservation of at least 85 percent of Peninsular bighorn sheep habitat and 100 percent of bighorn sheep use areas and habitat linkages identified on tribal lands. Specifically, 85 percent of the Peninsular bighorn sheep habitat is proposed for conservation, with 100 percent of the bighorn sheep use areas and habitat linkages proposed

for conservation. Furthermore, the Tribe has demonstrated considerable efforts to work cooperatively with the Service to develop both the 2001 Tribal Conservation Strategy and 2007 draft Tribal HCP, implementation of which is to be consistent with the recovery strategy delineated in the Recovery Plan for Peninsular bighorn sheep.

At least 17,692 ac (7,160 ha) of existing Peninsular bighorn sheep habitat in the plan area are to be conserved. Development projects that may occur in areas not identified for conservation within the boundaries of the 2007 draft Tribal HCP must still avoid impacts to Peninsular bighorn sheep to the maximum extent practicable. Additionally, educational benefits of critical habitat designation are already in place as a result of material provided on our Web site, and through the public notice-and-comment procedures required to establish the 2007 draft Tribal HCP, and by our inclusion of these lands in the proposed rule to revise critical habitat.

In contrast, the benefits of excluding these areas from critical habitat are more significant. The exclusion of these lands from critical habitat will help preserve the partnership we developed with the Tribe through the development of the 2001 Tribal Conservation Strategy and 2007 draft Tribal HCP that incorporate protections and management of this DPS's essential physical and biological features, and promote tribal self-governance. The habitat protections provided by the Tribe's management of its resources are consistent with the mandates under section 7 of the Act to avoid destruction or adverse modification of critical habitat and go beyond that prohibition by including active management and protection of essential habitat areas. Designation of critical habitat alone does not achieve recovery or require management of those lands identified in the critical habitat rule.

Additionally, this established partnership demonstrates a continued commitment to conservation by the Tribe and aids in fostering additional partnerships for the benefit of all sensitive species on both tribally-owned or controlled lands and other private lands. Furthermore, we believe the exclusion of these tribal lands is consistent with the Act and all applicable policies and guidance (Secretarial Order 3206, ``American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act'' (June 5, 1997); the President's memorandum of April 29, 1994, ``Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951); Executive Order 13175; and the relevant provision of the Departmental Manual of the Department of the Interior (512 DM 2).

In summary, in making our final decision with regard to these approximately 4,790 ac (1,938 ha) of tribal lands, we considered several factors including (1) The importance of our government-to-government relationship with the Agua Caliente Band of Cahuilla Indians; (2) our effective, ongoing conservation partnership with the Tribe; (3) the sustained commitment by the Tribe to manage its lands in a manner consistent with the conservation of the DPS, as evidenced by the Tribe's ongoing management of Peninsular bighorn sheep habitat (as set forth in the 2001 Tribal Conservation Strategy (MBA 2001), formally adopted by the Tribe through its Tribal Council on November 12, 2002); and (4) the Tribe's continued commitment and cooperation with us in the finalization of the first tribal multiple-species HCP in the United States (i.e., 2007 draft Tribal HCP).

The importance of tribal self-governance and the fundamental rights of tribes to set their own priorities and make decisions affecting their resources and distinctive ways of life weighs heavily in favor of excluding these tribal lands from the final designation of critical

habitat for the Peninsular bighorn sheep. We believe the benefits of including these lands in the final critical habitat designation are minimal because the Tribe's management of these lands provides substantial conservation benefits for the DPS, and we believe existing and future management will continue to provide preservation and management for, and features essential to, the conservation of Peninsular bighorn sheep, which will collectively help reach the recovery goals for this DPS. Additionally, the educational benefits of designation are small and largely redundant to those derived through the process of working with the Tribe to develop its conservation management plans and the identification of those areas most important to the DPS. By excluding these lands from designation, we would eliminate a largely redundant layer of regulatory review for a limited set of projects, and help preserve our ongoing, critical partnership with the Tribe while encouraging new partnerships with other tribes, landowners, and jurisdictions. Therefore, pursuant to section 4(b)(2) of the Act, we are excluding from Unit 1 and Unit 2A approximately 4,790 ac (1,938 ha) of tribally-owned or controlled lands that meet the definition of critical habitat from this final revised critical habitat designation.

#### Exclusion Will Not Result in Extinction of the Species--Agua Caliente Band of Cahuilla Indians Tribal Lands

The Agua Caliente Band of Cahuilla Indians has demonstrated its commitment to manage Peninsular bighorn sheep habitat in a manner consistent with the conservation of the DPS. The 2001 Tribal Conservation Strategy, other ongoing tribal resource management, and 2007 draft Tribal HCP, when final, have provided and will provide protection and management, in perpetuity, of lands that meet the definition of critical habitat for Peninsular bighorn sheep in Units 1 and 2A. Additionally, the jeopardy standard of section 7 of the Act and routine implementation of conservation measures through the section 7 process provide assurances that the DPS will not go extinct as a result of this exclusion. Therefore, we determined that the exclusion of 4,790 ac (1,938 ha) of tribally-owned or controlled lands from the final designation of critical habitat for the Peninsular bighorn sheep will not result in extinction of the DPS.

#### Exclusion of Coachella Valley Multiple Species Habitat Conservation Plan (Coachella Valley MSHCP) Lands

The Coachella Valley MSHCP is a large-scale, multi-jurisdictional habitat conservation plan encompassing about 1.1 million ac (445,156 ha) in the Coachella Valley of Riverside County (Units 1 and 2A). The Coachella Valley MSHCP addresses 27 listed and unlisted ``covered species,' ' including Peninsular bighorn sheep. Participants in the Coachella Valley MSHCP include eight cities (Cathedral City, Coachella, Indian Wells, Indio, La Quinta, Palm Desert, Palm Springs, and Rancho Mirage); the County of Riverside, including the

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Riverside County Flood Control and Water Conservation District, Riverside County Parks and Open Space District, Riverside County Waste Management District; the Coachella Valley Association of Governments; Coachella Valley Water District; Imperial Irrigation District; California Department of Transportation; California Department of Parks

and Recreation; Coachella Valley Mountains Conservancy; and the Coachella Valley Conservation Commission (the created joint powers regional authority). The Coachella Valley MSHCP was designed to establish a multiple species habitat conservation program that minimizes and mitigates the expected loss of habitat and the incidental take of covered species. On October 1, 2008, the Service issued a single incidental take permit (TE-104604-0) under section 10(a)(1)(B) of the Act to 19 permittees under the Coachella Valley MSHCP for a period of 75 years.

Implementation of the Coachella Valley MSHCP will establish an approximately 721,457 ac (291,964 ha) Reserve System comprised of 557,100 ac (225,451 ha) of Existing Conservation Lands, up to 29,990 ac (12,137 ha) of Complementary Conservation, and up to 8,777 ac (3,552 ha) of Public and Quasi-Public lands. The permittees will mitigate for the impacts of the incidental take of covered species by conserving 96,400 ac (39,012 ha) [7,500 ac (3,035 ha) of existing local permittee lands and 88,900 ac (35,977 ha) of new conservation] of habitat and perpetually managing 125,590 ac (50,825 ha) within the Reserve System. The location and configuration of the 88,900 ac (35,977 ha) of new local permittee mitigation lands and the 21,390 ac (8,656 ha) that will be acquired through State and Federal contributions are not precisely mapped, but will be assembled from the 21 conservation areas identified in the Coachella Valley MSHCP. Within each conservation area, 90 percent of each natural community within each jurisdiction will be conserved and no more than 10 percent of the habitat will be lost.

In general, the design of the overall Reserve System was intended to capture core habitats, ecological processes, and biological corridors/linkages. The permittees collection and use of development mitigation fees, landfill tipping fees, and other funding specified in the Coachella Valley MSHCP and related documents will be used to acquire, protect, and manage the Reserve System in perpetuity. The permittees, the State, and Service will work cooperatively to enter into a Memorandum of Understanding or other appropriate agreements with Federal, State, and non-governmental-organization land managers to cooperatively manage the Existing Conservation Lands in conformance with the MSHCP. Additionally, the Coachella Valley MSHCP includes measures to avoid and minimize impacts on covered species resulting from covered activities.

The Coachella Valley MSHCP Reserve System includes about 165,856 ac (67,120 ha) of Peninsular bighorn sheep habitat of which 38,759 ac (15,685 ha) meet the definition of critical habitat. Approximately 135,630 ac (54,888 ha) of the Peninsular bighorn sheep habitat in the Reserve System are Existing Conservation Lands that are expected to be managed consistent with the Coachella Valley MSHCP, of this approximately 38,477 ac (15,571 ha) meet the definition of critical habitat. Specific conservation goals, conservation objectives, and required measures for Peninsular bighorn sheep in the Coachella Valley MSHCP include providing a total of 18,619 ac (7,535 ha) of occupied or suitable habitat within the Santa Rosa and San Jacinto Mountains, Snow Creek/Windy Point, and Cabazon Conservation Areas. This acreage goal is proposed to be attained through the conservation of private lands in the three conservation areas within the Coachella Valley MSHCP Plan Area boundary. When completed, the proposed Coachella Valley MSHCP Reserve System will protect core habitat areas and provide critical linkages for Peninsular bighorn sheep in perpetuity.

The Coachella Valley MSHCP contains conservation goals, conservation objectives, and required measures that will ameliorate the

negative effects of development on Peninsular bighorn sheep habitat. The required measures include criteria for locating development, conditional provisions regarding unauthorized trails, areas where 10 percent of the private land may be developed, special provision areas, parcels subject to the Habitat Evaluation and Acquisition Negotiation Strategy (HANS), Major Amendment areas, and special disturbance areas relating to water and flood control agencies. Collectively, these measures provide a basis for evaluating, restricting, and configuring development and related activities to ensure that such projects are consistent with the Coachella Valley MSHCP.

The Coachella Valley MSHCP also contains a number of avoidance, minimization, and mitigation measures as follows: (1) Proposed covered activities in Peninsular bighorn sheep habitat will be prohibited during the lambing season (January 1 through June 30) unless otherwise authorized through a Minor Amendment with concurrence from the State and Service; (2) landscaping with toxic plants will be prohibited in Peninsular bighorn sheep habitat, and existing facilities with toxic plants must complete a plan and schedule for removing or preventing access to toxic plants within one year of permit issuance; and (3) all water tank construction and operation and maintenance will require 1:1 mitigation by acreage, no public access, native landscaping, and location away from sensitive areas. Additionally, the Coachella Valley MSHCP also provides for the implementation of land use agency guidelines to avoid and minimize the direct and indirect effects associated with development.

The Coachella Valley MSHCP (Section 7.3.3.2) addressed the Public Use and Trails Management on Reserve Lands within the Santa Rosa and San Jacinto Mountains Conservation Area. The Santa Rosa and San Jacinto Mountains Conservation Area includes trails that cross both Federal and non-Federal land. The Coachella Valley MSHCP addresses impacts to Peninsular bighorn sheep for the construction of specified trails and for the use of identified trails on non-Federal land. The BLM is pursuing a section 7 consultation for the components of the coordinated Plan on Federal lands within the Reserve System. The U.S. Forest Service will determine whether public use and trails management will require consultation with the Service pursuant to section 7 of the Act. Impacts to Peninsular bighorn sheep associated with the public use and trails management plan are addressed in the Coachella Valley MSHCP. The Coachella Valley MSHCP describes the implementation of a focused research program to evaluate the effects of recreational trail use on Peninsular bighorn sheep health, behavior, habitat selection, and long-term population dynamics.

The Desert Water Authority is not a permittee and its lands are not subject to the conservation requirements of the Coachella Valley MSHCP through any discretionary authority of the permittees. Therefore, 293 ac (119 ha) of lands within Unit 1 and Unit 2A owned by DWA have not been excluded from the final revised critical habitat designation under the Coachella Valley MSHCP.

The 1998 final listing rule for Peninsular bighorn sheep identified habitat loss (especially in canyon bottoms), degradation, and fragmentation associated with the

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proliferation of residential and commercial development, roads and highways, water projects, and vehicular and pedestrian recreational uses as primary threats to Peninsular bighorn sheep. As described above, the Coachella Valley MSHCP management and conservation efforts

provide enhancement of habitat by removing or reducing threats to Peninsular bighorn sheep and the physical and biological features essential to the conservation of this DPS. The Coachella Valley MSHCP Plan Area encompasses habitat that supports identified core populations of this DPS and therefore provides for recovery. The implementation of the conservation goals, conservation objectives, and required measures; avoidance and minimization measures; and management for Peninsular bighorn sheep provided for in the Coachella Valley MSHCP exceed any conservation value provided as a result of regulatory protections that have been or may be afforded through critical habitat designation.

Based on the reasoning provided below, we excluded from Unit 1 and Unit 2A approximately 38,759 ac (15,685 ha) of private and permittee-owned or controlled lands or lands under the jurisdiction of the permittees within the Santa Rosa and San Jacinto Mountains, Snow Creek/Windy Point, and Cabazon Conservation Areas within Coachella Valley MSHCP Plan Area boundary (see Coachella Valley MSHCP, Volume 1, Sections 4.3.1, 4.3.3, and 4.3.21) from the Peninsular bighorn sheep final revised critical habitat designation under section 4(b)(2) of the Act. Covered activities conducted or approved by the Coachella Valley MSHCP permittees are subject to the conservation requirements of the Coachella Valley MSHCP. Of the 38,759 ac (15,685 ha) excluded under the Coachella Valley MSHCP, approximately 38,477 ac (15,571 ha) are anticipated to be conserved under the plan. Approximately 282 ac (114 ha) or 0.7 percent of the acres excluded under the Coachella Valley MSHCP are permitted for development consistent with the MSHCP.

#### Benefits of Inclusion--Coachella Valley MSHCP

The inclusion of approximately 38,759 ac (15,685 ha) of private and permittee-owned or controlled lands within the Coachella Valley MSHCP could be beneficial because it identifies lands that require management for conservation of Peninsular bighorn sheep. The process of proposing and finalizing the revised critical habitat rule provided the Service with the opportunity to evaluate and refine the features essential to the conservation of the DPS within the geographical area occupied by Peninsular bighorn sheep at the time of listing, as well as to evaluate whether there are other areas essential for the conservation of the DPS. The designation process included peer review and public comment on the identified features and areas. This process is valuable to land owners and managers in developing conservation management plans for identified areas, as well as any other occupied habitat or suitable habitat that may not have been included in the Service's determination of essential habitat.

The educational benefits of designation are small and largely redundant to those derived through conservation efforts currently being planned and implemented in the approximately 38,759 ac (15,685 ha) of private and permittee-owned or controlled lands within the Coachella Valley MSHCP. As described above, the process of developing the Coachella Valley MSHCP has involved several partners including (but not limited to) the eight participating local jurisdictions, Riverside County, California Department of Fish and Game, and Federal agencies. The educational benefits of critical habitat designation derived through informing Coachella Valley MSHCP partners and other members of the public of areas important for the long-term conservation of this DPS have already been and continue to be achieved through: (1) Development and implementation of the Coachella Valley MSHCP; (2) the original designation process in 2001; and (3) publication of the proposed revisions to critical habitat in 2007 and 2008, including notices of public comment periods, and the public hearings.

The consultation provisions under section 7 of the Act constitute

the regulatory benefits of inclusion for critical habitat. As discussed above, Federal agencies must consult with us on actions that may affect critical habitat and must avoid destroying or adversely modifying critical habitat. There is the potential for future activities within the lands being excluded having a Federal nexus for Peninsular bighorn sheep as a result of actions by Agua Caliente Band of Cahuilla Indians, BLM, Army Corps of Engineers, and the Federal Highway Administration. Therefore, including this area may provide some regulatory benefits under section 7 of the Act.

However, the Coachella Valley MSHCP addresses conservation issues from a coordinated, integrated perspective rather than a piecemeal, project-by-project approach (as would occur on these lands under sections 7 and 10 of the Act absent this regional plan) and will arguably achieve more Peninsular bighorn sheep conservation within the Coachella Valley MSHCP Plan Area than through section 7 consultations involving consideration of critical habitat. The PCEs required by Peninsular bighorn sheep will benefit by the conservation objectives and required measures outlined in the Coachella Valley MSHCP.

In summary, these conservation measures include but are not limited to: preservation and protection of core Peninsular bighorn sheep habitat in perpetuity, maintenance of water sources, criteria for locating development to minimize effects to Peninsular bighorn sheep, implementation of minimization and mitigation measures and land use agency guidelines, conditional provisions regarding unauthorized trails, and monitoring the effects of trails and population monitoring. Such measures will remove or reduce known threats to Peninsular bighorn sheep and its PCEs in Unit 1 and Unit 2A. The Coachella Valley MSHCP will ensure that conservation and management actions take place that are not required by critical habitat designation (see ``Benefits Of Designating Critical Habitat'' section above). For example, critical habitat designation does not ensure habitat protection; enhancement and restoration; maintenance of water sources; functional linkages to adjoining habitat; or monitoring of Peninsular bighorn sheep (see discussion above).

In light of the preferable regional scale of conservation planning used in the development of the Coachella Valley MSHCP and the conservation that will occur under the Coachella Valley MSHCP, we conclude that the potential regulatory benefit of designating these areas in Unit 1 and Unit 2A as critical habitat is minimal. We acknowledge that a very small portion of the area we are excluding from critical habitat is not anticipated to be conserved under the Coachella Valley MSHCP, approximately 282 ac (114 ha) or 0.7 percent of the area excluded. Therefore, the benefits of inclusion of these lands within designated critical habitat are higher than for those lands anticipated for conservation under the Coachella Valley MSHCP.

#### Benefits of Exclusion--Coachella Valley MSHCP

Regional and subregional HCPs foster an ecosystem-based approach to habitat conservation planning, and once

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developed, conservation issues are addressed through a coordinated approach. However, these large and often costly regional plans are voluntary for the local jurisdiction(s) that pursue this approach, in the sense that they could require landowners (e.g., homeowners, developers) to consult with the Service individually for a section 10 permit. As a result, the local jurisdiction would incur no costs associated with the landowner's need for a section 10 permit, requiring

the landowner to obtain this permit prior to issuance of a building permit. However, this approach would result in uncoordinated, ``patchy'' conservation that would likely not further the recovery of federally listed species. Rather, by voluntarily developing these regional plans (versus individual landowner HCPs), the coordinated landscape-scale conservation results in preservation of interconnected linkage areas and populations that support recovery of listed species.

We recognize that once an HCP is permitted, implementation of the conservation measures is not voluntary in order for permittees to receive incidental take coverage. However, the benefits of excluding lands under the scenario described above are: (1) Retaining and fostering the existing partnership and working relationship with all stakeholders; and (2) encouraging future regional HCP development or development of other species/habitat conservation plans. Additionally, exclusion of an HCP (such as the Coachella Valley MSHCP) demonstrates our good faith effort and working relationships, which should encourage initiation and completion of other HCPs.

We developed close partnerships with all participating entities through the development of the Coachella Valley MSHCP, which incorporates appropriate protections and management for Peninsular bighorn sheep, its habitat, and the features essential to the conservation of this DPS. By excluding 38,759 ac (15,685 ha) of lands in Unit 1 and Unit 2A from designation, we are eliminating an essentially redundant layer of regulatory review for projects covered by the Coachella Valley MSHCP, helping to preserve our ongoing partnership with the plan participants, and encouraging new partnerships with other landowners and jurisdictions. These partnerships with the Coachella Valley MSHCP participants are critical for the conservation of Peninsular bighorn sheep.

Benefits of Exclusion Outweigh the Benefits of Inclusion--Coachella Valley MSHCP

As discussed in the ``Benefits of Inclusion--Coachella Valley MSHCP'' section above, we believe the regulatory benefit of designating critical habitat on private lands, permittee-owned or controlled lands covered by the Coachella Valley MSHCP would be low. The Coachella Valley MSHCP addresses conservation issues from a coordinated, integrated perspective rather than a piecemeal project-by-project approach and will achieve more Peninsular bighorn sheep conservation than we would achieve through multiple site-by-site, project-by-project, section 7 consultations involving consideration of critical habitat.

Conservation and management of Peninsular bighorn sheep habitat is essential to the survival and recovery of this DPS. Such conservation needs are typically not addressed through the application of the statutory prohibition on destruction or adverse modification of critical habitat. Even considering the small percentage of lands meeting the definition of critical habitat that may be developed in the future, the specific conservation actions (conservation goal, conservation objectives, and required measures); avoidance and minimization measures; and monitoring and management for Peninsular bighorn sheep and the features essential to its conservation provided by the Coachella Valley MSHCP exceed any conservation value provided as a result of regulatory protections that may be afforded through a critical habitat designation. The Coachella Valley MSHCP provides as much or more conservation benefit than a consultation for critical habitat designation conducted under the standards required by the Ninth Circuit in the Gifford Pinchot decision. The benefits for the

conservation of Peninsular bighorn sheep that would occur as a result of designating these lands as critical habitat (e.g., protection afforded through the section 7(a)(2) consultation process) are minimal compared to the overall conservation benefits for the DPS that will be realized through the implementation of the Coachella Valley MSHCP. Furthermore, educational benefits that may be derived from a critical habitat designation are minimal and largely redundant to the educational benefits achieved through significant public, State, and local government input during the development and implementation of the Coachella Valley MSHCP.

We developed close partnerships with the 19 Coachella Valley MSHCP permittees through the development of this regional HCP that incorporates appropriate protections and management of this DPS's essential physical and biological features. Those protections are consistent with the mandates under section 7 of the Act to avoid destruction or adverse modification of critical habitat and go beyond that prohibition by including active management and protection of essential habitat areas. Designation of critical habitat alone does not achieve recovery or require management of those lands identified in the critical habitat rule. We believe the conservation benefits for Peninsular bighorn sheep that would occur as a result of designating those 38,759 ac (15,685 ha) in Unit 1 and Unit 2A as critical habitat (e.g., protection afforded through the section 7(a)(2) consultation process) is minimal compared to the overall conservation benefits for the DPS that will be realized through the implementation of the Coachella Valley MSHCP.

Furthermore, the benefits to recovery of inclusion primarily have already been met through the identification of those areas most important to the DPS. By excluding these lands from critical habitat, we are eliminating a largely redundant layer of regulatory review for a limited set of projects on non-Federal lands that are addressed by the MSHCP and we are helping to preserve our ongoing partnerships with the permittees and to encourage new partnerships with other landowners and jurisdictions. Those partnerships, and the landscape-level, multiple-species conservation planning efforts they promote, are critical for the conservation of Peninsular bighorn sheep. Designating critical habitat on non-Federal lands within the Coachella Valley MSHCP could have a detrimental effect to our partnerships with the 19 Coachella Valley MSHCP permittees and could be a significant disincentive to the establishment of future partnerships and HCPs with other landowners.

We reviewed and evaluated the exclusion of 38,759 ac (15,685 ha) of private and permittee-owned or controlled lands within the Coachella Valley MSHCP plan area from the final revised critical habitat designation for Peninsular bighorn sheep and determined that the benefits of excluding these lands in Unit 1 and Unit 2A outweigh the benefits of including them. As discussed above, the MSHCP will provide for significant preservation and management of habitat for and features essential to the conservation of Peninsular bighorn

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sheep and will help reach the recovery goals for this DPS.  
Exclusion Will Not Result in Extinction of the Subspecies--Coachella Valley MSHCP

In keeping with our analysis and conclusion detailed in our biological opinion for the Coachella Valley MSHCP (Service 2008, pp. 643-644), we determined that the exclusion of 38,759 ac (15,685 ha) of private lands and permittee-owned or controlled lands within the

Coachella Valley MSHCP Plan Area from the final designation of critical habitat for Peninsular bighorn sheep will not result in the extinction of the DPS. The Coachella Valley MSHCP provides protection and management, in perpetuity, of lands that meet the definition of critical habitat for the DPS in Unit 1 and Unit 2A. We acknowledge that some lands excluded within the Coachella Valley MSHCP are permitted for development (approximately 0.7 percent); however, the potential loss of this habitat will not result in the extinction of Peninsular bighorn sheep. Additionally, the jeopardy standard of section 7 of the Act and routine implementation of conservation measures through the section 7 process provide assurances that the DPS will not go extinct as a result of this exclusion.

#### Required Determinations

##### Takings--Executive Order 12630

In accordance with E.O. 12630 ('`Government Actions and Interference with Constitutionally Protected Private Property Rights''), we have analyzed the potential takings implications of designating critical habitat for Peninsular bighorn sheep in a takings implications assessment. Critical habitat designation does not affect landowner actions that do not require Federal funding or permits, nor does it preclude development of habitat conservation programs or issuance of incidental take permits to permit actions that do require Federal funding or permits to go forward. The takings implications assessment concludes that this final revised designation of critical habitat for Peninsular bighorn sheep does not pose significant takings implications.

##### Regulatory Planning and Review--Executive Order 12866

The Office of Management and Budget (OMB) has determined that this rule is not significant under E.O. 12866. OMB bases its determination upon the following four criteria:

- (1) Whether the rule will have an annual effect of \$100 million or more on the economy or adversely affect an economic sector, productivity, jobs, the environment, or other units of the government.
- (2) Whether the rule will create inconsistencies with other Federal agencies' actions.
- (3) Whether the rule will materially affect entitlements, grants, user fees, loan programs, or the rights and obligations of their recipients.
- (4) Whether the rule raises novel legal or policy issues.

##### Civil Justice Reform--Executive Order 12988

In accordance with E.O. 12988 (Civil Justice Reform), the Office of the Solicitor has determined that the rule does not unduly burden the judicial system and that it meets the requirements of sections 3(a) and 3(b)(2) of the Order. We are designating critical habitat in accordance with the provisions of the Act. This final rule uses standard property descriptions and identifies the physical and biological features essential to the conservation of the DPS within the designated areas to assist the public in understanding the habitat needs of the Peninsular bighorn sheep.

##### Federalism--Executive Order 13132

In accordance with E.O. 13132 (Federalism), this final rule does not have significant Federalism effects. A Federalism assessment is not required. In keeping with Department of the Interior and Department of Commerce policy, we requested information from, and coordinated development of, these final critical habitat designations with appropriate State resource agencies in California. During the public comment periods, we contacted appropriate State and local agencies and jurisdictions, and invited them to comment on the proposed revised critical habitat designation for the Peninsular bighorn sheep. In total, we responded to 3 letters received during these comment periods from local governments (see ``Summary of Comments and Recommendations'' section). The designations may have some benefit to these governments in that the areas that contain the features essential to the conservation of the species are more clearly defined, and the primary constituent elements of the habitat essential to the conservation of the species are specifically identified. This information does not alter where and what federally sponsored activities may occur. However, it may assist local governments in long-range planning (rather than having them wait for case-by-case section 7 consultations to occur).

Energy Supply, Distribution, Or Use--Executive Order 13211

E.O. 13211 requires agencies to prepare Statements of Energy Effects when undertaking certain actions. This revision to critical habitat for the Peninsular bighorn sheep is not considered a significant regulatory action under E.O. 12866. OMB has provided guidance for implementing this Order that outlines nine outcomes that may constitute ``a significant adverse effect'' when compared without the regulatory action under consideration. The economic analysis finds that none of these criteria are relevant to this analysis. Thus, based on information in the economic analysis (Appendix A), energy-related impacts associated with Peninsular bighorn sheep conservation activities within the areas included in the final designation of critical habitat are not expected.

Sunrise Powerlink is the only entity involved in the production of energy. Although Sunrise Powerlink is likely to incur incremental Peninsular bighorn sheep conservation costs, these costs are not expected to be sufficient to be noted as a ``significant adverse effect.'' Over the next 20 years, Sunrise Powerlink is forecast to incur total expenses of \$4,030, discounted at seven percent. These impacts are not sufficient to reduce electricity production appreciably, or to increase the cost of energy production or delivery by more than one percent. Thus, the incremental impacts associated with critical habitat designation for Peninsular bighorn sheep are unlikely to be of sufficient magnitude to affect energy production or delivery. As such, the final designation of critical habitat is not expected to significantly affect energy supplies, distribution, or use, and a Statement of Energy Effects is not required.

Unfunded Mandates Reform Act (2 U.S.C. 1501 et seq.)

In accordance with the Unfunded Mandates Reform Act, the Service makes the following findings:

(1) This rule does not produce a Federal mandate. In general, a Federal mandate is a provision in legislation, statute, or regulation that would impose an enforceable duty upon State, local, or tribal governments, or the private sector, and includes both ``Federal

intergovernmental mandates'' and ``Federal private sector mandates.'' These terms are defined in 2 U.S.C. 658(5)-(7). ``Federal intergovernmental mandate'' includes a regulation that ``would impose an enforceable duty upon State, local, or tribal

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governments,'' with two exceptions. It excludes ``a condition of federal assistance.'' It also excludes ``a duty arising from participation in a voluntary Federal program,'' unless the regulation ``relates to a then-existing Federal program under which \$500,000,000 or more is provided annually to State, local, and tribal governments under entitlement authority,'' if the provision would ``increase the stringency of conditions of assistance'' or ``place caps upon, or otherwise decrease, the Federal Government's responsibility to provide funding,'' and the State, local, or tribal governments ``lack authority'' to adjust accordingly. (At the time of enactment, these entitlement programs were Medicaid; Aid to Families with Dependent Children work programs; Child Nutrition; Food Stamps; Social Services Block Grants; Vocational Rehabilitation State Grants; Foster Care, Adoption Assistance, and Independent Living; Family Support Welfare Services; and Child Support Enforcement.) ``Federal private sector mandate'' includes a regulation that ``would impose an enforceable duty upon the private sector, except (i) a condition of Federal assistance; or (ii) a duty arising from participation in a voluntary Federal program.''

The designation of critical habitat does not impose a legally binding duty on non-Federal government entities or private parties. Under section 7 of the Act, the only regulatory effect is that Federal agencies must ensure that their actions do not destroy or adversely modify critical habitat. Non-Federal entities that receive Federal funding, assistance, permits, or otherwise require approval or authorization from a Federal agency for an action may be indirectly impacted by the designation of critical habitat. However, the legally binding duty to avoid destruction or adverse modification of critical habitat rests squarely on the Federal agency. Furthermore, to the extent that non-Federal entities are indirectly impacted because they receive Federal assistance or participate in a voluntary Federal aid program, the Unfunded Mandates Reform Act would not apply, nor would critical habitat shift the costs of the large entitlement programs listed above on to State governments.

(2) We do not believe that this rule would significantly or uniquely affect small governments because it would not produce a Federal mandate of \$100 million or greater in any year; that is, it is not a ``significant regulatory action'' under the Unfunded Mandates Reform Act. The FEA concludes that there are no incremental impacts resulting from this rulemaking that may be borne by small entities. Potential incremental impacts stemming from the Sunrise Powerlink project will be borne by San Diego Gas and Electric and a mine owned by Creole Corporation, a subsidiary of Texas Industries, Inc.; however, both of these entities are also not small governments.

Regulatory Flexibility Act (5 U.S.C. 601 et seq.)

Under the Regulatory Flexibility Act (5 U.S.C. 601 et seq.), as amended by the Small Business Regulatory Enforcement Fairness Act (5 U.S.C. 802(2)), whenever an agency is required to publish a notice of

rulemaking for any proposed or final rule, it must prepare and make available for public comment a regulatory flexibility analysis that describes the effect of the rule on small entities (i.e., small businesses, small organizations, and small government jurisdictions). However, no regulatory flexibility analysis is required if the head of an agency certifies the rule will not have a significant economic impact on a substantial number of small entities. The Small Business Regulatory Enforcement Fairness Act amended the Regulatory Flexibility Act to require Federal agencies to provide a certification statement of the factual basis for certifying that the rule will not have a significant economic impact on a substantial number of small entities. In this final rule, we are certifying that the critical habitat designation for Peninsular bighorn sheep will not have a significant economic impact on a substantial number of small entities. The following discussion explains our rationale.

According to the Small Business Administration, small entities include small organizations, such as independent nonprofit organizations; small governmental jurisdictions, including school boards and city and town governments that serve fewer than 50,000 residents; and small businesses (13 CFR 121.201). Small businesses include manufacturing and mining concerns with fewer than 500 employees, wholesale trade entities with fewer than 100 employees, retail and service businesses with less than \$5 million in annual sales, general and heavy construction businesses with less than \$27.5 million in annual business, special trade contractors doing less than \$11.5 million in annual business, and agricultural businesses with annual sales less than \$750,000. To determine if potential economic impacts to these small entities are significant, we considered the types of activities that might trigger regulatory impacts under this designation as well as types of project modifications that may result. In general, the term significant economic impact is meant to apply to a typical small business firm's business operations.

To determine if the revised designation of critical habitat for the Peninsular bighorn sheep would affect a substantial number of small entities, we considered the number of small entities affected within particular types of economic activities, such as residential and commercial development. We considered each industry or category individually to determine if certification is appropriate. In estimating the numbers of small entities potentially affected, we also considered whether their activities have any Federal involvement; some kinds of activities are unlikely to have any Federal involvement and thus will not be affected by the designation of critical habitat. Designation of critical habitat only affects activities conducted, funded, permitted, or authorized by Federal agencies; non-Federal activities are not affected by the designation.

In areas where the DPS is present, Federal agencies already are required to consult with us under section 7 of the Act on activities they fund, permit, or implement that may affect Peninsular bighorn sheep (see ``Section 7 Consultation' section) or their critical habitat. Future consultations to avoid the destruction or adverse modification of critical habitat would be incorporated into the existing consultation process. In the case of completed consultations for ongoing Federal activities, however, the Federal agency may be required to reinstate consultation (see ``Application of the `Adverse Modification' Standard' section). Designation of critical habitat, in that case, could result in an additional economic impact on small entities.

In our DEA of the proposed revision of critical habitat, we

evaluated the potential economic effects on small business entities resulting from conservation actions related to the proposed revision of critical habitat for the Peninsular bighorn sheep. The analysis is based on the estimated incremental impacts associated with the rulemaking as described in section 2 of the analysis. In the DEA, we evaluated the potential economic effects on small business entities resulting from implementation of conservation actions related to the proposed revision to critical habitat for the Peninsular bighorn sheep. The economic analysis identifies the estimated incremental impacts associated with the proposed rulemaking as described in chapters 2 through 7, and evaluates the potential

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for economic impacts related to activity categories including species management, development, mining, recreation, transportation, and utilities construction and management. The analysis concludes that there are no incremental impacts resulting from this rulemaking that may be borne by small entities. The FEA confirms this conclusion.

In summary, we considered whether the final rule to revise critical habitat would result in a significant economic impact on a substantial number of small entities. For the above reasons and based on currently available information, we certify that this rule will not have a significant economic impact on a substantial number of small entities. Therefore, a regulatory flexibility analysis is not required.

Small Business Regulatory Enforcement Fairness Act (5 U.S.C 801 et seq.)

Under the Small Business Regulatory Enforcement Fairness Act, this rule is not a major rule. Our detailed assessment of the economic effects of this designation is described in the economic analysis. Based on the effects identified in the economic analysis, we believe that this rule will not have an annual effect on the economy of \$100 million or more, will not cause a major increase in costs or prices for consumers, and will not have significant adverse effects on competition, employment, investment, productivity, innovation, or the ability of U.S.-based enterprises to compete with foreign-based enterprises. Refer to the final economic analysis for a discussion of the effects of this determination (see ADDRESSES for information on obtaining a copy of the final economic analysis).

National Environmental Policy Act (NEPA) (42 U.S.C. 4321 et seq.)

It is our position that, outside the jurisdiction of the Circuit Court of the United States for the Tenth Circuit, we do not need to prepare environmental analyses as defined by NEPA in connection with designating critical habitat under the Act. We published a notice outlining our reasons for this determination in the Federal Register on October 25, 1983 (48 FR 49244). This assertion was upheld in the courts of the Ninth Circuit Court of Appeals (*Douglas County v. Babbitt*, 48 F.3d 1495 (9th Cir. 1995), cert. denied 516 U.S. 1042 (1996)).

Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.)

This rule does not contain any new collections of information that require approval by OMB under the Paperwork Reduction Act of 1995. This rule will not impose recordkeeping or reporting requirements on State

or local governments, individuals, businesses, or organizations. An agency may not conduct or sponsor, and a person is not required to respond to, a collection of information unless it displays a currently valid OMB control number.

#### Government-to-Government Relationship With Tribes

In accordance with the President's memorandum of April 29, 1994, ``Government-to-Government Relations with Native American Tribal Governments'' (59 FR 22951), Executive Order 13175, and the Department of the Interior's manual at 512 DM 2, we readily acknowledge our responsibility to communicate meaningfully with federally recognized Tribes on a government-to-government basis. In accordance with Secretarial Order 3206 of June 5, 1997 (American Indian Tribal Rights, Federal-Tribal Trust Responsibilities, and the Endangered Species Act), we readily acknowledge our responsibilities to work directly with tribes in developing programs for healthy ecosystems, to acknowledge that tribal lands are not subject to the same controls as Federal public lands, to remain sensitive to Indian culture, and to make information available to tribes. We have identified tribal lands that meet the definition of critical habitat for the Peninsular bighorn sheep, and we are excluding all tribal lands from the final revised critical habitat designation under section 4(b)(2) of the Act (see ``Exclusion of Agua Caliente Band of Cahuilla Indians Tribal Lands'' section for a detailed discussion).

#### References Cited

A complete list of all references cited in this rulemaking is available on the Internet at <http://www.regulations.gov> and <http://www.fws.gov/carlsbad/>.

#### Author(s)

The primary authors of this rulemaking are staff at the Carlsbad Fish and Wildlife Office, Carlsbad, California.

#### List of Subjects in 50 CFR Part 17

Endangered and threatened species, Exports, Imports, Reporting and recordkeeping requirements, Transportation.

#### Regulation Promulgation

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Accordingly, we amend part 17, subchapter B of chapter I, title 50 of the Code of Federal Regulations, as set forth below:

#### PART 17--[AMENDED]

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1. The authority citation for part 17 continues to read as follows:

Authority: 16 U.S.C. 1361-1407; 16 U.S.C. 1531-1544; 16 U.S.C. 4201-4245; Pub. L. 99-625, 100 Stat. 3500; unless otherwise noted.

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2. In Sec. 17.11(h), revise the entry for ``Sheep, bighorn'' under ``MAMMALS'' in the List of Endangered and Threatened Wildlife to read as follows:

Sec. 17.11 Endangered and threatened wildlife.

\* \* \* \* \*  
(h) \* \* \*

Species		Historic range	Vertebrate population where endangered or threatened	Status	When listed	Critical habitat	Special rules
Common name	Scientific name						
Mammals							
Sheep, Peninsular bighorn.....	Ovis canadensis nelsoni.	U.S.A. (western conterminous States), Canada (southwestern), Mexico (northern).	U.S.A. (CA) Peninsular Ranges.	E	634	17.95(a)	NA

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3. In Sec. 17.95(a), revise the entry for ``Bighorn Sheep (Peninsular Ranges) (Ovis canadensis)'' to read as follows:

Sec. 17.95 Critical habitat--fish and wildlife.

(a) Mammals.  
\* \* \* \* \*

Peninsular Bighorn Sheep, a Distinct Population Segment of Desert Bighorn Sheep (Ovis canadensis nelsoni)

(1) Critical habitat units are depicted for Riverside, San Diego, and Imperial Counties, California, on the maps below.

(2) The primary constituent elements of critical habitat for the Peninsular bighorn sheep are:

(i) Moderate to steep, open slopes (20 to 60 percent) and canyons, with canopy cover of 30 percent or less (below 4,600 ft (1,402 m) elevation in Peninsular Ranges) that provide space for sheltering, predator detection, rearing of young, foraging and watering, mating, and movement within and between ewe groups;

(ii) Presence of a variety of forage plants, indicated by the presence of shrubs (e.g., Ambrosia spp., Caesalpinia spp., Hyptis spp., Sphaeralcea spp., Simmondsia spp.), that provide a primary food source year round, grasses (e.g., Aristida spp., Bromus spp.) and cacti (e.g., Opuntia spp.) that provide a source of forage in the fall, and forbs

(e.g., *Plantago* spp., *Ditaxis* spp.) that provide a source of forage in the spring;

(iii) Steep, rugged slopes (60 percent slope or greater) (below 4,600 ft (1,402 m) elevation in Peninsular Ranges) that provide secluded space for lambing and terrain for predator evasion;

(iv) Alluvial fans, washes, and valley bottoms that provide important foraging areas where nutritious and digestible plants can be more readily found during times of drought and lactation, and that provide and maintain habitat connectivity by serving as travel routes between and within ewe groups, adjacent mountain ranges, and important resource areas (e.g., foraging areas and escape terrain); and

(v) Intermittent and permanent water sources that are available during extended dry periods and provide relatively nutritious plants and drinking water.

(3) Critical habitat does not include manmade structures (such as buildings, aqueducts, roads, and other paved areas) and the land on which they are located existing within the legal boundaries on the effective date of this rule.

(4) Critical habitat map units. Data layers defining map units were created on a base of USGS 1:24,000 maps, and critical habitat units were then mapped using Universal Transverse Mercator (UTM) coordinates.

(5) Note: Index map of critical habitat units for the Peninsular bighorn sheep follows:  
BILLING CODE 4310-55-P

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[GRAPHIC] [TIFF OMITTED] TR14AP09.000

BILLING CODE 4310-55-C

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(6) Unit 1: San Jacinto Mountains, Riverside County, California.

(i) From USGS 1:24,000 quadrangles Desert Hot Springs, Palm Springs, and San Jacinto Peak, and White Water. Land bounded by the following Universal Transverse Mercator (UTM) North American Datum of 1927 (NAD27) coordinates (E, N): 534134, 3750021; 534465, 3749681; 534495, 3749651; 534495, 3749651; 534495, 3749651; 534495, 3749651; 534572, 3749621; 534997, 3749456; 534792, 3749102; 534885, 3748934; 535128, 3748785; 535310, 3748807; 535426, 3748822; 535471, 3748798; 535663, 3748697; 535706, 3748674; 535706, 3748652; 535713, 3748654; 535739, 3748650; 535777, 3748637; 535816, 3748627; 535834, 3748623; 535944, 3748624; 535999, 3748624; 536000, 3748624; 536000, 3748624; 536056, 3748624; 536056, 3748656; 536499, 3748909; 536927, 3749153; 537308, 3748794; 538009, 3748134; 538064, 3748082; 538535, 3747726; 538535, 3747703; 538566, 3747702; 538901, 3747449; 539106, 3747293; 539235, 3746550; 539240, 3746463; 539240, 3746455; 539254, 3746181; 539088, 3745848; 539244, 3745133; 539265, 3745144; 539562, 3745200; 539802, 3745192; 540194, 3745168; 540512, 3745097; 540512, 3744900; 540511, 3744851; 540512, 3744847; 540521, 3744847; 540607, 3744847; 540817, 3744847; 540900, 3744846; 540900, 3744846; 540900, 3744800; 540900, 3744700; 540900, 3744600; 540900, 3744500; 540900, 3744400; 540800, 3744400; 540800, 3744300; 540700, 3744300; 540600, 3744300; 540600, 3744200; 540511, 3744200; 540504, 3744200; 540500, 3744200; 540500, 3744100; 540503, 3744100; 540511, 3744100; 540600, 3744100; 540600, 3744000; 540600, 3743900; 540700, 3743900; 540700, 3743800; 540700, 3743700; 540800, 3743700; 540800, 3743600; 540800, 3743500;

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returning to 534134, 3750021.

(ii) Note: Map of Unit 1, San Jacinto Mountains (Map 2) follows:  
BILLING CODE 4310-55-P

[[Page 17349]]

[GRAPHIC] [TIFF OMITTED] TR14AP09.001

BILLING CODE 4310-55-C

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(7) Unit 2A: North Santa Rosa Mountains, Riverside County,

California.

(i) From USGS 1:24,000 quadrangles Cathedral City, Clark Lake NE, La Quinta, Martinez Mountain, Palm Springs, Palm View Peak, Rabbit Peak, Rancho Mirage, Toro Peak, and Valerie. Land bounded by the following Universal Transverse Mercator (UTM) North American Datum of

1927 (NAD27) coordinates (E, N): 548200, 3735505; 548200, 3735500;  
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3735513; 548190, 3735509; thence returning to 548200, 3735505.

(ii) Note: Map of Unit 2A, North Santa Rosa Mountains follows:  
BILLING CODE 4310-55-P

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[GRAPHIC] [TIFF OMITTED] TR14AP09.002

BILLING CODE 4310-55-C

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(8) Unit 2B: South Santa Rosa Mountains south to Vallecito  
Mountains, Riverside, San Diego, and Imperial Counties, California.

(i) From USGS 1:24,000 quadrangles Agua Caliente Hot Springs,  
Arroyo Tapiado, Borrego Mountain, Borrego Mountain SE, Borrego Palm  
Canyon, Borrego Sink, Bucksnot Mountain, Carrizo Mountain NE, Clark  
Lake, Clark Lake NE, Collins Valley, Earthquake Valley, Fonts Point,  
Harper Canyon, Plaster City NW, Rabbit Peak, Seventeen Palms, Tubb  
Canyon, and Whale Peak. Land bounded by the following Universal  
Transverse Mercator (UTM) North American Datum of 1927 (NAD27)  
coordinates (E, N): 552772, 3702586; 552772, 3702567; 552801, 3702567;  
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(ii) Note: Map of Unit 2B, South Santa Rosa Mountains south to Vallecito Mountains follows:  
BILLING CODE 4310-55-P

[[Page 17363]]

[GRAPHIC] [TIFF OMITTED] TR14AP09.003

[[Page 17364]]

(9) Unit 3: Carrizo Canyon, San Diego and Imperial Counties, California.

(i) From USGS 1:24,000 quadrangles Agua Caliente Hot Springs, Arroyo Tapiado, Carrizo Mountain, In-Ko-Pah Gorge, Jacumba, Painted Gorge, Sombrero Peak, and Sweeney Pass. Land bounded by the following Universal Transverse Mercator (UTM) North American Datum of 1927 (NAD27) coordinates (E, N): 574159, 3634261; 574922, 3634108; 575915, 3634261; 577290, 3634566; 578359, 3634566; 579199, 3634261; 580039, 3633879; 581032, 3633421; 582406, 3633192; 583705, 3632810; 584697, 3632810; 586225, 3633039; 587370, 3633497; 588134, 3633726; 588821, 3633879; 589738, 3634795; 589508, 3635253; 589738, 3635635; 590119, 3635941; 590959, 3635941; 591952, 3635559; 592792, 3635406; 593632, 3634871; 594320, 3634031; 595083, 3632810; 595771, 3631511; 596000, 3630519; 595923, 3629679; 595312, 3628915; 594702, 3628304; 594167, 3628075; 592411, 3627998; 591189, 3627998; 590425, 3627998; 589280, 3628228; 588058, 3628915; 587141, 3629144; 586301, 3629449; 585003, 3629984; 583857, 3630595; 583170, 3630748; 582330, 3630671; 581566, 3630824; 580650, 3630824; 579581, 3630671; 578664, 3629679; 578283, 3628915; 578283, 3628151; 578206, 3626700; 578130, 3625784; 577595, 3625631; 577290, 3625326; 577214, 3624791; 577290, 3623951; 577825, 3623187; 578512, 3622653; 579275, 3621736; 580039, 3621126; 583136, 3619091; 585446, 3617261; 585698, 3616826; 585744, 3615522; 585561, 3614538; 584920, 3613898; 584193, 3613692; 583552, 3613600; 583021, 3614241; 582399, 3615485; 581960, 3616712; 580596, 3618451; 580070, 3618565; 579046, 3618300; 578054, 3617918; 578061, 3617609; 577347, 3616950; 576981, 3616492; 576221, 3616085; 575763, 3615856; 574923, 3615933; 574159, 3616238; 573548, 3616620; 573013, 3616849; 572326, 3617154; 571562, 3617765; 570875, 3618453; 570799, 3618987; 570417, 3619751; 570493, 3620515; 570722, 3621813; 570722, 3622500; 570722, 3623493; 570646, 3624333; 570417, 3625097; 570417, 3625937; 570188, 3626700; 570417, 3627846; 572249, 3630519; 572555, 3631664; 572478, 3632657; 572020, 3633955; 571486, 3634872; 570951, 3635864; 570187, 3637239; 569729, 3637774; 569042, 3638156; 568125, 3638308; 567209, 3638614; 566674, 3638996; 566522, 3639606; 566216, 3640294; 565911, 3641134; 565681, 3641668; 565376, 3642050; 564841, 3642508; 564460, 3642890; 564536, 3643425; 565147, 3644265; 565452, 3645029; 567132, 3644799; 568278, 3644189; 569271, 3643501; 569958, 3642508; 570111, 3641897; 570874, 3641668; 571715, 3640676; 572249, 3639072; 572937, 3638232; 573318, 3637086; 573318, 3635635; 573548, 3634643; thence returning to 574159, 3634261.

(ii) Note: Map of Unit 3, Carrizo Canyon follows:

[[Page 17365]]

[GRAPHIC] [TIFF OMITTED] TR14AP09.004

\* \* \* \* \*

Dated: March 31, 2009.

Will Shafroth,  
Deputy Assistant Secretary for Fish and Wildlife and Parks.  
[FR Doc. E9-7767 Filed 4-13-09; 8:45 am]  
BILLING CODE 4310-55-P

Exhibit 43

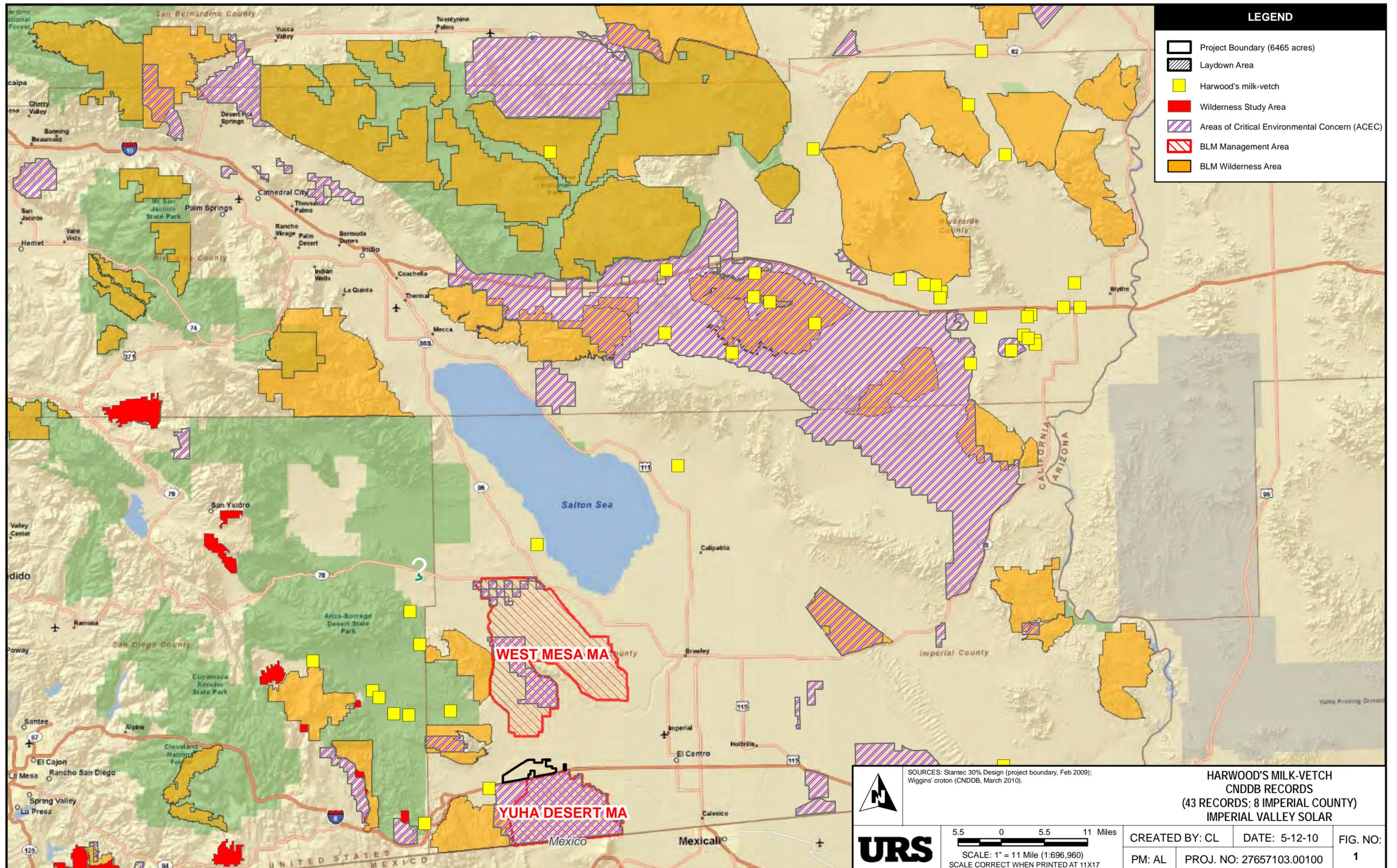


Exhibit 44

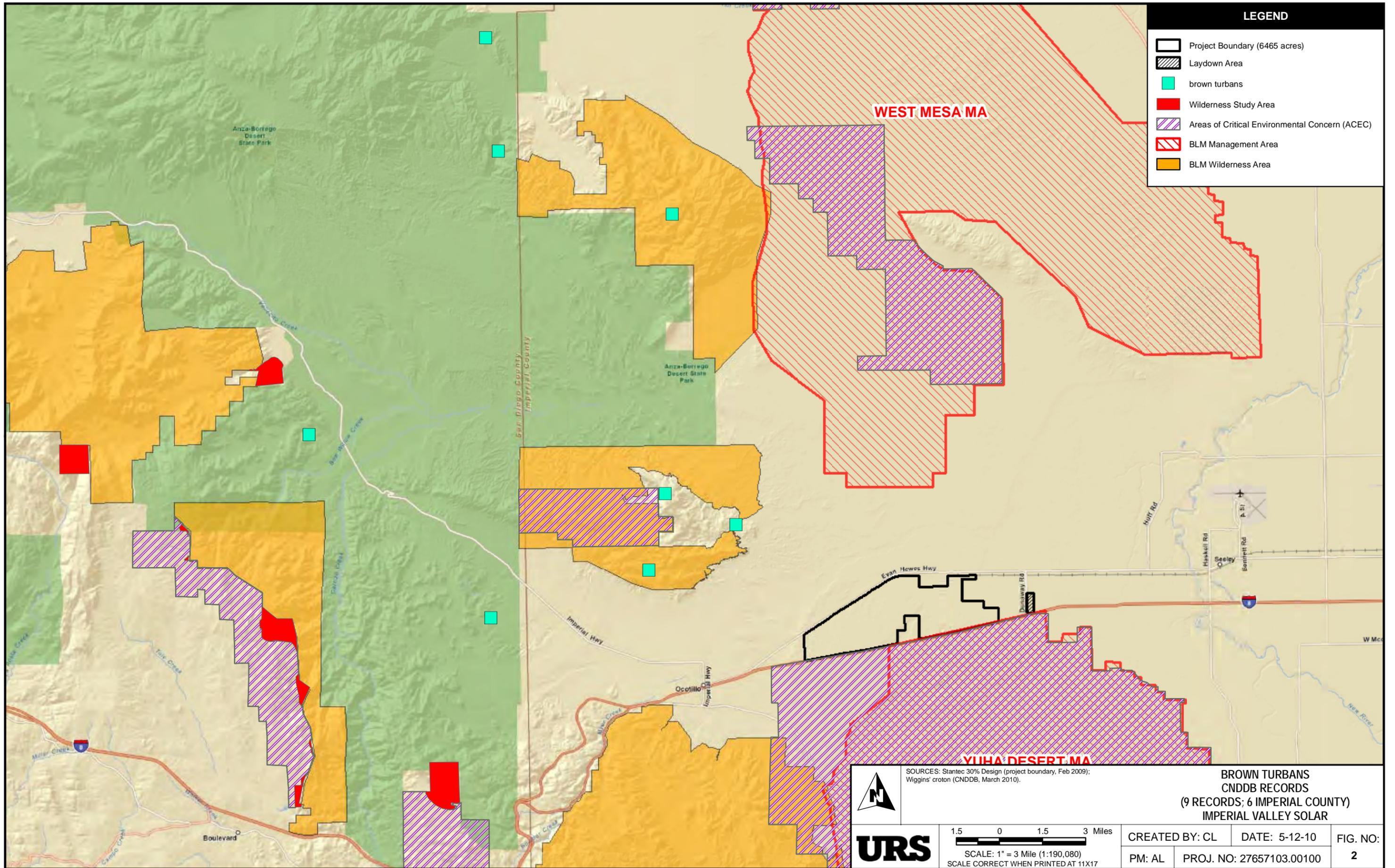


Exhibit 45

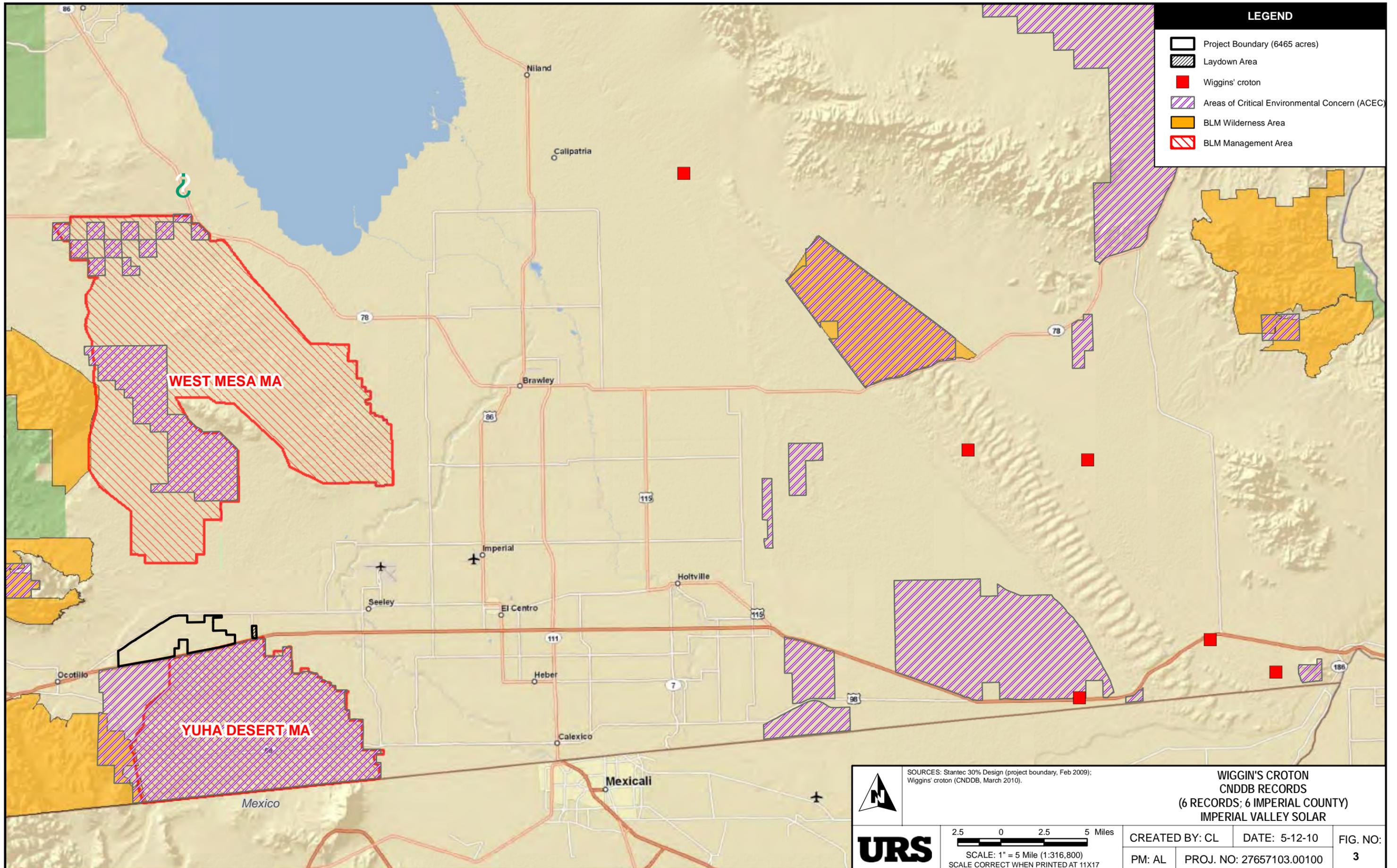


Exhibit 46

**CHANG Consultants**

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Response to Comments from the  
California Unions for Reliable Energy (CURE) on  
Sediment Issues for Imperial Valley Solar Site

Submitted to

Mike Fitzgerald  
Principal  
Ecosphere Environmental Services  
Durango, CO

Prepared by  
Howard H. Chang, Ph.D., P.E.



May 14, 2010

The comments from CURE are in black.  
The responses to comments are in blue

1. To overcome deficiencies in the SA/DEIS, Chang (2010) used the 1D sediment transport model FLUVIAL-12 to simulate general scour in select washes for existing and project conditions. Project condition scenarios included 1) solar dishes in the washes with access roads (to include cutoff walls) and 2) as in (1) with sediment basins.

In response, the sediment study by Chang covered the hydraulics of stream flow, sediment transport and stream channel changes during the 100-yr storm for the existing and proposed conditions for the solar energy project site. The study was to assess the potential impacts of the proposed project.

2. Mannings n-values in the washes for existing and project conditions (with access road grading/clearing and solar dish towers in the washes) were specified as 0.03 and 0.025, respectively. Solar dish towers were not modeled as a physical flow impediment, but rather as part of a composite roughness element, which likely under represents the impact of the towers on the washes.

In response, solar dish towers will be scattered in the desert washes with a low density. The one 2-foot diameter post is on 0.28 acre of land area, or 3.14 square feet for a solar post on 12,197 square feet of land area. The ratio is 0.000257, or 0.027%. Such posts resemble tree trucks in natural streams; they have very small effects on channel roughness.

3. Chang (2010) did not specify an incoming sediment load at his upstream model boundary. It is unclear if this assumption was based on the culverts under Interstate 8 trapping a majority of the upstream sediments. As such, this may result in excessive amounts of scour and sediment transport since the flows will be supply limited.

In response, the rate of sediment inflow into a study reach is provided by the upstream boundary condition for sediment. If this rate is known, it may be included as a part of the input and used in the simulation. Unfortunately, sediment rating data are rarely very reliable or simply not available. For this case, sediment inflow rate is computed at the upstream section at each time step, the same way they are computed at other cross sections along a wash. The inflow rate for sediment changes with the storm discharge. For this study, each study reach extends far enough upstream so that the channel beyond are in their stable state. Factors that may induce stream channel changes are included in the study reach. Since the upstream section for sediment inflow is in the stable state, the sediment inflow so computed represents the actual sediment inflow. Since this project makes no changes to areas outside the upstream limit of the washes, the natural sediment inflow is not changed by the project.

4. Using the RTM (2009b) peak flows (for existing conditions only); Chang (2010) generated 6-hour triangular hydrographs for use in FLUVIAL-12. As such, these hydrographs are not as flashy and erosive as would be experienced in nature.

In response, storm flows in the desert environment are typically short in duration with the discharge rising and falling rapidly. The 6-hour duration is a short duration. While each storm may vary considerably in duration, the 6-hour storm is close to the typical case. The important point is that the same hydrograph is applied to both the pre- and post-project conditions. With this approach, the impacts of the project are evaluated on the same basis.

5. Based on the 1D numerical analysis, typical scour depths in the washes were estimated to be less than 1 foot, resulting in Chang's conclusion that it is acceptable to keep the solar dishes in the washes. However, these analyses may underestimate scour and deposition since they are based on a lack of incoming sediment load, underestimated flows (for the smaller washes) for existing conditions hydrology only, and use simplified hydrographs that will result in less erosion than is actually likely to occur.

In response, it has been explained in Item 3 that the sediment inflow to each wash is based on the stable conditions of sediment flow into the washes. For this reason, the inflow sediment should not have been under-estimated. The 6-hour storm duration for the storm flow may not be considered too short for the desert environment since storm flows in such areas are typically short in duration. In fact, the triangular hydrograph over-estimates the total volume of storm flow to result in more erosion in the washes. The limited scour depths as simulated are related to the moderate and low flow velocities on the relatively flat terrain at the project side. The wide and shallow water depth does not contribute to deep scour.

6. The 1D simplification of a 3D problem may also underestimate the preferential flow, transport, scour, and deposition characteristics of the site. The impact of solar dish towers in aggregate in the washes is not quantified sufficiently at the project scale, only at the dish scale to inform structural design (see Section 4.4.3).

In response, the storm flow is based on the hydrology study; the sediment transport is computed based on the measured channel geometry, flow discharge, flow velocity and sediment characteristics. The accuracy of sediment computation depends on the sediment transport formula used. Sediment transport for the study was computed using the Engelund-Hansen sediment formula in the computer model FLUVIAI-12 developed by Chang that has been in use for 35 years.

Brownlie (1981) has made the most extensive evaluation of sediment transport formulas using a large collection of laboratory and field data. The comparison of 14 formulas by Brownlie is shown in Figure 1. The bars show the 16th and 84th percentile of the values of the predicted-concentration to measured-concentration ratio for flume data (solid lines) and field data (dashed lines). The median value is indicated by x. The Engelund-Hansen formula has better accuracy in comparison to other formulas. His evaluation is summarized in Figure 1.

The solar posts cause local disturbance to flow. The net effect of such disturbance is increased sediment flow in the local area of the post.

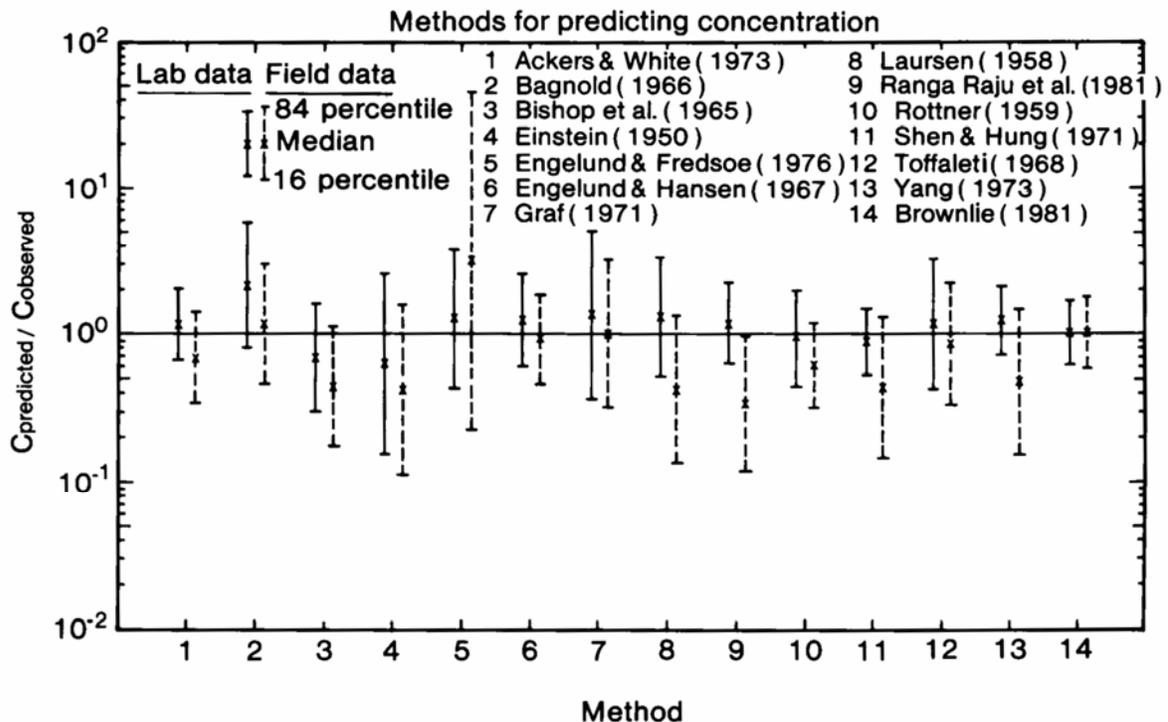


Figure 1. Evaluation of sediment transport formulas by Brownlie

Brownlie, W. R., "Prediction of Flow Depth and Sediment Discharge in Open Channels," Rept. No. KH-R-43A, W.M. Keck Laboratory of Hydraulics and Water Resources, California Institute of Technology, Pasadena, California, November 1981.

Engelund, F. and Hansen, E., A Monograph on Sediment Transport in Alluvial Streams, Teknisk Vorlag, Copenhagen, Denmark, 1967.

7. Chang (2010) has demonstrated that use of the sediment basins (with concrete cutoff walls, which effectively act as grade control) can have a significant impact on the delivery of sediment through and downstream of the project site in the 10-year and 100-year floods, and hence, significant impacts like severe incision can occur. Depending on the wash that was modeled, sediment delivery through a road crossing with sediment basins in place can approach zero in a 100-year flood, with normal levels of sediment delivery resuming downstream, suggesting the washes are incising as a result of the sediment basins.

In response, I agree with this assessment.

## LOCAL SCOUR

Local scour of the solar dish towers in the washes was estimated by two independent calculations (i.e., RMT 2009b; Chang 2010) and were found to be approximately 5 feet in both. Prediction of the scour depths is important when designing the foundation depth for the towers. If the scour depth is under-predicted there is a risk of undermining the towers. The scour depth is likely under-predicted currently. It would be preferable not to locate the towers in the washes.

In response, the solar units have posts that are imbedded for about 17 feet into the ground. Storm flows in the desert environment occur infrequently and they have short durations. The potential stream channel scour is limited in magnitude; it should not destabilize the solar structures with a 17-foot imbedded footing; it should not be a threat to the structural safety of the solar units located in washes.

### 4.4.4 ADDITIONAL SURVEYS, DATA COLLECTION AND ANALYSIS REQUIRED

In response to the summary and critique given in the previous sections, we have concluded that the current level and type of analysis in the SA/DEIS was -insufficient. Failure to undertake additional surveys, data collection and analysis, relating to hydraulics, sediment transport and scour as described below will result in significant impacts to the morphology of the desert washes, potential significant impacts to receiving waters downstream of the project site and potential dangers to the solar dish towers:

1. The sediment transport modeling must be revised with the appropriate inputs. 2D sediment transport modeling should be undertaken for existing and project conditions, to include all representative project elements (i.e., BMP effectiveness, solar dish towers in the washes, etc.). If this does not occur, there is not sufficient modeling to conclude that impacts from the project will be less than significant with proposed mitigation.

In response, potential stream channel changes and stream channel scour are related to the transport of bed material load consisting of the coarse bed material. A 2-D model, while ideal, for desert washes with the project elements does not exist at this time. The FLUVIAL-12 model has been developed and applied to this area for 35 years; the model has also been calibrated with field data from 14 streams in the Western U. S. (Chang, H. H., "Generalized Computer Program FLUVIAL-12, Mathematical Model for Erodible Channels, Users Manual", 2006.)

2. Long-term changes in fluvial morphology should be assessed within and downstream of the project site as a result of the project and also as a result of climate change. Long-term hydrologic simulations may be required as short-term (or design flood) outcomes only provide a "snapshot" from the starting condition. The long term degradation of the receiving waters downstream of the project site is therefore likely to be underestimated.

In response, the study applied the 100-yr storm for stream hydraulics, sediment transport, and stream channel changes. The 100-yr storm is a rare event, which is statistically exceeded once in a 100-yr time span. Sediment transport is very sensitive to the flow discharge. Events smaller than the 100-yr storm cause much less sediment transport and stream channel changes. For this reason, the study results based on the 100-yr storm provide adequate protection for the solar project.

3. Based upon the information known about the processes on the site to date, the sediment basins should be removed from the project design. The desire to control natural sedimentation processes is unwarranted and not justified and can result in significant downstream impacts.

In response, I agree with this assessment.

4. The current sediment transport analyses do not support the conclusions that the solar dishes can safely be placed in the washes or not adversely affect the morphology of the washes and therefore Drainage Alternative #1 or similar is warranted.

In response, the solar units will have footings imbedded in the washes for 17 feet. Because of the low flow velocity, shallow water depth, and limited channel bed scour, the proposed solar units placed in the washes should not be damaged by the flow and potential stream channel changes.

Solar dish towers will be scattered in the desert washes with a low density. The one 2-foot diameter post is on 0.28 acre of land area, or 3.14 square feet for a solar post on 12,197 square feet of land area. The ratio is 0.000257, or 0.027%. Such posts resemble tree trunks in natural streams; they should not adversely affect the morphology of the washes.

#### 4.5 MITIGATION MEASURES

A review of the suggested mitigation measures provided in the SA/DEIS and associated documents has been conducted. What follows here is a summary of those investigations, including a critique followed by requirements for modification to the analyses or additional analyses.

#### 4.5.1 SOIL BINDERS AND LINEAR SEDIMENT BARRIERS

Soil binders are proposed to be used to treat soil erosion by wind and water. The erosion control plans suggest extensive use of soil binders throughout the project site with little specifics on the placement of linear sediment barriers. The potential impacts of the soil binders on the natural characteristics of the desert pavement (specifically soil infiltration, runoff generation, and soil erosion), in addition to specifics on binder deterioration and reapplication rates, and downslope flow convergence leading to gully erosion is not investigated nor stated.

It is noted here that placement of linear sediment barriers on a project of this scope is better left to the final phases of the design. However, the effectiveness of these treatments at controlling sediment needs to be quantified for use in the soil loss calculations.

[In response, soil binders may lower the natural soil loss from the project site.](#)

#### 4.5.2 SEDIMENT BASINS

Sediment basins were proposed to control existing sediment movement onto, through, and off the project site by trapping it in varying sized sediment basins at property boundaries and road crossing internal to the project site. Sediment basins have the potential to starve the fluvial system within and downstream of the project site of sediment, leading to highly detrimental changes in the morphology of the washes.

[In response, sediment basins should not be used for the project in order to maintain the natural sediment transport and sediment delivery toward downstream.](#)

#### 4.5.3 DRAINAGE ALTERNATIVE 1

This alternative proposed in the SA/DEIS removes the solar dishes from the washes to avoid perceived significant impacts to fluvial morphology and sediment transport. However, it fails to recognize similar significant impacts posed by the sediment basins.

#### 4.5.4 ADDITIONAL SURVEYS, DATA COLLECTION AND ANALYSIS REQUIRED

In response to the summary and critique given in the previous sections, we have concluded that the current level and type of analysis in the SA/DEIS is insufficient. Failure to undertake additional surveys, data collection and analysis relating to potential mitigation actions will result in significant unmitigated impacts to the morphology of the desert washes, potential significant impacts to receiving waters downstream of the project site and potential dangers to the solar dish towers:

1. Justify and/or quantify proposed BMP effectiveness to better inform the hydrologic and soil loss analyses.
2. Remove the sediment basins from the project design to minimize significant impacts to the morphology of the washes onsite and offsite.

3. Refine Drainage Alternative #1 to include the removal of the sediment basins from the project in addition to removal of the solar dishes from the washes.

#### 4.6 OFFSITE IMPACTS

A review of the offsite impacts provided in the SA/DEIS and associated documents has been conducted. What follows here is a summary of those investigations, including a critique, followed by recommendations for modification to the analyses or additional analyses.

##### 4.6.2 SURFACE EROSION AND SEDIMENT YIELD

With implementation of the project, and depending on the depth of grading and BMP effectiveness, sediments and salts could be carried with surface runoff from the extensively graded project site. Considering intense rainfall and subsequent runoff occurs in the summer, these soluble salts could enter the Westside Main Canal, be applied to agricultural fields, only to ultimately enter the Salton Sea via discharge from Imperial Valley drains. Without a detailed analysis of offsite impacts, fine sediments could reach the New River.

In response, the modeling study for sediment has shown that, with the sediment basins removed, the solar energy project as proposed will not change the sediment flow and sediment delivery toward areas downstream of the project site.

##### 4.6.3 HYDRAULICS, SEDIMENT TRANSPORT, AND SCOUR

With implementation of the project, or even Design Alternative #1, there will be significant impacts to the morphology of the offsite fluvial system north of the railroad and east of Dunaway Road via reductions in offsite sediment delivery.

In response, the project will not change the flow or sediment flow to the offsite areas; therefore, there should be no impacts to the offsite fluvial morphology.

1. The hydrologic, hydraulic and sediment transport models domain of analysis should extend sufficiently far downstream to be able to characterize any potential impacts to the receiving waters downstream of the project site.

In response, the potential impacts of the project to the receiving waters downstream of the project site are governed by the water and sediment flow to the downstream receiving waters. Since the water and sediment flow to the offsite areas will not be changed by the project, there is no need to extend the study further downstream.

Exhibit 47



# Memorandum

Date: March 22, 2010

To: Richard Knox and Felicia Bellows, Tessera Solar

From: Mark Storm, INCE Bd. Cert.  
Senior Project Engineer, URS San Diego

Subject: **Maricopa Solar – Site Noise Measurement Survey & Data Analysis**

This technical memorandum describes the results of a sound measurement survey conducted March 17, 2010 within the site boundaries of the Maricopa Solar project near Peoria, Arizona. This memo also compares selected measurement data with the results of a noise prediction model representing the sum of sixty (60) operating SunCatchers at the Maricopa Solar project site, for the intended purpose of validating input parameters used in similar noise prediction models for other Tessera Solar projects (e.g., Imperial Valley Solar).

## EXECUTIVE SUMMARY

**A comparison of selected field noise measurement data with predictive operational noise model results for Maricopa Solar indicates that the input sound power levels for an individual SunCatcher unit as used in Table 5.12-7 of the Imperial Valley Solar AFC remain representative and valid.** As shown in Table ES-1, differences between model results and measurement readings were less than 3 dBA, and in several cases less than 1 dBA. Differences of 1 dBA or less are considered indiscernible by the average human ear and are within the measurement tolerance of a normally functioning sound level meter.<sup>1</sup>

**Table ES-1  
Predicted vs. Measured Aggregate Operating SunCatcher Sound – Maricopa Solar**

Project Site Location	Measurement Site ID	Predicted SPL (dBA)	Measured SPL (L90, dBA)	Difference (Predicted – Measured, dBA)
SW corner of site	6	66.5	68.2	-1.7
Near middle of West SunCatcher field	9	74.9	74.3	0.6
Southern site fenceline	11	68.3	68.8	-0.5
Southern site fenceline	12	67.3	67.2	0.1
Eastern site fenceline	13	71.3	71.8	-0.5
NE corner of site	14	64.5	65.1	-0.6
Approx. 75' North of East SunCatcher field	15	68.5	68.4	0.1
Approx. 50' North of SunCatcher "71"	18	69.3	66.6	2.7
Approx. 100' North of SunCatcher "71"	19	67.5	64.5	3.0
Northern site fenceline	20	66.4	64.3	2.1

Source: URS Corporation 2010

<sup>1</sup> Ebbing & Blazier, Application of Manufacturers' Sound Data, ASHRAE, 1998, p. 178, Table 14.1.

## INTRODUCTION

In April 2008, URS conducted a sound measurement survey of a single nominally operating SunCatcher at the National Solar Thermal Test Facility (NSTTF) located on the site of Sandia National Laboratories near Albuquerque, NM. The octave band center frequency (OBCF) sound power levels (PWL) derived from the sound pressure level (SPL) measurements of this operating SunCatcher were then used as input parameters to complete a predictive operational noise impact analysis as part of satisfying the requirements of a California Energy Commission (CEC) Application for Certification (AFC) for Imperial Valley Solar (formally known as Stirling Energy Systems “Solar Two”) near El Centro in Imperial County, CA.

In the two years since the measurement survey at NSTTF, URS understands that the SunCatcher design has developed into a system that is represented by the functioning samples at Maricopa Solar. Concerns arose that the new design, intended to represent what is proposed to be installed in quantity at Tessera Solar sites such as Imperial Valley Solar, may have different operating characteristics from the former generation sample at NSTTF that could include different sound levels. Thus, at Tessera Solar’s request, URS performed a sound measurement survey at Maricopa Solar to collect data that should help determine whether the predictive operational model input parameters—based on the measurements of the SunCatcher sample at NSTTF—are still valid for purposes of predictive noise impact assessment, or if they need to be updated to better predict future noise levels.

## PREDICTION MODEL

The Cadna/A Noise Prediction Model (Version 3.72.131) was used to estimate the aggregate SPL from all 60 operating SunCatchers at Maricopa Solar. Cadna/A is a Windows based software program that predicts and assesses noise levels emanating from user-defined noise sources based on International Standards Organization 9613-2 standards for noise propagation calculations. The model uses industry-accepted propagation algorithms and accepts sound power levels (in dB re: 1 picoWatt) provided by the equipment manufacturer and other sources. The calculations account for sound attenuation via classical sound wave divergence plus attenuation factors resulting from air absorption (as influenced by temperature and relative humidity), basic ground effects, and barrier/shielding.

Apart from the SunCatchers, the sum of which was modeled as an area source within the project site perimeter, no other sound-generating sources were included in the prediction model. For instance, while the Maricopa Solar project did have an operating hydrogen compression facility located near the field office parking lot adjacent to 75<sup>th</sup> Avenue, this equipment did not appear to be a dominant noise generator during the field survey and was thus excluded from the prediction model. The contributing PWL from an individual SunCatcher appears in Table 1. The OBCF levels are identical to those used in the Imperial Valley Solar AFC (as determined from the 2008 NSTTF SunCatcher noise measurements). Other assumptions made for the prediction model include as follows:

- Flat terrain (i.e., no varying topography)
- Air temperature = 25° C
- Humidity = 20 %
- Windspeed = 0 mph
- Project Site ground absorption coefficient = 0.25

Because the ground absorption coefficients can range from zero to unity, the usage of 0.25 is conservative and assumes a mix of some porous (e.g., loose dirt) and but mostly smooth, hard (i.e., acoustically reflective) ground surfaces.

**Table 1  
Noise Model Sound Level Parameters**

Project Component	Type of Source	Unweighted Sound Power Level (PWL, dB) at Octave Band Center Frequency (Hz)									Overall Level (dB)	A-Weighted Level (dBA)	Acoustic Height (meters)
		31.5	63	125	250	500	1,000	2,000	4,000	8,000			
SunCatcher	Point	119	111	101	93	97	95	90	88	81	120	99	7

Source: URS Corporation, 2010.

Notes: SunCatcher assembly includes measured composite levels from the Stirling Engine, electric generator, cooling fan, and air compressor.

**MEASUREMENT SURVEY**

From approximately 11 a.m. through 3 p.m., sound measurements were conducted at various locations on the Maricopa Solar site with a Bruel & Kjaer Model 2250 Sound Level Meter (SLM), a Type 1 instrument per American National Standardization Institute (ANSI) S1.4 and S1.43 standards. Environmental conditions appeared to be seasonally typical for Peoria, Arizona: cloudless sky, temperature ranging from 75 to 90 degrees Fahrenheit as the day progressed, with relatively low humidity and low-to-moderate average wind speeds (5-10 mph). URS observed that the Maricopa Solar field office has limited meteorological measurement capability for its SunCatcher control needs, and learned that this data is available upon request—should detailed correlation with the sound measurement data be necessary.

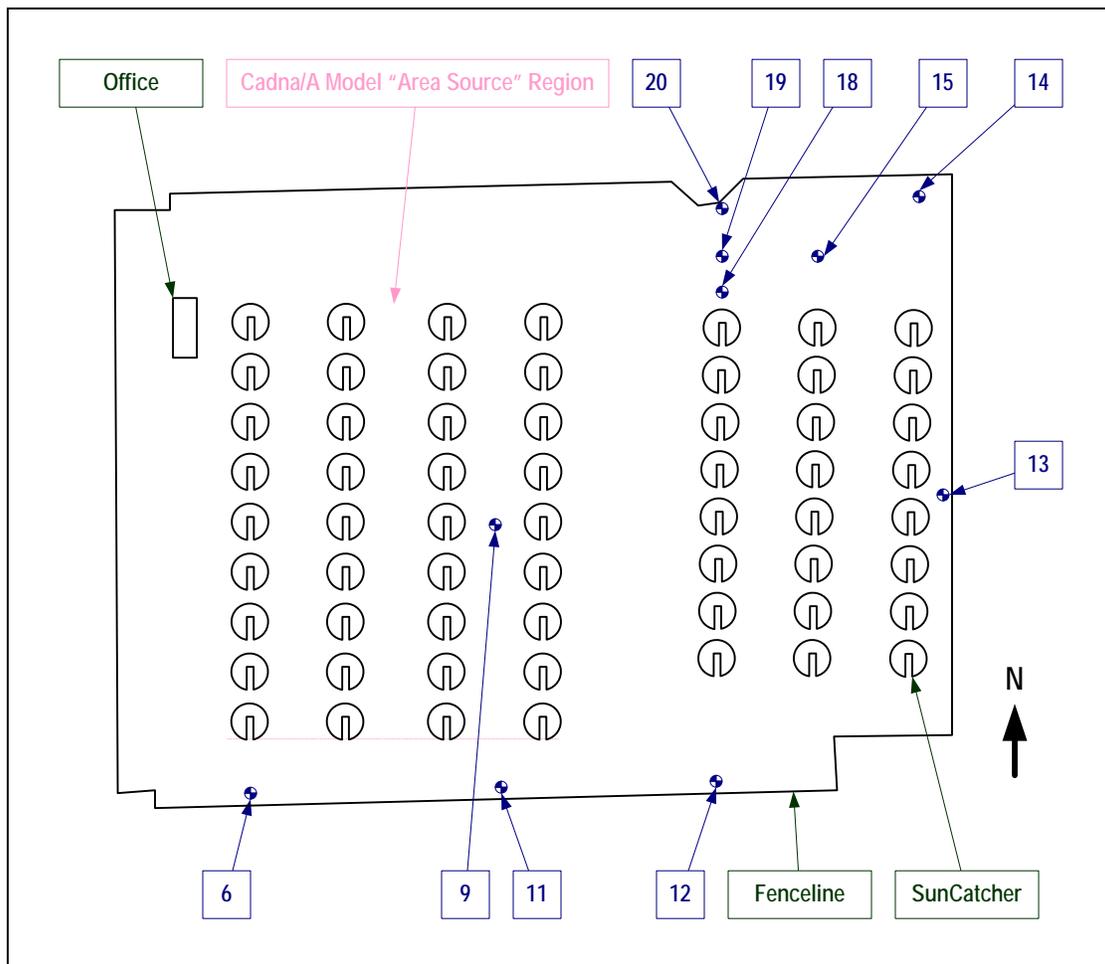
Individual sound measurements were of 1-3 minutes duration, considered an adequate sampling time since the dominant sound sources (i.e., the operating SunCatchers) were generally considered continuous sources of noise based on perception and URS understanding that the SunCatcher’s Stirling engine runs at a steady 1,800 revolutions per minute (rpm).

Measurement and predictive model locations that are referenced in Table ES-1 appear as numbered callouts in Figure 1, which depicts a simplified Maricopa Solar site plan and its major features. Representative photographs of these measurement locations appear in Appendix A, attached to this technical memo. Not shown are the following features and sources of non-project ambient noise that adjoin the site:

- 75<sup>th</sup> Avenue, which is located immediately to the West and exhibited intermittent flows of traffic, including a mixture of vehicle types (passenger cars, motorcycles, tractor-trailer trucks, etc.). Traffic noise was only audible at measurement positions #6, 11, and 12.
- The Agua Fria Generating Station Substation, located to the South. While the Generating Station and its turbines (southerly adjacent to the Substation) appeared to be offline, the transformers of the Substation sounded audible at the Maricopa Solar southern fenceline. Substation transformer noise was only audible at measurement positions #11, and 12.
- An open, grass-covered field to the East of the Maricopa Solar site.
- An unpaved road immediately to the North, beyond which is a light industry facility that did not appear to have any activity. The unpaved road exhibited some passenger car traffic. An elevated portion of Route 60 was visible from the site, and traffic noise was occasionally audible at measurement positions #14, 15, 18, 19 and 20.
- Power transmission lines, traversing roughly east-to-west over the northern project area, did not appear to exhibit audible noise.

During the survey, with few exceptions, all sixty SunCatchers appeared to be operating at what URS understood was full capacity, associated with 900 Direct Normal Insolation (DNI) or better. One or two individual SunCatchers were observed to move into an “offset” position and temporarily discontinue Stirling engine operation. Any sound associated with such witnessed SunCatcher dish re-positioning was perceptibly inaudible from the indicated measurement positions. On one occasion, a single SunCatcher exhibited a momentary hissing noise that was audible over the ambient sound of the other operating SunCatchers and was later explained by Maricopa Solar crews as a “blow-off” event not associated with normal system operation. The sound of this hissing noise is not contained in the presented results of Table ES-1.

Other sources of intermittent audible noise noted during the survey were occasional aircraft overflights and birdcalls (e.g., from birds visibly resting on the framing of a SunCatcher dish, or from the direction of the Agua Fria Substation).



**Figure 1. Measurement/model positions on Maricopa Solar siteplan (NTS)**

## ANALYSIS

Due to the observed presence of non-project ambient noise sources, and because the Cadna/A model of Maricopa Solar only considers the operating SunCatcher noise, the A-weighted  $L_{90}$  values from the measurements are compared to the model prediction results. Unlike  $L_{eq}$ , which is the equal-energy sound level value for all sound sources detected by the instrument microphone, the  $L_{90}$  is a statistical descriptor of the sound level value exceeded ninety percent (90%) of the measurement period. This means sound from an essentially continuous source of noise like the aggregate field of SunCatchers will be included, but the impulsive or intermittent sounds of passing road traffic or birdcalls will not. Since the difference in measured  $L_{eq}$  and  $L_{90}$  at the locations shown in Table ES-1 is not greater than 1.5 dBA, with the average difference for all ten locations equal to 1 dBA, usage of  $L_{90}$  as the comparison value seems appropriate.

Table ES-1 presents the differences between the predicted aggregate SunCatcher sound and the A-weighted  $L_{90}$  values from the measurements at ten positions within the site as shown in Figure 1. The differences are within a range of +/-3 dBA, with several within +/- 1 dBA, suggesting that the Cadna/A model is valid and, in turn, contains input PWL parameters that accurately characterize operating SunCatcher sound.

The presented positive and negative differences between the prediction and measurement data in Table ES-1 should not be interpreted as a reason to change the model input PWL parameters. These differences are expected for one or more reasons including as follows:

- Measurement tolerance of the sound level meter. Per International Organization of Standards (ISO) 3714, the standard deviation for acoustical measurements at OBCF ranging between 500 Hz and 4000 Hz is +/- 1.5 dB.
- Position of measurement location with respect to SunCatcher dish orientation. The northern measurement locations have  $L_{90}$  values that generally tend to be lower than predictions, suggesting that the SunCatcher dishes may be providing some degree of intervening barrier-type noise reduction (i.e., the dish for the nearest SunCatcher is between the Stirling engine and the sound measurement position). Correspondingly, and because one might say that the engines are more exposed, the southern measurement locations show  $L_{90}$  levels that are slightly higher than predictions. These effects, however, are estimated to be minor since the measurement positions are exposed to multiple engines by direct sound pathways that are not visibly or acoustically occluded.
- Differences between actual and modeled meteorological conditions.

A subsequent field survey could measure and collect data that might produce difference values either very similar to those shown in Table ES-1, or different but likely displaying the same variance range of +/- 3 dBA between prediction and  $L_{90}$  level.

**LIMITATIONS**

The opinions, findings and recommendations presented herein are based in part upon field measurements and observations of what are believed to be typical and representative conditions of current Maricopa Solar operations. The sound measurements and analyses were conducted using the professional standard of care as practiced in the industry and are representative of the activity being measured as influenced by environmental conditions existing during the measurement period. Because of the variability of factors not within the control of the investigators, no warranty can be made that the exact sound or activity levels would be obtained by subsequent field measurements. However, for similar climatic and seasonal conditions, intensity of surrounding community activity, and similar facility operations, the sound levels measured would be very similar to those reported herein.

Exhibit 48

# **Solar Two Project Rain Event Site Visit And Qualitative Assessment Summary**

## **Introduction**

The Solar Two project site was visited by URS staff on January 20, 2010 and January 21, 2010 to qualitatively assess onsite hydrologic conditions during a predicted rain event. Assessment activities began on January 20, 2010 at 15:00 and concluded on January 21, 2010 at 14:45.

## **Assessment Methods And Summary Report Structure**

### Observation Points

The north side of the project site is bordered by the Union Pacific Railroad and San Diego Metropolitan Transit System. Onsite drainages are constricted to several trestles at various points along the railroad. The railroad trestles are easily accessed via Evan Hewes Highway which allowed field staff to visit each location several times prior to and during the rain event. Figure 1 indicates the locations where qualitative observations were made and photographs were taken. These locations are referred to as “observation points”. Drainages I, K, A, C, C2, D/D1, and E were accessed via Evan Hewes Highway. The existing transmission line access road was used to access drainages E, F, and G (Figure 1).

### Photograph Log

Upstream and downstream photographs were taken at each observation point and organized into a Photograph Log which is provided with this summary. Notes relative to observed hydrological conditions were also recorded at each observation point and combined with the photographs. Each observation point was visited once on January 20, 2010 prior to the onset of the predicted rain event and either once or twice more during the rain event on January 21, 2010. Photographs are grouped by drainage and ordered so that the reader can assess site conditions over time.

### Rainfall Data

A rain gauge located on the north side of Interstate 8 at the Dunaway Rd. exit collected rainfall amounts at 15 minute intervals prior to and during the rain event. A running sum of these measurements was calculated and used to develop the rainfall graph provided as Figure 2.

## **Results**

### January 20, 2010 Observations

No flowing or standing water was observed at any of the observation points on January 20, 2010 although soils in many areas were damp (not saturated). Drainage C2 (Point 35) possessed indicators of recent flow (Photograph Log-Page 13). There was no evidence of recent flow at any other observation points. Evidence of recent flow at Drainage C2 and damp soils at all locations were a result of previous rainfall amounts of 0.17 inches on January 18, 2010 and 0.3 inches on January 19, 2010. No rainfall was recorded on January 20, 2010 prior to the onset of assessment activities at 15:00 (Figure 2).

Site assessment activities were concluded at 17:00 on January 20, 2010. The predicted rain event began at 19:45. Rainfall was continuous throughout the night and into early January 21, 2010 when rainfall became intermittent (Figure 2).

### January 21, 2010 Observations

A total of 1.81 inches of rainfall was recorded between January 20, 2010 at 19:45 and January 21, 2010 at 14:30 (Figure 2).

Table 1 provides a summary of observations made at targeted drainages. Table 1 may also be used as a Photograph Log index. Flowing water was observed at drainages I, A, C, C2, D/D1, and E. Water depths did not exceed several inches at any location. The maximum observed depth was approximately six inches at Drainage E. Flowing water was not observed at drainages K and G at any time during the assessment. The Photograph Log provides additional descriptions of conditions at each observation point.

Standing water was observed at various locations throughout the project site. The area between Drainage G and Evan Hewes Highway was assessed along the existing transmission line access road. No flowing water was observed at Drainage F or the northern most branch of Drainage E. Several small erosional features contained flowing water in the area between Drainage G and Drainage F but were minimal and were not focused concentrations of flowing water.

Site assessment activities were concluded at 14:45 on January 21, 2010.

### Drainages K, C, and G Observations

Drainages K, C, and G were visited specifically so that observations made during the January 21, 2010 rain event could be compared to findings discussed in the "Sediment Study for Three Washes at Solar Two Project Site in Imperial County, California" report, which was prepared by Howard H. Chang PhD., P.E. in January 2010. Observations made at drainages K, C, and G are therefore summarized here.

*Drainage K* was visited once on January 20, 2010 and twice on January 21, 2010 at observation point 32 (Figure 1). No flowing water or evidence of flowing water was observed during January 20 observations (Photograph Log-Page 4) indicating that the previous rainfall amounts of 0.17 inches on January 18, 2010 and 0.3 inches on January 19, 2010 were not of sufficient intensity or amount to create flow in Drainage K at the railroad (Figure 2).

Areas of standing water and evidence of recent flow were observed at 8:20 on January 21, 2010. A total of 1.91 inches of rainfall had fallen since January 18, 2010 prior to this observation. Localized flow was observed at 14:35 on January 21, 2010. The amount of flowing water was not substantial and was derived from areas of standing water in the immediate vicinity. Drainage K was not observed conveying water from the project site during the site visit.

*Drainage C* was visited once on January 20, 2010 and twice on January 21, 2010 at observation point 34 (Figure 1). No flowing water or evidence of flowing water was observed during January 20 observations (Photograph Log-Page 10) indicating that the previous rainfall amounts of 0.17 inches on January 18, 2010 and 0.3 inches on January 19, 2010 were not of sufficient intensity or amount to create flow in Drainage C at the railroad (Figure 2).

No flowing or standing water was observed at 8:58 on January 21, 2010. A total of 1.91 inches of rainfall was recorded prior to this observation (Figure 2). A small amount of flow was observed at 14:10 on January 21, 2010. The amount of flowing water was minimal and was just reaching the downstream side of the railroad (Photograph Log-Page 12). A total of 2.25 inches of rainfall was recorded prior to this observation (Figure 2).

*Drainage G* was visited once on January 20, 2010 and once on January 21, 2010 at observation points 41 and 49 (Figure 1). No flowing water or evidence of flowing water was observed during January 20 observations (Photograph Log-Page 22) indicating that the previous rainfall amounts of 0.17 inches on January 18, 2010 and 0.3 inches on January 19, 2010 were not of sufficient intensity or amount to create flow in Drainage G at this location (Figure 2).

No flowing or standing water was observed at 13:15 on January 21, 2010. Evidence of minimal recent flow was, however, observed at this time (Photograph Log-Page 23). A total of 2.11 inches of rainfall was recorded prior to this observation (Figure 2).

**Table 1**

**Solar Two Project Site  
Rain Event Summary  
(1/20/2010 - 1/21/2010)**

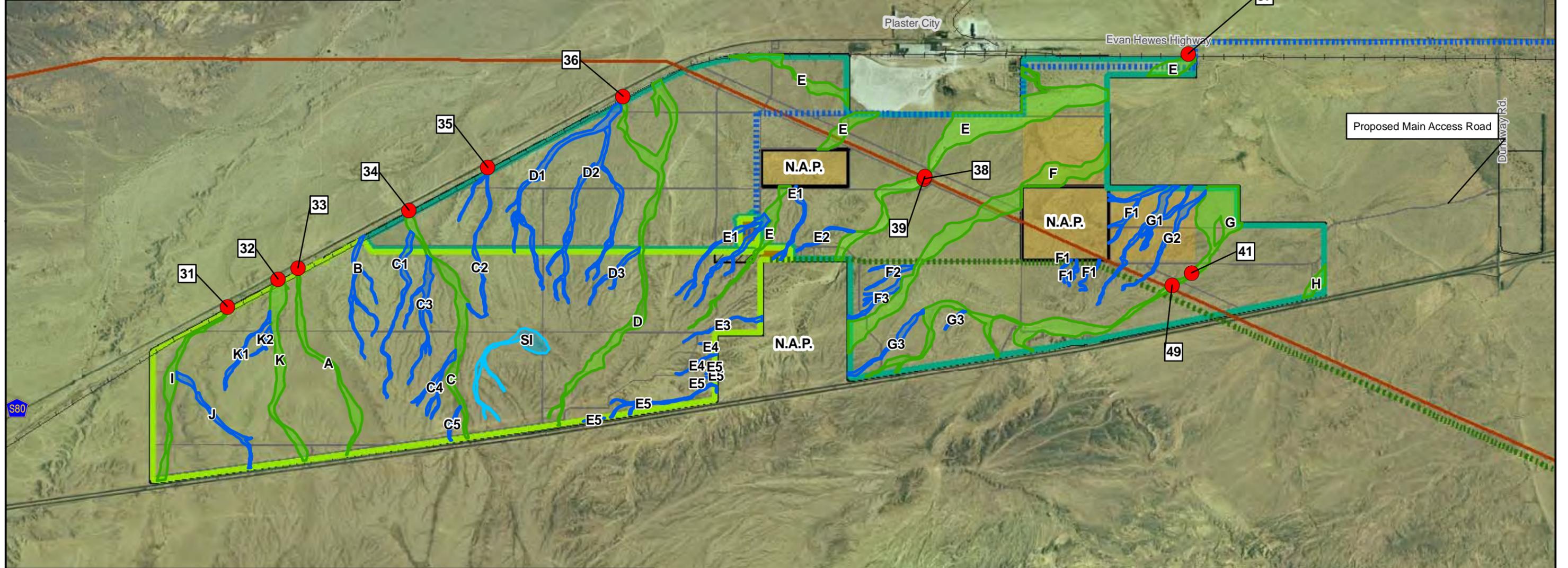
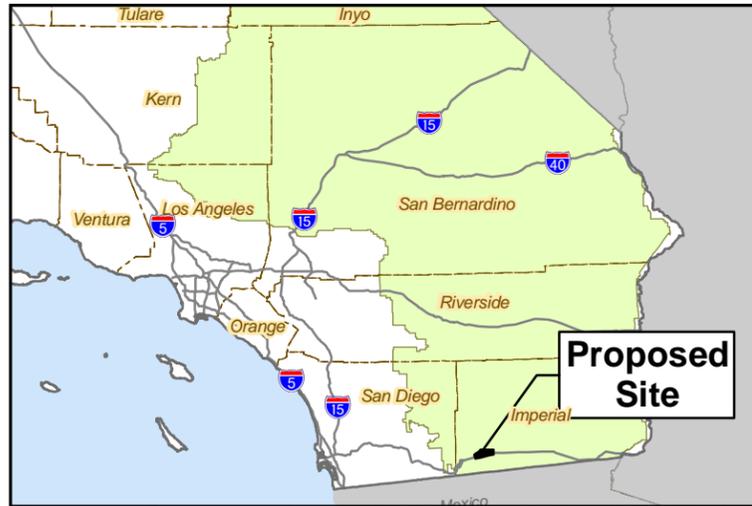
<b>Drainage ID</b>	<b>Observed Flow? (Y/N)</b>	<b>Evidence Of Recent Flow? (Y/N)</b>	<b>Amount of Rainfall Prior To Observed Flow/Evidence Of Flow (inches)<sup>1</sup></b>	<b>Photograph Log Page Numbers</b>
I	Y	-	1.91	1-3
K	N	Y	1.91	4-6
A	Y	-	1.91	7-9
C	Y	-	2.27	10-12
C2	Y	-	0.47	13-15
D/D1	Y	-	2.28	16-17
E <sup>2</sup>	Y	-	1.91	18-19
E <sup>3</sup>	Y	-	2.11	20-21
G	N	Y	2.11	22-23

Note: Rainfall data collected immediately north of Interstate 8 at the Dunaway Rd. exit.

<sup>1</sup> Total measured rainfall beginning on 01/18/2010

<sup>2</sup> Observations made at point 37.

<sup>3</sup> Observations made at points 38 and 39



**LEGEND**

- Existing Transmission Line
  - Proposed 750-MW/230-kV Transmission Line (2.6 Miles On-site, 7.7 Miles Off-site)
  - T-Line 100 foot ROW (93 acres, Off-site)
  - Proposed 750-MW/230-kV Transmission Line (10.30 miles)
  - Union Pacific Railroad & San Diego Metropolitan Transit System
  - Project Roads (3 acres Off-site)
  - Existing SDG&E Imperial Valley Substation
  - Project Site Boundary (6465 acres)
  - 300-MW Solar Field (2630 acres)
  - 450-MW Solar Field (3725 acres)
  - N.A.P. Not A Part (Owned by Others)
  - Private Land Included in the Project (320 acres)
  - Proposed Substation and Main Services Complex
  - Laydown Area
- |  |
|--|
| <p><b>Priority</b></p> <ul style="list-style-type: none"> <li><span style="background-color: green; width: 10px; height: 10px; display: inline-block;"></span> Primary</li> <li><span style="background-color: blue; width: 10px; height: 10px; display: inline-block;"></span> Secondary</li> <li><span style="background-color: cyan; width: 10px; height: 10px; display: inline-block;"></span> Secondary/Isolated</li> <li><span style="color: red; font-size: 12px;">●</span> Observation Points</li> </ul> |
|--|



**SOURCES:** Following layers from Stantec 30% Design, Feb. 2009 (project boundary, N.A.P., laydown areas, existing SDGE substation, proposed 750-MW substation, main services complex, project roads, phase 1&2 boundaries), Existing T-line (Platts, 2009), Aerial Imagery (NAIP, 2005), Proposed T-line (RMT, 10/2009), Waterline (URS, 2008), Private Land (BLM, 2008), U.P. Railroad (TIGER, 2008), Roads (ESRI, 2009).



1750 0 1750 3500 Feet  
 SCALE: 1" = 3500' (1:42,000)  
 SCALE CORRECT WHEN PRINTED AT 11X17

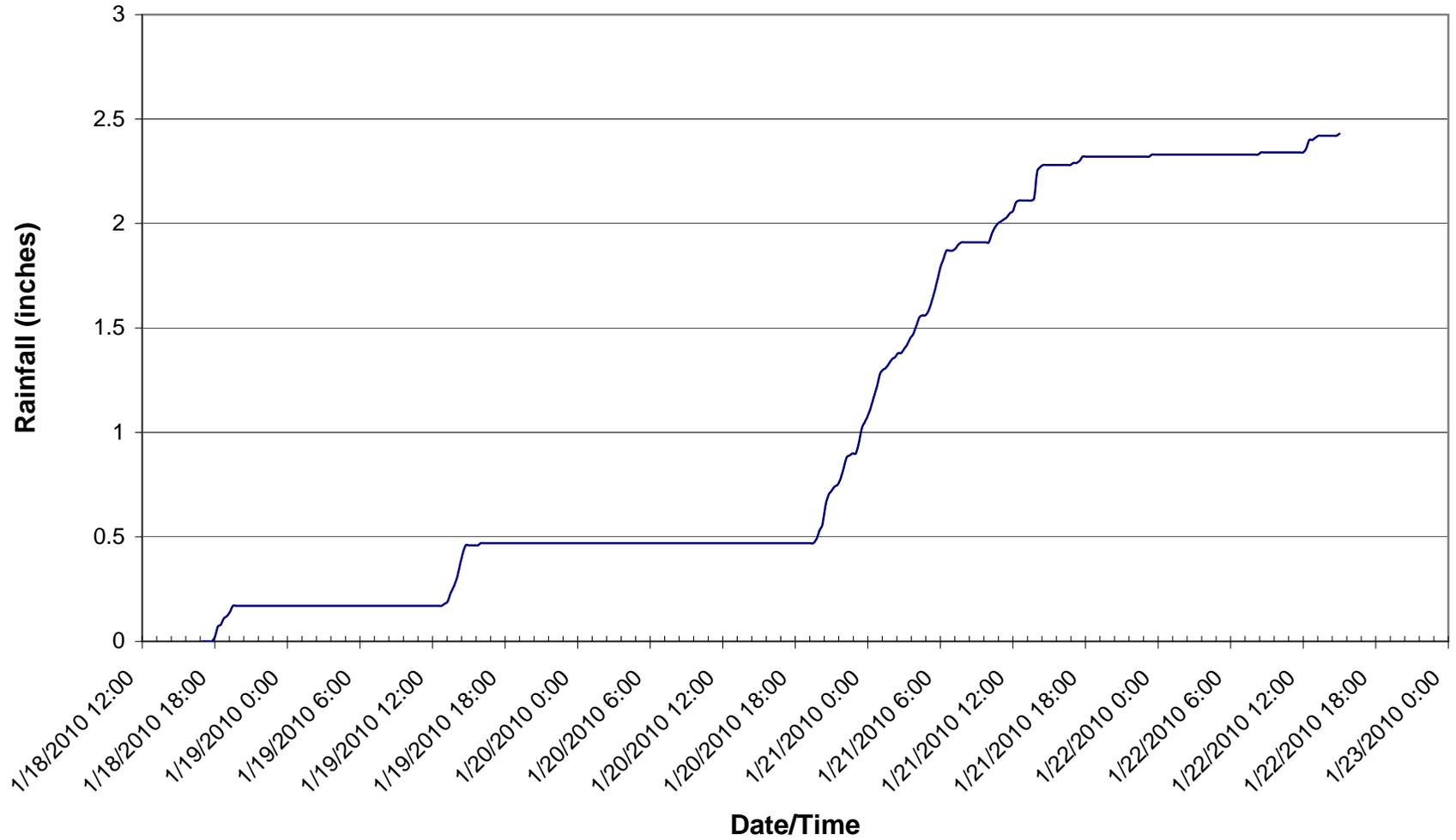
**RAIN EVENT ASSESSMENT  
 SOLAR 2 PROJECT SITE  
 (1/20/2010 - 1/21/2010)**

CREATED BY: CL	DATE: 2-2-10	FIG. NO:	1
PM: AL	PROJ. NO: 27657105.00900		

Path: G:\gis\projects\1577\2228980\mxd\Biology\ACOE\_34x44\_Rain\_Event\_overview\_11X17.mxd, 02/02/10, camille\_lil

**Figure 2**

**Total Running Rainfall  
During Solar Two Project Site Visit**



Rainfall data collected immediately north of Interstate 8 at the Dunaway Rd. exit.

## **Photograph Log**



**Photograph 3309**

**Date:** 01/20/2010

**Time:** 1500

**Location:**

Point 31

Drainage I (facing upstream/south)

**Comments:**

No flowing or standing water present and no evidence of recent flow.



**Photograph 3310**

**Date:** 01/20/2010

**Time:** 1500

**Location:**

Point 31

Drainage I (facing downstream/north)

**Comments:**

No flowing or standing water present and no evidence of recent flow.



**Photograph 3342**

**Date:** 01/21/2010

**Time:** 0800

**Location:**

Point 31

Drainage I (facing upstream/south)

**Comments:** Water flowing at low velocity and volume.



**Photograph 3343**

**Date:** 01/21/2010

**Time:** 0800

**Location:**

Point 31 - Drainage I

**Comments:** Water flowing at low velocity and volume out of the project site towards Evan Hewes Hwy. Water was ponding below and immediately downstream/north of the train trestle.



**Photograph 3389**

**Date:** 01/21/2010

**Time:** 1445

**Location:**

Point 31

Drainage I (facing upstream/south)

**Comments:** No flowing water was observed. Several ponded areas were present.



**Photograph 3390**

**Date:** 01/21/2010

**Time:** 1445

**Location:**

Point 31

Drainage I (facing downstream/north)

**Comments:** No flowing water was observed. Several ponded areas were present.



**Photograph 3311**

**Date:** 01/20/2010

**Time:** 1507

**Location:**

Point 32

Drainage K (facing upstream/south)

**Comments:** No flowing or standing water present and no evidence of recent flow.



**Photograph 3312**

**Date:** 01/20/2010

**Time:** 1507

**Location:**

Point 32

Drainage K (facing downstream/north)

**Comments:** No flowing or standing water present and no evidence of recent flow.



**Photograph 3347**

**Date:** 01/21/2010

**Time:** 0820

**Location:**

Point 32

Drainage K (facing upstream/south)

**Comments:** No flowing water present. Some standing water was present. Fresh erosion indicated that minimal flow had occurred overnight.



**Photograph 3348**

**Date:** 01/21/2010

**Time:** 0820

**Location:**

Point 32

Drainage K (facing downstream/north)

**Comments:** No flowing water present. Some standing water was present. Fresh erosion indicated that minimal flow had occurred overnight.



**Photograph 3387**

**Date:** 01/21/2010

**Time:** 1435

**Location:**

Point 32

Drainage K (facing upstream/south)

**Comments:** No real flow observed. Some water was flowing from ponded areas but flow was not substantial and was only draining from the immediate area.



**Photograph 3388**

**Date:** 01/21/2010

**Time:** 1435

**Location:**

Point 32

Drainage K (facing downstream/north)

**Comments:** Minimal flow from ponded areas observed.



**Photograph 3313**

**Date:** 01/20/2010

**Time:** 1512

**Location:**

Point 33

Drainage A (facing upstream/south)

**Comments:** No flowing or standing water present and no evidence of overnight flow.



**Photograph 3314**

**Date:** 01/20/2010

**Time:** 1512

**Location:**

Point 33

Drainage A (facing downstream/north)

**Comments:** No flowing or standing water present and no evidence of overnight flow.



**Photograph 3349**

**Date:** 01/21/2010

**Time:** 0830

**Location:**

Point 33

Drainage A (facing upstream/south)

**Comments:**

No flowing water present. Some standing water present. Evidence of minimal recent flow. Notice that overnight flows were not large enough to disturb debris.



**Photograph 3350**

**Date:** 01/21/2010

**Time:** 0830

**Location:**

Point 33

Drainage A (facing downstream/north)

**Comments:** No flowing water present. Some standing water present. Evidence of minimal recent flow



**Photograph 3385**

**Date:** 01/21/2010

**Time:** 1430

**Location:**

Point 33

Drainage A (facing upstream/south)

**Comments:** Minimal amount of flow present. Debris still undisturbed.



**Photograph 3386**

**Date:** 01/21/2010

**Time:** 1430

**Location:**

Point 33

Drainage A (facing downstream/north)

**Comments:** Minimal amount of flow present.



**Photograph 3315**

**Date:** 01/20/2010

**Time:** 1524

**Location:**

Point 34

Drainage C (facing upstream/south)

**Comments:** No flowing or standing water present and no evidence of recent flow.



**Photograph 3317**

**Date:** 01/20/2010

**Time:** 1524

**Location:**

Point 34

Drainage C (facing downstream/north)

**Comments:** No flowing or standing water present and no evidence of recent flow.



**Photograph 3352**

**Date:** 01/21/2010

**Time:** 0858

**Location:**

Point 34

Drainage C (facing upstream/south)

**Comments:** No flowing or standing water and no evidence of overnight flow.



**Photograph 3353**

**Date:** 01/21/2010

**Time:** 0858

**Location:**

Point 34

Drainage C (facing downstream/north)

**Comments:** No flowing or standing water and no evidence of overnight flow.



**Photograph 3381**

**Date:** 01/21/2010

**Time:** 1410

**Location:**

Point 34

Drainage C (facing upstream/south)

**Comments:** Flow was just beginning. Flow was originating from east side of flow path.



**Photograph 3383**

**Date:** 01/21/2010

**Time:** 1410

**Location:**

Point 34

Drainage C (facing downstream/north)

**Comments:** Flow was beginning to reach the downstream side of the railroad.



**Photograph 3318**

**Date:** 01/20/2010

**Time:** 1536

**Location:**

Point 35

Drainage C2 (facing upstream/south)

**Comments:** No flowing or standing water present. Evidence of minimal recent flow. Recent flow was not from main channel. Water appeared to flow along south side of railroad berm and then under railroad at trestle.



**Photograph 3319**

**Date:** 01/20/2010

**Time:** 1536

**Location:**

Point 35

Drainage C2 (facing downstream/north)

**Comments:** No flowing or standing water present. Evidence of minimal recent flow. recent flow was restricted to edges of channel.



**Photograph 3354**

**Date:** 01/21/2010

**Time:** 0910

**Location:**

Point 35

Drainage C2 (facing upstream/south)

**Comments:** No flowing water present. Minimal sloughing of flow path margins indicated overnight flow. There are two discernable flow paths at this location. Flow was restricted to the east flow path. There was no evidence of flow in the west flow path.



**Photograph 3356**

**Date:** 01/21/2010

**Time:** 0910

**Location:**

Point 35

Drainage C2 (facing downstream/north)

**Comments:** No flowing water present. Evidence of overnight flow expressed as sloughing at flow path margins.



**Photograph 3379**

**Date:** 01/21/2010

**Time:** 1315

**Location:**

Point 35

Drainage C2 (facing upstream/south)

**Comments:** Flowing water present.



**Photograph 3378**

**Date:** 01/21/2010

**Time:** 1315

**Location:**

Point 35

Drainage C2 (facing downstream/north)

**Comments:** Flowing water present.



**Photograph 3320**

**Date:** 01/20/2010

**Time:** 1545

**Location:**

Point 36

Drainage D/D1 (facing upstream/south)

**Comments:** No flowing or standing water present and no evidence of recent flow.



**Photograph 3321**

**Date:** 01/20/2010

**Time:** 1545

**Location:**

Point 36

Drainage D/D1 (facing downstream/north)

**Comments:** No flowing or standing water present and no evidence of recent flow.



**Photograph 3359**

**Date:** 01/21/2010

**Time:** 1545

**Location:**

Point 36

Drainage D/D1 (facing upstream/south)

**Comments:** Small amount of flow in a braided flow path. Evidence that overnight flow was greater than current, observed flow but not much greater.



**Photograph 3361**

**Date:** 01/21/2010

**Time:** 1545

**Location:**

Point 36

Drainage D/D1 (facing downstream/north)

**Comments:** Small amount of flow in a braided flow path. Evidence that overnight flow was greater than current, observed flow but not much greater.



**Photograph 3324**

**Date:** 01/20/2010

**Time:** 1600

**Location:**

Point 37

Drainage E (facing upstream/north)

**Comments:** Flow travels south and enters the site from the north at this location. No flowing or standing water present and no evidence of recent flow.



**Photograph 3323**

**Date:** 01/20/2010

**Time:** 1600

**Location:**

Point 37

Drainage E (standing north of train bridge looking downstream/south)

**Comments:** Flow travels south and enters the site from the north at this location. No flowing or standing water present and no evidence of recent flow.



**Photograph 3363**

**Date:** 01/21/2010

**Time:** 1005

**Location:**

Point 37

Drainage E (facing upstream/north)

**Comments:** Flow travels south and enters the site from the north at this location.



**Photograph 3362**

**Date:** 01/21/2010

**Time:** 1005

**Location:**

Point 37

Drainage E (standing north of train bridge looking downstream/south)

**Comments:** Flow travels south and enters the site from the north at this location.



**Photograph 3327**

**Date:** 01/20/2010

**Time:** 1628

**Location:**

Point 38

Drainage E (at transmission line access road looking upstream/south)

**Comments:** No flowing or standing water present and no evidence of recent flow.



**Photograph 3328**

**Date:** 01/20/2010

**Time:** 1628

**Location:**

Point 39

Drainage E (at transmission line access road looking downstream/north)

**Comments:** No flowing or standing water and no evidence of recent flow.



**Photograph 3369**

**Date:** 01/21/2010

**Time:** 1240

**Location:**

Point 39

Drainage E (at transmission line access road looking upstream/south)

**Comments:** Two flow paths joining around island area and continuing north. Water depth was approximately 4 inches at its deepest point.



**Photograph 3372**

**Date:** 01/21/2010

**Time:** 1240

**Location:**

Point 39

Drainage E (at transmission line access road looking downstream/north)

**Comments:** Water depth was approximately 4 inches deep at its deepest point.



**Photograph 3330**

**Date:** 01/20/2010

**Time:** 1700

**Location:**

Point 41

Drainage G (at transmission line access road facing upstream/south)

**Comments:** No flowing or standing water present and no evidence of recent flow.



**Photograph 3329**

**Date:** 01/20/2010

**Time:** 1700

**Location:**

Point 41

Drainage G (at transmission line access road facing downstream/north)

**Comments:** No flowing or standing water present and no evidence of recent flow.



**Photograph 3373**

**Date:** 01/21/2010

**Time:** 1315

**Location:**

Point 49

Drainage G (at transmission line access road facing upstream/south)

**Comments:** No flowing or standing water present. Evidence of recent but minimal flow.



**Photograph 3374**

**Date:** 01/21/2010

**Time:** 1315

**Location:**

Point 49

Drainage G (at transmission line access road facing downstream/north)

**Comments:** No flowing or standing water present. Evidence of recent but minimal flow.

Applicant's Compiled Testimony

# Applicant's Opening Testimony

## Application for Certification (08-AFC-5) Imperial Valley Solar, LLC

**Submitted to:**  
**Bureau of Land Management**  
1661 S. 4th Street, El Centro, CA 92243



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



**Submitted by:**  
**Imperial Valley Solar, LLC**  
4800 N. Scottsdale Road, Suite 5500, Scottsdale, AZ 85251



**With Support From:**  
**URS Corporation**

**March 2010**



March 15, 2010

Mr. Christopher Meyer  
Project Manager  
Attn: Docket No. 08-AFC-5  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814-5512

Subject: Imperial Valley Solar (formerly Solar Two) (08-AFC-5)  
Applicant's Opening Testimony  
URS Project No. 27657106.00801

Dear Mr. Meyer:

On behalf of Imperial Valley Solar (formerly Solar Two), LLC, URS Corporation Americas (URS) hereby submits the Applicant's Opening Testimony. The following is included with this package, per the notice filed March 9<sup>th</sup>, 2010: Applicant's Exhibit List, Applicant's Opening Testimony, and Applicants Exhibits in Format 1, electronically.

I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge. I also certify that I am authorized to submit on behalf of Imperial Valley Solar, LLC.

Sincerely,

A handwritten signature in black ink, appearing to read "Angela Leiba", is positioned above the typed name.

Angela Leiba  
Project Manager

AL: ml

Applicant's Exhibit List – Exhibits 1 through 25

Updated 3/11/2010

<u>Exhibit</u>	<u>Description</u>	<u>Docket Date</u>
1	Application for Certification, Volume I and II	June 6, 2008
2	Air Quality Information for Data Adequacy	July 25, 2008
3	Responses to Imperial County questions	September 3, 2008
4	E-mail regarding school impact fees	September 10, 2008
5	E-mail regarding property taxes	September 10, 2008
6	Data Adequacy Supplement	September 26, 2008
7	CEC/BLM DR Responses 1-52	December 8, 2008
8	SES Alternatives and Cumulative Impacts	February 8, 2009
9	CEC/BLM DR Responses 1-3, 5-10, 14-15, 24-26, 31-32, 36-38, 44, 111-127	March 19, 2009
10	CEC/BLM DR Responses 53-110	March 26, 2009
11	Supplemental Cumulative Analysis	April 29, 2009
12	CEC/BLM DR Responses 128-141	June 5, 2009
13	CURE DR Responses 1-143	June 6, 2009
14	Supplement to AFC	June 12, 2009
15	CEC/BLM DR Responses 31-32	July 2, 2009
16	CEC/BLM DR Responses 151-155	July 7, 2009
17	CURE DR Responses 143-178	August 5, 2009
18	Additional Supportive Materials, Biology & Water	September 23, 2009
19	CEC/BLM DR Response 142-150	October 17, 2009
20	Current Project Acreage	October 28, 2009
21	Supplemental Biology and Water Information	October 30, 2009
22	Revised page 300-1 of SWPP	December 21, 2009
23	Corridor Conflict Analysis	January 8, 2010
24	San Diego MTS Agreement	January 8, 2010
25	Glint and Glare Study	(to be provided)

PREPARED DIRECT TESTIMONY  
OF  
MARC VAN PATTEN

1. Q. Please state your name and employer.

My name is Marc Van Patten and I am Sr. Director of Development with Tessera Solar North America. In this position I have been involved in the management and development of the Imperial Valley Solar Project (the "Project").

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1      Section 2 Project Objectives/Need  
                    Appendix A Memorandum of Understanding  
                    Appendix C Property Owners  
                    Appendix D Union Pacific ROW  
                    Appendix X IID Water Quality Analysis  
                    Section 4 Alternatives

Exhibit 6      CEC Response 1  
                    BLM Responses 13-18  
                    BLM Responses 28-33

3. Q. Imperial Valley Solar is requesting that the Commission approve a back-up/temporary supply of water for project construction and operation. Why is this supply necessary?

Our primary source of water, the Seeley Waste Water Treatment Facility ("SWWTF"), is undergoing permitting that will allow for the upgrade of its facility to Title 22 standards (suitable for our construction and operational needs). While it is intended and we are hopeful that this water source will be available when we begin construction later in 2010, we cannot be certain. Also, depending on how long it might take to permit and construct the SWWTF upgrades, we may also have a need for operation water for a short period of time in 2011. Our preferred back-up/temporary source of water comes from a private supplier named Dan Boyer Water Company, located in Ocotillo, CA. This is a permitted private water supply source that has been in the business of delivering water in the region since the 1950s and currently provides water to construction companies in the area for various construction water needs. There is a delivery limit of 40 acre-feet of water per year, which is sufficient for the needs of the Project.

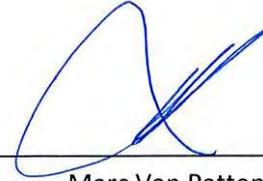
3. Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

3/11/10

Date

A handwritten signature in blue ink, consisting of a large, stylized loop followed by several diagonal strokes.

Marc Van Patten

PREPARED DIRECT TESTIMONY  
OF  
SEAN GALLAGHER

1. Q. Please state your name and employer.

My name is Sean Gallagher and I am Vice President of Market Strategy & Regulatory Affairs with Tessera Solar. In this position I am responsible for Government and Regulatory Affairs for the company, including state and federal policy and legislation.

2. Q. Are you sponsoring any exhibits in this proceeding?

No.

3. Q. What is the purpose of your testimony?

My testimony addresses whether there is a basis for the Commission to make the necessary findings if an override is required as a result of any remaining significant adverse environmental impacts or non-conformance with other legal requirements as a result of constructing and operating the Imperial Valley solar power plant.

4. Will you please summarize your conclusions?

I believe there is a basis for the Commission to support override findings and that the benefits of the project significantly outweigh the potential significant adverse impacts or LORS compliance issues remaining in this case.

5. What findings are required if the Commission approves an override?

In the case of an unavoidable significant adverse environmental impact, according to Public Resources Code 15093, the Commission must consider whether the "...specific economic, legal, social, technological, or other benefits of a proposed project outweigh the unavoidable adverse environmental effects". If they do, the Commission may consider those impacts to be acceptable. The Commission does have to state in writing "the specific reasons to support its action based on the final EIR and/or other information in the record". The statement of overriding considerations shall be supported by substantial evidence in the record.

In the event that the project does not comply with a law, ordinance, regulation, or standard, according to Section 1752 (k) of the California Code of Regulations, the Commission must make "...findings and conclusions on whether the noncompliance can be corrected or eliminated; and if such noncompliance cannot be corrected, findings on both the following:

- (1) Whether the facility is required for public convenience and necessity; and
- (2) Whether there are no more prudent and feasible means of achieving such public convenience and necessity.

6. What benefits will result from the project that justify an override?

The Imperial Valley Solar Project will result in significant benefits at the local, state, and national level that justify an override. Its primary purpose is to provide clean, renewable, solar-powered electricity and to assist San Diego Gas & Electric (SDG&E) in meeting its legislatively mandated obligations under California's Renewable Portfolio Standard (RPS) Program. It will also assist SDG&E and the State of California in reducing greenhouse gas emissions as required by the California Global Warming Solutions Act (AB 32). It will further be a project funded with support of the American Recovery and Reinvestment Act of 2009 and will be part of the national program to "create new jobs and save existing ones" and to "spur economic activity and invest in long-term growth." See [http://www.recovery.gov/About/Pages/The\\_Act.aspx](http://www.recovery.gov/About/Pages/The_Act.aspx).

Specific benefits of the project include the following:

1. Provide renewable energy to meet the state RPS requirements – The 2009 Integrated Energy Policy Report noted on Page 1 the importance of new renewable generation to California's electricity system. It discussed the importance of the "...loading order for electricity resources, which calls for meeting new electricity needs first with energy efficiency and demand response; second, with new generation from renewable energy and distributed generation resources..." The Renewables Portfolio Standard, established in 2002, requires retail sellers of electricity, including SDG&E, to procure 20 percent of their retail sales from renewable resources by 2010. In addition, on November 17, 2008, Governor Arnold Schwarzenegger signed Executive Order # S-14-08 that raises California's renewable energy goals to 33 percent by 2020. Tessera Solar has a power purchase agreement with SDG&E to purchase power from this project. That Power Purchase Agreement was approved by the California Public Utilities Commission. The electricity generated by the Imperial Valley Solar Power Plant will make a substantial contribution to SDG&E's RPS goals, and a substantial contribution to the state's RPS goals.
2. Reduce greenhouse gas emissions from fossil fuel power plants – The 2009 Integrated Energy Policy Report also stated that "...reducing greenhouse gas emissions is of paramount concern." (page 1). Fossil fuel power plants represent one of the primary sources of greenhouse gasses in California and the nation. Scientists have repeatedly warned about the serious environmental and societal impacts of climate change and the need to take swift and serious action to reverse this trend. When operating, the Imperial Valley Solar Project can displace the equivalent amount power from an out-of-state coal fired power plant. The CEC staff provides a more detailed analysis on the GHG benefits of the project in Appendix Air-1 of the SA/DEIS. As part of larger state, national, and global actions, the reductions in GHG emissions from this project will have long-term secondary biological, social, and economic benefits.

3. Displace generation from coastal power plants that use once-through cooling (OTC) – The 2009 Integrated Energy Policy Report (Page 1 and 30) discussed the draft policy issued by the State Water Resources Control Board to “...phase out the use of once-through cooling in the state’s 19 coastal power plants to reduce impacts on marine life from the pumping process and the discharge of heated water.” The Imperial Valley Solar Project will contribute to this effort by providing power to SDG&E and be available to displace power currently generated by both the South Bay and Encina Power Plants which use OTC technology.
4. Provide jobs locally, regionally, and nationwide – During construction, the Imperial Valley Solar Project will provide up to 700 construction and building trade jobs, most of which will come from Imperial County which as of January was experiencing an unemployment rate of 27.3%. The project will also result in approximately 160 full time jobs. Because most of the components used in the SunCatcher design are built in the United States, the project will also generate jobs in other regions of the country, particularly the automotive industry.
5. Reduce criteria air emissions associated with the displacement of fossil generation (see the air quality analysis in the SA/DEIS).

7. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

3/13/10

Date

Sean Gallagher

Sean Gallagher

PREPARED DIRECT TESTIMONY  
OF  
KENNETH KOSTOK  
**Project Description**  
**(Including Efficiency, Reliability, Transmission System Engineering)**

1. Q. Please state your name and employer.

My name is Ken Kostok and I am a Senior Director of Engineering and Construction for Tessera Solar.

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1      Section 3 Project Description  
                  App B Solar Stirling Engine  
                  App F Mechanical and Fire Protection  
                  App G Topographic survey  
                  App H System Impact Study  
                  App I Electric and Magnetic Field  
                  App J Water Balance  
                  App K Hydrogen System Design  
                  App L Hazardous Material Handling  
                  App M Structural Engineering  
                  App N Initial Drainage Report  
                  App O Civil Engineering Design  
                  App P Electrical Engineering Design  
                  App Q Control Systems Engineering  
                  App R Fuel Handling Design  
                  App S Material Safety

Exhibit 6      Response 1  
                  BLM Responses 19-27, 53-56

Exhibit 7      Response 6  
                  Responses 8-11  
                  Responses 24-27  
                  Responses 33-38

Exhibit 9	Responses 8-10 Responses 24-26 Responses 33, 36-38
Exhibit 10	Response 55 Response 58 Responses 62-65 Response 68 Response 72 Responses 76-78 Response 91
Exhibit 13	Responses 1-16 Response 87 Response 96 Responses 124-126 Response 141
Exhibit 14	Section 1 Appendix A
Exhibit 20	Project Acreage Map
Exhibit 21	Hydrology Data
Exhibit 24	San Diego MTS agreement

3. Q. Do these exhibits in combination currently describe the Imperial Valley solar plant as proposed by the applicant?

Yes.

3. Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

MARCH 11, 2010  
Date

  
\_\_\_\_\_  
Kenneth Kostok

**DRAFT March 10, 2010**  
**PREPARED DIRECT TESTIMONY**  
**OF**  
**CAROLYN DUNMIRE**  
**Cumulative Impacts**  
**Alternatives**

1. Q. Please state your name and employer.

My name is Carolyn Dunmire and I am a resource economist and project manager with Ecosphere Environmental Services Inc. Ecosphere is under contract to the Applicant to provide environmental analyses.

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1	Section 4.0	Alternatives
	Section 5.18	Cumulative
Exhibit 6	Data Adequacy Request 1	
Exhibit 8	Alternatives and Cumulative Analysis Workshop Presentation	
Exhibit 11	Supplemental Cumulative Analysis	
Exhibit 12	Data Responses 132-134	
Exhibit 14	Section 5.18	Cumulative
Exhibit 23	Corridor Conflict Analysis	

3. Q. Will you briefly discuss the approach used in the analysis of Cumulative Impacts in the Application for Certification?

The analysis of cumulative impacts completed for the AFC was guided by both NEPA and CEQA regulations. The NEPA definition of cumulative effects is that they “result from individually minor but collectively significant actions taking place over a period of time” (CFR 1508.7). The regulations implementing NEPA require that agencies analyze direct, indirect, and cumulative effects of a proposed action and any reasonable alternatives to that proposed action (40 CFR 1502.15, 1508.25, and 1508.27[b][7]). CEQA guidelines require that the discussion of cumulative impacts be “guided by the

standards of practicability and reasonableness" (PRC 21083[b]) and that "the discussion include a list of past, present, and reasonably anticipated future projects producing related or cumulative impacts" (CCR 15130[b][1][A]). The CEQA guidelines require that cumulative effects be discussed when they are significant, and that the discussion of cumulative effects reflects the severity of the impacts and their likelihood of occurrence.

In the AFC, the scenario used to evaluate cumulative impacts considered any projects within a 10-mile radius of the project site boundary that were under development or that had filed a development permit with local governments or for BLM ROW. The list of these potential projects is included in Table 5.18-5 in the AFC. The potential impacts to each resource type such as air, water, soils, etc were evaluated using this cumulative impact scenario.

4. Q. Will you briefly discuss the conclusions in your analysis of cumulative impacts in the Application for Certification?

In considering the potential impacts of past, present, and proposed projects within 10 miles of the project site for the AFC, the contribution of the project to cumulative impacts was found to be negligible for all resources after mitigation. Some significant beneficial cumulative impacts were anticipated for the project associated with the number of full-time employees that would be required to operate the project. The potential impact of other reasonably foreseeable future projects was unknown as mitigation measures for these projects could not be determined at the time of the analysis.

5. Q. Why did the Applicant prepare a supplemental cumulative impact analysis?

The Applicant believed that the record would benefit from an expanded discussion of cumulative impacts to show how the project would interact with other activities existing and proposed in the general vicinity.

6. Q. Will you briefly discuss the approach used in your supplemental cumulative impact analysis?

The cumulative impact supplement to the AFC (Exhibit 11) is designed to provide additional data and analysis supporting the cumulative impact assessment in the AFC. This analysis is based on discussion and findings from the workshop on alternatives and cumulative impacts held on February 10, 2009 (Exhibit 8). The supplemental cumulative impact analysis differs from the cumulative analysis in the AFC in two ways: 1) it varies the geographic scope of past, present, and reasonably foreseeable future actions by resource depending on the geographic and temporal characteristics of potential impacts; 2) it considers a set of renewable energy power projects, associated transmission lines, and urban development that are likely to be constructed in these resource impact areas by 2020. To fill in the potential impacts associated with anticipated future development that were unknown at the time of the AFC analysis, the supplemental cumulative analysis uses forecasts developed for the Renewable Energy Transmission Initiative (RETI) Phase 1B Study (January 2009) to estimate the potential

magnitude of renewable energy development in the region and associated resource impacts. In addition, the supplemental analysis uses a forecast of urban development by the California Department of Conservation, Division of Land Resource Protection, Farmland Mapping and Monitoring (March 2009) to estimate the future extent of urban development in Imperial County including residential, industrial, commercial, and institutional facilities as well as infrastructure and recreational facilities such as wastewater treatment structures and golf courses. This scenario for anticipated future development differs from the AFC by identifying a set of likely energy resources and associated urban development using forecasts that consider the capacity and demand for future energy and infrastructure resources based on Renewable Portfolio Standard requirements and population growth. This scenario distinguishes between "potential" development and "likely" future development allowing a more detailed analysis of cumulative impacts associated with future development.

7. Q. Will you briefly discuss the findings and conclusions in the supplemental cumulative impact analysis?

The supplemental cumulative impact analysis finds that it is unlikely that there will be any significant or considerable cumulative impacts for any of the resources after mitigation except for impacts to flat-tailed horned lizard (FTHL) populations related to mortality and fragmentation of the corridor between West Mesa and Yuha Management Areas ; and to visual resources related to long-term visibility of land scars and increased structural contrast, view blockage, glare and skylining.

8. Q. Will you briefly discuss the approach used in your analysis of Alternatives?

The alternatives analysis was prepared to meet the requirements of CEQA and NEPA. Both CEQA and NEPA require an applicant to analyze a "No Action" alternative. The results of this analysis are included in the AFC. CEQA requires consideration of a range of alternatives to the project or location of the project that would "feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant impacts of the projects, and evaluate the comparative merits of the alternatives" (14 CCR 15126.6[a]). The focus of the alternatives analysis should be on those alternatives that "feasibly attain most of the basic objectives of the project and could avoid or substantially lessen one or more of the significant effects". (14 CCR 15126.6[c]). The CEQA Guidelines (14 CCR 15126.6[c]) further provide that "among the factors that may be used to eliminate alternatives from detailed consideration" are failure to meet most of the basic project objectives; infeasibility; and inability to avoid significant environmental impacts.

NEPA regulations on analysis of alternatives (Council on Environmental Quality Title 40 CFR 1502.14) state that "reasonable alternatives include those that are practical and feasible from the technical and economic standpoint and using common sense, rather than simply desirable from the standpoint of the applicant". BLM guidelines for granting a ROW permit require location of the ROW along a route "that will cause least damage to the environment taking into consideration feasibility and other relevant factors."(FPLMA Section 1765).

Using these CEQA and NEPA guidelines with the TSNA siting criteria such as solarity, topography, wind speed, site control, and proximity to infrastructure, we evaluated a No Action Alternative, two Alternative Engineering Configurations at the preferred location (300 MW and 900 MW), and three off-site Alternatives for the AFC, and responses to Data Adequacy Request 1 for Alternatives, and CEC Data Requests 132-133. We also evaluated three additional off-site alternatives identified by the CEC in Data Request 134. In addition, alternative technologies including other solar thermal and photovoltaic technologies as well as conventional technologies were evaluated and compared for the AFC. Alternatives for linear routes, water supply, and hydrogen management were also analyzed for the AFC.

9. Q. Will you briefly discuss the conclusions in your analysis of Alternatives?

The findings and conclusions of the Alternatives analysis included in the AFC, and responses to Data Adequacy Request 1 for Alternatives, and CEC Data Requests 132-134 are summarized as follows:

No Action Alternative – The environmental impacts associated with proposed action would not occur under the No Action Alternative because the project would not be constructed and the CDCA would not be amended. The No Action Alternative does not meet any of the basic project objectives and is not considered to be a feasible alternative to the project.

Alternate Engineering Configuration – 300 MW – The environmental impacts of this analysis are described in the AFC, Data Adequacy Response 1 for Alternatives, and in CEC Data Responses 132 and 133. This alternative would have impacts similar to Phase 1 of the proposed project. Generally, impacts would be lower than the 750 MW project. However, because the infrastructure for the facility such as transmission line, common facilities, access road, and water line would be required at roughly the same scale as a 750 MW project, this alternative would have proportionately larger impacts and would not maximize the use of solar resources at this location.

Alternate Engineering Configuration – 900 MW – This was the original project proposed by the applicant. During the environmental review process conducted by the applicant, the 750 MW project became the preferred project to avoid significant environmental (specifically cultural resource) impacts. The analysis included in the AFC concludes that this Alternative would have stronger potential to result in environmental impacts, especially to cultural resources than the proposed project.

The three alternate sites to the project location (Site AS1, Site AS2, and Site AS3) were considered but not carried forward for further analysis because they were unlikely to avoid or substantially reduce environmental impacts compared to the project location. More detailed findings on potential impacts for each alternate site are included in the AFC.

The comparison of alternative technologies included in the AFC found that several other alternative renewable technologies would meet the project objectives. However, the applicant has a patented solar thermal technology that is proven, reliable, and effective and these alternative technologies were considered but rejected because they were unlikely to avoid or substantially reduced environmental impacts compared to the project technology.

No alternative linear routes were proposed in the AFC. An alternative route for the water supply line was considered in the AFC because it would use BLM ROW immediately south of the proposed route. At the time that the analysis for the AFC was completed, the water supply source was expected to be from the Imperial Irrigation District (IID). However, since then, the expected water supply source for the project will be recovered wastewater from the Seeley Wastewater Treatment Facility. The potential impacts from this alternative are evaluated in the AFC and Exhibit 14. Two hydrogen gas management alternatives were described for the AFC.

In Data Request 134, CEC requested information on biological and cultural resources for three alternate sites referred to as 1)South of Hwy SR 98; 2)Mesquite Lake; and 3)Border Lands. The CEC requested these data to evaluate whether the proposed project site avoided highly pristine or biologically sensitive areas as well as to identify locations that may impact fewer cultural resources than the project site. The results from the CNDDDB search for biological resources and Class 1 cultural survey for recorded sites for these three alternative locations are included in the response to DR-134.

10. Q. Will you briefly discuss the approach and findings of the Corridor Conflict Analysis?

The purpose of this analysis was to identify any conflicts between the proposed project and the designated Utility Corridor "N" Section 368 155-238 (CDCA N, 368 115-268). The proposed project site occupies the northern half of the Utility Corridor N and the Section 368 corridor as designated by BLM CDCA. The analysis found that there are no competing uses currently proposed for the site and joint use of the CDCA N, 368 115-238 is adequate to accommodate the proposed project, ancillary facilities, and current authorized and pending projects. The proposed project would not prohibit future development within the corridor of additional linear facilities.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

3/15/10

Date

Carolyn Dunmire

Carolyn Dunmire

PREPARED DIRECT TESTIMONY  
OF  
JULIE MITCHELL  
**Air Quality**  
**Public Health and Safety**

1. Q. Please state your name and employer.

My name is Julie Mitchell and I am an air quality specialist with URS Corporation

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1	Section 5.2	Air Quality
	Appendix V	Air Quality data
	Section 5.16	Public Health
	Appendix DD	Public Health & Safety

Exhibit 2      Air Quality data adequacy

Exhibit 3      Response 11

Exhibit 6      CEC Response 1, 2

Exhibit 10     Responses 53-54, 57, 59-60, 66, 69-70, 72-75, 79-90,92-103, 106-110

Exhibit 12     Response 128-131, 133

Exhibit 14	Section 2.2	Air Quality
	Section 2.16	Public Health

Exhibit 16     Responses 151-155

3. Q. Do you believe the Imperial Valley solar power plant as described in the AFC and responses to data requests will comply with all applicable LORS and not result in any significant adverse air quality impacts?

Yes. A supplement is being prepared that addresses the potential impacts from the need to bring water via truck from either the Seeley Waste Water Treatment Facility prior to the completion of the Project

water line and an alternative back up water supply. Once the analysis has been finalized, it will be submitted as testimony.

4. Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

Mar 15/10

Date



Julie Mitchell

PREPARED DIRECT TESTIMONY  
OF  
MICHAEL HATCH  
**Geology/Soils**

1. Q. Please state your name and employer.

My name is Mike Hatch and I am a Principal Geologist for URS Corporation

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1	Section 5.3	Geology
	Appendix E	Geology/Geotech
	Section 5.4	Soils

Exhibit 14	Section 2.3	Geology
	Section 2.4	Soil Resources

3. Q. What is the purpose of your testimony?

To provide analysis on the conformity of applicable LORS and the potential project impacts related to Soils and Geology.

4. Q. Do you believe the Imperial Valley solar power plant will comply with all applicable LORS and not result in any significant adverse impacts to geological and soil resources?

I believe the Imperial Valley Solar Project will comply with all applicable LORS and will not result in any significant adverse impacts to geological and soil resources.

5. Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

3/15/10

Date



Mike Hatch

PREPARED DIRECT TESTIMONY  
OF  
MATTHEW MOORE  
**Water Resources**

1. Q. Please state your name and employer.

My name is Matt Moore and I am hydrology engineer with URS Corporation and a registered Civil Engineer in the State of California, a certified professional in erosion and sediment control (CPESC) and certified professional in stormwater quality (CPSWQ).

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1	Section 5.5 Appendix W	Water Resources Soil Loss Calculations
Exhibit 3	Response 2	Drainage/Grading
Exhibit 6	CEC Response 1-4	
Exhibit 7	Responses 29-32	
Exhibit 9	Responses 31-32	
Exhibit 13	Response 95	
Exhibit 14	Section 2.5 Appendix B	Water Resources Water characteristics
Exhibit 15	Responses 31-32	
Exhibit 18	Additional materials	
Exhibit 21	Water data	
Exhibit 22	Revised page 300-1 of SWPPP	

3. Q. What is the purpose of your testimony?

I wish to update the Commission on the source of water for the Imperial Valley Solar project and discuss the potential environmental consequences of using that water source. I also want to describe

the necessity of having a temporary/back-up water supply for the project and offer a description of that back-up water supply. I will also address the potable water reporting requirements and suggest changes to the Conditions of Certification. Finally, I will address soils and water quality impacts due to erosion, sedimentation and stream morphological changes.

4. Q Please update the source of water supply for the project.

As described in Exhibit 14 the applicant will be using reclaimed water from the Seeley Waste Water Treatment Facility as the source of construction and operation water for the Imperial Valley solar power plant. The Seeley Waste Water treatment facility is currently undergoing environmental review for an upgrade to its water treatment system. If the project goes forward following environmental review, construction of the upgrade and the water pipeline will take approximately 6-9 months to complete. While we are confident that there are no environmental impacts that could derail the water supply, the timing of the improvements is a bit uncertain.

5. Q Why do you conclude that the use of Seeley Waste Water Treatment facility water will not result in adverse water supply or water quality impacts?

As described in Exhibits 14 and 21, the Seeley Wastewater Treatment Facility (SWWTF) will be upgraded to treat wastewater to Title 22 standards. The current treatment capacity is 250,000 gallons per day (per Regional Water Quality Control Board Order No. R7-2007-0036) and up to 200,000 gallons per day of treated effluent (Title 22 water) will be made available to SES if requested. Any water not needed by SES will be used by Seeley County Water District (SCWD) or discharged into the New River.

The New River carries urban runoff, untreated and partially treated municipal wastes, untreated and partially treated industrial wastes, and agricultural runoff from the Mexicali Valley, Mexico across the International Border into the United States. In addition, the River carries urban runoff, agricultural runoff, treated industrial wastes, and treated, disinfected and non-disinfected domestic wastes from the Imperial Valley. Water quality in the New River is documented to be poor due to urban, industrial, and agricultural return flows.

The flow in the New River at the International Border is about 150 to 200 cubic feet per second (cfs). The New River flow at the Salton Sea is about 600 cfs. The current contribution of the SWWTF to the New River is approximately 0.09-percent (112,000 gpd or 0.17 cfs divided by 200 cfs). It is anticipated that use of the effluent water currently discharged to the New River from SWWTF will not result in significant impacts to the New River water quality (including salinity). The diversion of up to 200,000 gpd of treated effluent from SWWTF to the Solar Two Project will result in only a 0.15% decrease in the freshwater flows to the New River at the discharge point and a decrease of approximately 0.05% at the Salton Sea. Based on this small percentage of reduction in flows, it is not anticipated that the reduction in flows, coupled with the improvement in the water quality effluent discharged to the New River will result in a significant reduction in water quality, including salinity, at or below the discharge point of SWWTF to the New River or to the Salton Sea.

6. Q. Do you believe the Imperial Valley solar power plant as described in the AFC and the water supplement will comply with all applicable LORS and not result in any significant adverse impacts to water resources?

Yes.

7. Q. Why is a temporary/back-up water supply important for this project?

The staff has recommended a Condition of Certification (CofC Soil & Water-9) which requires that the project shall not operate without a long term supply of recycled water. Although we are suggesting changes to this condition, the Applicant recognizes that it is important to secure this source of project water. At the same time, it is imperative that the project be able to start construction immediately and begin operation when ready to connect to the grid. In my experience, there are many unforeseen events that can delay waste water treatment plant upgrade projects. I agree that prudence demands that the project secure an alternate source of supply so that the project can be constructed and operated pending the completion of the Seeley Waste Water Treatment Plant water source.

8. Q. Please describe the temporary/back-up water source.

A back-up water source is currently being negotiated with a licensed water purveyor in the area for construction and potable water use. The water purveyor can provide up to a maximum of 40 acre-feet/year. The Applicant is currently negotiating an agreement with the water purveyor. Construction water demand will be approximately 45,000 gallons per day with a peak of 90,000 gallons per day. This equates to approximately 6 to 7 trucks (7,000 gallon trucks) per day on average during construction and up to 13 water trucks per day during construction at peak demand. Water demand during operation is anticipated to be lower, requiring less than 6-7 trucks per day.

9. Q. Please give your conclusions regarding soil erosion.

The SA/DEIS, at page ES-29 concluded that there will be significant soils impacts due to surface water quality from sedimentation. Additionally, the SA/DEIS indicates that due to the uncertainty related to "erosion, sedimentation and stream morphological changes" impacts related to these items are considered significant after implementation of the Conditions of Certification. Several reports and studies have been prepared by the Applicant to assess the potential impacts to soil and water resources including:

- AFC, Appendix N - Initial Drainage Report (Stantec)
- AFC, Appendix W - Soil Loss Equations (Wind and Water erosion calculations)
- Draft Drainage, Erosion, and Sediment Control Plan (DESCP) and draft construction Stormwater Pollution Prevention Plan (SWPPP), July 2009, revision December 2009
- Hydrologic Assessment Report (RMT), September 2009
- Sediment Study (Chang), January 2010

With the implementation of a construction Stormwater Pollution Prevention Plan (SWPPP), a Drainage, Erosion, and Sediment Control Plan, along with the other Soil and Water Resources Conditions

of Certification provided in the Staff Assessment/Draft Environmental Impact Statement (SA/DEIS), it is my opinion that the project will comply with all applicable Laws, Ordinances, and Regulations (LORS) to mitigate for potentially significant impacts regarding soil erosion/sedimentation and water quality.

10. Q What changes are you suggesting to the soil & water conditions of certification?

The following changes are requested to be made to the soil and water conditions of certification:

- a. Soil & Water 1 - Applicant requests to revise submission of the final DESCPC from 90 days to 60 days prior to start of construction.
- b. Soil & Water 2 - Applicant requests that the verification of installed and operational meters be modified from 60 days prior to use of any water source to the time when the water system would be used.
- c. Soil & Water 4 - Applicant request to allow use of an alternate water supply for emergency backup use during construction and operation if the Seeley Wastewater Treatment Facility is not operable at the start of construction or operation.
- d. Soil & Water 7 - Applicant recommends storm water monitoring after 5 year storm events (instead of every storm event).
- e. Soil & Water 7 - Applicant requests to revise submission of the Stormwater Damage Monitoring and Response Plan from 90 days to 60 days prior to start of construction.

11. Q Would the revised conditions be sufficient mitigation?

Yes.

12. Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

3/15/2010

Date

Matthew C. Moore

Matthew Moore

PREPARED DIRECT TESTIMONY  
OF  
PATRICK MOCK, PhD  
**Biological Resources**

1. Q. Please state your name and employer.

My name is Patrick Mock and I am a Principal Scientist for URS Corporation.

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1	Section 5.6 Appendix Y	Biological Resources Biology Tech Report
Exhibit 6	CEC Responses 1-4 BLM Responses 57-75	
Exhibit 7	Responses 1-5, 7, 12-15	
Exhibit 9	Responses 1-3, 5-7, 14-15, Streambed Alteration Agreement,	
Exhibit 12	Responses 132, 134,	
Exhibit 13	Responses 19-86, 88-94,	
Exhibit 14	Section 2.6 Appendix C	Biological Resources Biological Report
Exhibit 17	CURE data request responses	
Exhibit 21	Supplement CDFG/RWQCB	

3. Q. The SA/DEIS recommended that Fall 2010 surveys be conducted (SA/DEIS page C.2.1-3). Are these surveys necessary in your opinion?

No. I do not believe Fall surveys are necessary for the following reasons:

To my knowledge, all species on the current focal species list have typical spring blooming periods. Although a few species may also bloom in the Fall, if substantial monsoonal rains occur, it is highly unlikely that significant new information would be revealed by conducting Fall surveys. Fall rains were 70% of normal in 2007 and 1% of normal in 2008. Note that four additional species were added to the CNDDDB database for the project vicinity after the 2008 surveys were completed.

Additionally, the surveys already completed on the project site provide significant information regarding the plants located there. The botanical surveys were consistent with agency guidelines in force at the time of the survey effort. Survey protocols were provided to both CEC and BLM staff prior to the 2007 and 2008 surveys. CEC approved the timing of the survey effort and neither agency requested Fall surveys in either 2007 or 2008. Nor did the agencies request additional survey effort be conducted in 2009. To our knowledge, neither BLM nor the CEC have previously requested fall botanical surveys.

All personnel utilized were qualified to participate in the surveys, as defined by agency survey guidelines and were supervised by several experienced botanists. The 2008 rare plant survey is estimated at 960 field hours. There was an estimated 75% coverage rate for the site and a 100% coverage rate for habitats that have a greater chance of special status plant species occurrences. The Surveys were conducted in the appropriate time of the year.

4. Q. What were the results of these surveys?

The surveys were negative for all state and federally listed plants species, BLM sensitive species, and CNPS list 1 and 2 species. None of the sixteen special status species with a moderate or better potential to occur are federally listed – five are BLM sensitive species and one is state listed. Most of the special status plant species (SA/DEIS Table 3) have a moderate potential to occur on the project site, although none were detected during surveys. The low potential for occurrence for other species, with the exception of chaparral sand verbena, is mainly due to the project site being below the typical elevation range for these species. Four species were added to the CNDDDB vicinity list after the 2008 surveys: chaparral sand verbena, pink fairy duster, Thurber's pilostyles and dwarf germander. Only Utah vine milkweed and Thurber's pilostyles have been recorded on the site and are CNPS List 4 "watch list" species that typically are not considered sensitive as defined by CEQA guidelines.

5. Q. Please discuss the chaparral sand verbena (SA/DEIS page C.2-20).

The chaparral sand verbena (*Abronia villosa* var. *aurita*) is an annual herb found in Los Angeles, Orange and San Diego counties and the Sonoran Desert in San Bernardino, Riverside and Imperial counties. It occurs in chaparral, coastal scrub and desert dune habitats from 260 to 5,250 feet in elevation and blooms from January to September. The potential for the chaparral sand verbena to occur in the project area is considered low due to the unsuitable habitat conditions associated with elevation and it was not observed on site during the 2007 and 2008 surveys. Note that Spring 2010 botanical surveys will be conducted.

6. Q. Please discuss the Thurber's pilostyles (SA/DEIS page C.2-21).

Suitable habitat is present for three species of *Psoralea* spp., the host plants for Thurber's pilostyles, which is a parasitic plant. Three species of *Psoralea* spp., including Emory indigobush, have been observed on the project site in the past and Thurber's pilostyles was noted on site in early 2010. CNPS List 4 watch list species, such as Thurber's pilostyles, do not usually qualify as CEQA sensitive species.

7. Q. Please discuss the Utah vine milkweed (SA/DEIS page C.2-21).

Utah vine milkweed is a perennial herb that is native to southwestern North America. There are no recorded observations in the CNDDDB (CDFG 2010), but it is represented in conserved habitats in the project vicinity (e.g., Anza Borrego SP). This species is common in Utah and Arizona, but is considered uncommon in eastern California deserts. It is found in dry, sandy or gravelly areas in the Mojave Desert at elevations of below 1000 meters. The blooming period for this species occurs from April until June. It is a CNPS List 4 "watch list" species. Utah vine milkweed is distributed throughout the project site.

8. Q. Please discuss the presence of the Peninsular Bighorn Sheep (SA/DEIS page C.2-24).

While no Peninsular Bighorn Sheep or sign were observed during any of our prior survey work, a group of five ewes and/or juveniles were sighted in an ephemeral wash on the project site in March 2009. Bighorn sheep specialists from USFWS, CDFG and BLM are in agreement that the sighting of these sheep was an unusual and unexpected occurrence. I agree with their conclusion. The site provides only marginal forage habitat for these animals. The provisions of BIO-8 will adequately protect the Peninsular Bighorn Sheep and that impacts will be reduced to a level less than significant. During project construction, the sheep are not likely to approach the area due to the daily presence of humans.

9. Q. Please discuss the presence and mitigation for the Flat-Tailed Horned Lizard (SA/DEIS page C.2-22)

Habitat surveys for the Flat-Tailed Horned Lizard were conducted in both 2007 and 2008. For the 2008 survey BLM requested that the transect survey protocol be applied to off-site linear features, and four parallel transects on each side of the linear were performed. Two live and two deceased flat-tailed horned lizards were detected along the eastern site boundary in the project area in the 2007 survey. Although only two FTHLs were encountered during field surveys on the project site, BLM staff has estimated that approximately 2,100 FTHLs may inhabit the project site based on extrapolation of density estimates from optimal habitat in the West Mesa and Yuha Desert Management Areas. While we believe that this extrapolation is likely to have resulted in an artificially high estimate given the site conditions, we do not object to the conservative estimate suggested by BLM. It should be noted that movement between the FTHL Yuha Desert Management Area south of the Interstate-8 highway and the project site is unlikely as there is only a single culvert that offers potential access, the extended distance through the culvert between these areas, and the lack of access to all of the remaining culverts.

Construction noise will not be an issue for the FTHL as all lizards detected during construction monitoring will be translocated off site and they are not considered to be noise sensitive. Mitigation measures BIO 9, BIO 10 and BIO 11 will ensure that impacts to the FTHL are mitigated to a less than significant level.

10. Q. Please discuss the presence of Burrowing Owls (SA/DEIS pages C.2-37,38).

Burrowing Owls are known to occupy habitats adjacent to the project site and linear components. Pre-construction surveys for owl are required and any owls are detected onsite would be passively excluded from the site prior to construction. Appropriate construction BMPs shall be implemented as indicated in BIO-8 and BIO-16. These conditions of certification will mitigate owl impacts to less than significant.

Q. Please discuss the Desert Kit Fox (SA/DEIS

The desert subspecies of kit fox is not listed as a protected species. Staff's reference to Title 14, Section 460 of the California code is misplaced as this code section deals with trapping of fur-bearing species. State definition of "take" is not applicable to this subspecies of kit fox. Desert kit fox is not a species that requires special attention under CEQA. Nevertheless, desert kit fox have been found on site and the site offers suitable habitat for this species. Construction of the project could kill or injure kit fox. Staff Condition of Certification BIO-15 reduces the potential for mortality of this species during construction.

11. Q. Please comment on the American Badger (SA/DEIS page C.2-39)

Title 14 sections 670.2 and 670.5 are not applicable to the American Badger. Note that "species of special concern" is an administrative designation and carries no formal legal status (See CDFG website). There is no need for active relocation as passive removal will be sufficient to protect the badger. Badgers are not likely to remain on the site due to the increased human activity during construction. Additionally, biological monitoring will allow for detection and passive exclusion of badgers during construction as necessary.

12. Q. Please update the status of biological impacts anticipated with construction of the reclaimed water line and the upgrade of the existing waste water treatment facility.

Based on existing, available information, it is assumed that surface water is supplied to the wetland by agricultural return flows and underdrain flow from a separate drinking water treatment plant, and that this water will supply adequate water to maintain the wetland after water supply from the SWWRF is discontinued (Dudek 2009). A hydrological study is necessary to quantify how withholding water from the emergent wetland will affect the wetland habitat and any listed species that

may occupy the affected habitat. The additional hydrologic studies are being conducted as part of the studies associated with the SWWTF upgrades.

Focused surveys for sensitive bird species Yuma clapper rail, black rail, least Bell's vireo, and southwestern willow flycatcher, and surveys for vermilion flycatcher and burrowing owl will be completed during the appropriate spring/summer survey periods to determine whether the emergent wetland is occupied by these sensitive species as part of the studies associated with the SWWRF upgrades. The results of these evaluations are not currently available. Existing, available information indicates that no sensitive species would be affected (Dudek 2009).

13. Q. Please describe anticipated ground disturbance (SA/DEIS page C.2-36).

Approximately one-third of the site will not be directly disturbed and another third will have shrub vegetation initially mowed. There will be some opportunity for annual plants and certain terrestrial wildlife species to remain extant after construction is completed.

14. Q. The SA/DEIS notes that the applicant has not proposed avoidance measures to reduce impacts to rare plants (SA/DEIS page C.2-36). Please comment.

No specific avoidance measures have been proposed because no special status plant considered sensitive under CEQA guidelines were observed during the 2007 or 2008 spring surveys. If the results of the 2010 spring surveys indicate the presence of special status plant species (listed species or CNPS List 1B or 2), appropriate mitigation should then be determined.

15. Q. In your opinion, do the conditions of certification contained in the SA/DEIS adequately protect plant and animal species of concern?

Yes. I believe implementation of the conditions of certification will reduce potential impacts to levels less than significance, and ensure compliance with LORS.

Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

March 15, 2010

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Date



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Patrick Mock, PhD

PREPARED DIRECT TESTIMONY  
OF  
REBECCA APPLE  
**Cultural Resources**

1. Q. Please state your name and employer.

My name is Rebecca Apple and I am a senior archaeologist with AECOM, an environmental and engineering services company. AECOM is under contract to Tessera and URS to provide cultural resources analysis.

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1	Section 5.7	Cultural Resources
	Appendix Z	Cultural Tech Report
Exhibit 6	Cultural Resources Responses 1-22	
	BLM Responses 75-147	
Exhibit 9	Responses 111-127	
Exhibit 13	Response 104-126	
Exhibit 14	Section 2.7	Cultural Resources
	Appendix D	Cultural Report
Exhibit 19	Data Request Responses 142-150	

3. Q. What is the purpose of your testimony?

I am testifying to the cultural and cumulative analysis that has been performed on the project site. The analysis of the Project indicates that there is the potential for significant impacts to eligible cultural resources. Some of these impacts can be addressed through mitigation measures and may be brought to a level less than significant under CEQA and NEPA. A Programmatic Agreement (PA) is being prepared to address these impacts and to resolve adverse effects under Section 106 of the National Historic Preservation Act. Mitigation under the PA may not reduce the impacts to less than significant. Therefore, the Project may have a significant impact on eligible resources (cultural resources eligible for the California Register of Historical Resources and the National Register of Historic Places).

Based on the cumulative impact analysis it has been determined that construction and operation of the Project will result in a cumulative significant adverse impacts upon eligible resources.

4. Q. Please discuss the expected impacts and mitigation measures.

Cultural resource investigations and Native American consultation are on-going. As indicated in CUL-1, the PA will provide mitigation measures to address impacts to significant cultural resources. Although the PA is not complete, anticipated mitigation measures include avoidance and data recovery. The PA will include all feasible mitigation measures. Even with feasible mitigation, some potential impacts (e.g., to sites with qualities that cannot be mitigated through data retrieval) may not be reduced below a level of significance.

5. Q Will the project impact the De Anza Trail (SA/DEIS page C.2 [sic 3]-132)

Within the project limits the Juan Bautista de Anza National Historic Trail is defined by an approximately 1.5-mile-wide corridor. To date no evidence of physical remains of the trail has been identified in the project area. Although the trail has not been identified, the project would impact the trail corridor. Mitigating this impact to less than significant may be difficult and therefore the Project could have a significant impact.

6. Q. Do you believe that Condition of Certification (CoC)-1 is sufficient to meet CEQA standards?

I have provided revised wording in my review comments of the SA/DEIS to add increased specificity to Condition of Certification CUL-1 as follows:

BLM will consult with SHPO, ACHP, and invited and concurring parties to execute a PA under 36 CFR 800.14(b)(3) prior to the ROD. The PA will specify that the Applicant will prepare a Historic Properties Treatment Plan (HPTP) subject to BLM and CEC review and approval. The HPTP will require compliance with the treatment standards set forth in this condition. In the event that the PA covers substantially the same requirements as set forth in this condition, with approval of the Compliance Project Manager (CMP), the applicant may satisfy such requirements in lieu of this condition. The HPTP will:

- (1) Identify all eligible resources in the Project's Area of Potential Effects (APE)
- (2) Identify the resources that the Project will avoid
- (3) Specify how the Applicant will avoid, minimize, or mitigate impacts that the Project may have on eligible resources
  - a. Avoidance measures may include, but not be limited to, temporary or permanent fencing, flagging, staking, or monitoring.
  - b. Measures to minimize or mitigate impacts may include, but not be limited to, placement of construction within portions of eligible properties that do not contribute to the qualities that make the resources eligible, data recovery, or off-site mitigations such as public interpretation or interpretive materials or displays
- (4) Include provisions for additional cultural resources inventory and evaluation procedures

- (5) Include an unanticipated discoveries plan
- (6) Provide for the disposition of recovered materials and records

The HPTP will be implemented prior to issuance of a Notice to Proceed for those portions of the Project addressed in the HPTP.

In the event that Native American human remains or funerary objects found in association with such human remains are encountered on private or state land, the Applicant will treat the remains and objects in accordance with California Public Resources Code 5097.98

Verification: The HPTP will be submitted to the CPM for review and approval. In the event that the PA covers substantially the same requirements as set forth in this condition, with approval of the CPM, the Applicant may satisfy such requirements in lieu of this condition.

With these changes, I believe that CUL-I is sufficient to meet CEQA standards as it ensures that all feasible mitigation will be implemented.

7. Q. The SA/DEIS states on page C.2(sic 3)-133 that "Stakeholders in the PA process will discuss a requirement that the known cremation zone be resurveyed to more firmly establish a zone boundary, to reach stakeholder consensus on the width of a visual buffer for the zone, and to set aside the area that encompasses the zone and the buffer as a no-build zone, perhaps as a part of a formal BLM special designation area that would continue to the north and south of the project area along the lateral contact between the Fan Aprons and Beach Zone landforms. The actual resolution of effects to resources in this category will be determined in consultation with all the consulting parties and incorporated into the Programmatic Agreement." Do you feel this is appropriate or needed?

Stakeholder consensus on this issue may not be reached and therefore it is not appropriate to include it as a requirement. As stated in the last sentence of the quotation, the details of the mitigation requirements will be determined through consultation and the PA process.

8. Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

March 15, 2010

Date

Rebecca Apple

Rebecca Apple

PREPARED DIRECT TESTIMONY  
OF  
LANNY FISK  
**Paleontology**

1. Q. Please state your name and employer.

My name is Lanny Fisk and I am the Principal Paleontologist with PaleoResource Consultants and a consultant to URS Corporation.

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1      Section 5.8 Paleontological Resources  
                    Appendix AA Paleontological Resources Technical Report

Exhibit 6      CEC Response 1

Exhibit 14     Section 2.8

3. Q. Do you believe the Imperial Valley solar power plant as described in the AFC and responses to data requests will comply with all applicable LORS and not result in any significant adverse impacts to paleontological resources?

4. Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

11 March 2010  
Date

Lanny A. Fisk, PhD  
Lanny Fisk

PREPARED DIRECT TESTIMONY  
OF  
SETH HOPKINS  
**Land Use/Socioeconomics/Visual Resources**

1. Q. Please state your name and employer.

My name is Seth Hopkins and I am an Environmental Planner with URS Corporation.

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1	Section 5.9 Section 5.10 Section 5.13	Land Use Socioeconomics Visual Resources
Exhibit 3	Response 8	Socioeconomics
Exhibit 4	School impact fees	Socioeconomics
Exhibit 5	Property taxes	Socioeconomics
Exhibit 6	CEC Response 1-5 CEC Response 1-2 BLM Response 34-38 BLM Response 39-47	Socioeconomics Visual Land Use Visual
Exhibit 7	Response 16-23 Response 28 Response 42- 45	Land Use Socioeconomics Visual
Exhibit 9	Response 44	Visual
Exhibit 12	Responses 135-137	Land Use
Exhibit 13	Responses 127, 129, 130	Visual
Exhibit 14	Section 2.9 Section 2.10 Section 2.13	Land Use Socioeconomics Visual

3. Q. What is the purpose of your testimony?

I have a few suggested changes to the visual conditions of certification and some comments on land use.

4. Q. Please address the visual impacts of the Imperial Valley Solar project.

The impacts to area visual resources arising from project development are a direct result of the size of the project features, the contrast of the industrial project with the surrounding landscape, and the scale of the overall development. The applicant agrees that impacts to visual resources are significant impacts and cannot be avoided due to the nature of the project. These effects cannot be mitigated by minimal alterations in the placement of SunCatchers. Based, in part, on the testimony of Steven Ross of the National Park Service and John Johnson of the BLM El Centro adding visually dominant features such as a twenty foot tall fence would not accomplish the goal of reducing impacts related to visual dominance. Additionally, I understand that Power Engineers is performing a glint & glare study utilizing the recently-completed Maricopa project. While we do not yet have the results of that study, it may be that neither VIS-4 or VIS-6 would accomplish the goal of reducing impacts related to visual dominance and both of these conditions should be deleted. We anticipate that an override will be necessary for potential visual impacts caused by the Imperial Valley Solar project.

5. Q. Do you have any comment on VIS-3?

Yes. The transmission line segment no longer parallels Highway I-8. That alignment was changed in October 28, 2009 on the Project Overview Acreage Map to the alignment identified in the SA/DEIS. As a result, this condition is no longer necessary and should be deleted.

6. Q. Please comment on the Land Use section of the SA/DEIS.

The applicant does not have any problem with the one Land Use condition of certification that was inserted into the section. However, we do not agree with the comment made at page C.8-1 of the SA/DEIS that states the project will "disrupt current recreational activities". The proposed project will not directly affect any established federal, state, or local recreation areas. The Project site is not currently designated as a recreational use area in any resource management plan, there are no marked campgrounds, and OHV use is limited to designated routes. The established recreational areas near the project (YUHA ACEC and the Plaster City Open Area) would not be significantly affected by the project.

7. Q. Will the Imperial Valley Solar project conform to all applicable laws, ordinances, rules and regulations?

The project complies with all LORS related to Socioeconomics. The Project will comply with the conditions of certification for the resource areas of Land Use, and Visual Resources. The project will

most likely have some unmitigable significant impacts to visual resources and require a statement of overriding concern.

8. Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

3/15/10  
Date

  
Seth Hopkins

PREPARED DIRECT TESTIMONY  
OF  
JASON PFAFF  
**Visual Resources – Glint & Glare**

1. Q. Please state your name and employer.

My name is Jason Pfaff and I am the Visualization Department Manager with Power Engineers. Power Engineers is under contract to the Applicant, providing engineering support services.

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 13      Response 128  
Exhibit 25      Glint & Glare Study (to be provided)

3. Q. Are you currently conducting a Glint and Glare study for Tessera Solar?

Yes. Tessera Solar has requested Power Engineers to perform a study on the glint and glare that can be expected from SunCatcher projects. Fortunately we are able to utilize the recently-completed Maricopa project for this purpose.

4. Q. Will you briefly discuss the approach used in your analysis?

The visualization technology products POWER will develop are summarized below. Products will be used to help qualify the previously completed visual analysis, determine the potential effectiveness of a 20 foot tall slatted chain-link fence as a mitigation measure, and aid the public and regulatory agencies in understanding potential glint/glare impacts associated with the project.

The visualization technology products will consist of photo-simulations. The photo-simulations will be used to demonstrate the visual impacts of glint/glare produced by the Suncatchers to key observation points (KOP's ) during different lighting conditions throughout the year. Glint/glare will be demonstrated through computer modeled specular reflections shown on 3D parabolic surface models for each proposed Suncatcher. The photo-simulations will be completed for a full-day cycle during the summer and winter solstices and the spring and fall equinoxes. The proposed project will be simulated with and without a 20 foot high, "slatted" chain-link fence, which will be analyzed for potential glint/glare reduction. The Photosimulations will be delivered as both print and animation.

5. Q. What products will you be delivering?

We will be producing products in four separate areas using the development phases outlined below:

**Step 1 – 3D Development:** The following 3D models will be developed and included in the photo-simulations

- *Suncatcher 3D Model* - A 3D Model of the Suncatcher was provided by Tessera Solar. The 3D Model will be converted into a 3D MAX (by Autodesk) format for the Glint/Glare analysis. Simplification of the model will be necessary due to the volume of Suncatchers analyzed (approximately 30,000). Areas of simplification will be focused on the supporting structures. The mirrors, which generally are the primary source of potential glint/glare, will not be simplified. Placement of the Suncatchers will be referenced from a site plan developed by RMT.
- *Terrain Model* – POWER will use existing information provided by Tessera to create a 3D terrain of the project study area. Data Sets to be used include:
  - USGS 30meter DEM
  - LIDAR
- *20' Slatted Chain-link fence.* – Location of fence and material specification will be provided by Tessera Solar.

**Step 2 – KOP – Photo Collection:** Two visualization specialists will collect photography from six established KOPs that were previously analyzed for visual impacts. During the field visit the following information will be documented for each photograph:

- *GPS location of the KOP*
- *Lens length*
- *Date and time of day for each photo*
- *Atmospheric conditions*

**Step 3 – Photo-simulation development**

- *Material Application* – Suncatcher 3D Models will receive materials as per Tessera specifications. Terrain models will have an aerial photography overlay.
- *Sun System* – A sun system will be developed to match the date, time of day and atmospheric conditions for each KOP photograph. The sun system will include a full day of sunlight at the summer and winter solstices and the spring and fall equinoxes.
- *Photomatching and virtual camera placement*– KOP photography will be brought into the 3D program and matched to a virtual camera. The GPS location, target angle and supplemental control points will be used to align the photography with the virtual camera. This step will result in a 3D scene properly aligned with the photography.
- *Photography/3D Composite* – 3D information will be “rendered” and combined with photographic information to develop the photo-simulations. A total of 8 time of day composites will be developed for each location, depicting the time of day conditions.

- *Verification* – POWER will verify results through the following methods:
- *Tessera Solar Review* – Tessera Solar will review all 3Dsuncatcher information for accuracy
- *Field Verification* – POWER will visit the Maricopa project (currently in operation) and take photos from similar view angles and times of day.

**Step 4 – Product Delivery**

- *Print* - Each KOP photo-simulation will include 8 time of day examples with and without the 20' slatted chain-link fence. This will be completed for the summer and winter solstices and the spring and fall equinoxes.
- *Animation* – Each KOP will have a corresponding animation, showing the movement of the sun throughout a day during the summer and winter solstice and the spring and fall equinoxes.

6. Q. Do you have any conclusions from this study?

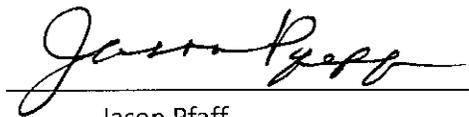
No, because the study is on-going. POWER will conduct a glint/glare visual analysis study based on review of previous visual analysis of the project completed by others and development and review of visualization technology products. Based on the visualization technology products, the validity of the impact conclusions made in the CEC AFC PSA/DEIS will be determined. The effectiveness of the proposed mitigation measures and conditions of certification/approval will be determined and alternative recommendations will be made where warranted.

Conclusions regarding potential glint/glare impacts to aesthetics and transportation safety and potential mitigation measures that may reduce identified glint/glare impacts will be developed. The results of the glint/glare visual impact study and the previous findings from the SA/DEIS will be documented in a technical summary memorandum.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

3/15/10

Date



Jason Pfaff

PREPARED DIRECT TESTIMONY  
OF  
NOEL CASIL  
**Traffic and Transportation**

1. Q. Please state your name and employer.

My name is Noel Casil and I am a Senior Transportation Engineer with URS Corporation.

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1      Section 5.11      Traffic/Transportation  
                  Appendix BB      Traffic counts

Exhibit 3      Responses 1, 3, 4, 5, 6, 9

Exhibit 7      Responses 30-41

Exhibit 13     Responses 17-18, 40

Exhibit 14     Section 2.11

3. Q. Do you believe the Imperial Valley solar power plant as described in the AFC and responses to data requests will comply with all applicable LORS and not result in any significant adverse traffic or transportation impacts?

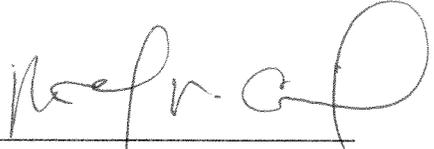
Yes.

4. Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above and this testimony is true and correct to the best of my knowledge.

3/15/2010  
Date

  
\_\_\_\_\_  
Noel Casil

PREPARED DIRECT TESTIMONY  
OF  
MARK STORM  
**Noise**

1. Q. Please state your name and employer.

My name is Mark Storm and I am an INCE Board-Certified Noise Control Engineer with URS Corporation.

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1	Section 5.12	Noise
	Appendix CC	Noise measurements

Exhibit 12	Responses 138-139
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Exhibit 14	Section 2.12	Noise
------------	--------------	-------

3. Q. What is the purpose of your testimony?

I am proposing two changes to the conditions of certification, one to the method of sound measurement and the other to the work hours.

4. Q. What changes are you suggesting for sound measurement?

The SA/DEIS proposed a 25-hour community noise study (Condition NOISE-4) which includes a monitoring location at 1510 Painted Gorge Road. The daytime ambient pre-project noise level is 49 dBA Leq (See Noise table 4) at this location. As this measured level is 4 dBA higher than the threshold for noise produced by project operations, it may be impossible to quantitatively distinguish project operation noise from other sound generators that comprise the ambient noise environment. For this reason, we suggest the following:

Add the following to the end of the condition: "The measurement of power plant noise for the purposes of demonstrating compliance with this condition may alternatively be made at a location, acceptable to the CPM, closer to the plant (e.g., 400 feet from the plant boundary) and this measured level then mathematically extrapolated to determine the plant noise contribution at the potentially affected residence. This extrapolation will include the affects of sound propagation with distance, acoustical absorption due to air (e.g., temperature and relative

humidity) and ground conditions, and the presence of terrain features per applicable methods as detailed in the International Organization of Standardization (ISO) 9613-2:1996(E) "Acoustics – Attenuation of sound during propagation outdoors – Part 2: general method of calculation."

5. Q. What changes do you believe are necessary to work hours?

I suggest deleting NOISE-6, or revising it in a manner that helps the project to meet its optimum construction schedule.

6. Q. Does the County have any noise restrictions that would relate to this project?

Normal allowable construction period for Imperial Valley is Monday through Friday, 7 to 7, and Saturday, 8 to 5. However, according to personal communication with Jim Minnick of Imperial County, a variance may be obtained for construction beyond these times, depending on the construction needs. Typically, this would be handled through a condition of the CUP that would allow for variance beyond the normal construction period with prior approval of the Imperial County planning department.

7. Q. Do you believe the Imperial Valley solar power plant as described in the AFC and responses to data requests will comply with all applicable LORS and not result in any significant adverse noise impacts?

Yes

8. Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above that this testimony is true and correct to the best of my knowledge.

03/15/10

Date

  
Mark Storm

PREPARED DIRECT TESTIMONY  
OF  
TRICIA WINTERBAUER  
**Waste Management/Hazardous Waste/Worker Safety**

1. Q. Please state your name and employer.

My name is Tricia Winterbauer and I am an Senior Environmental Specialist with URS Corporation.

2. Q. Are you sponsoring any exhibits in this proceeding?

Yes. I am sponsoring the following:

Exhibit 1	Section 5.14	Waste Management
	Section 5.15	Hazardous Materials
	Appendix L	Haz Mat Handling
	Section 5.17	Worker Safety

Exhibit 3      Response 10

Exhibit 7      Responses 46-52

Exhibit 13     Responses 131-143

Exhibit 14	Section 2.14	Waste Management
	Section 2.15	Hazardous Waste
	Section 2.17	Worker Safety

3. Q. Do you believe the Imperial Valley solar power plant as described in the AFC and responses to data requests will comply with all applicable LORS and not result in any significant adverse impacts regarding waste management, hazardous waste, or worker safety?

Yes.

3. Q. Does that complete your direct testimony?

Yes.

I swear under penalty of perjury that the above testimony is true and correct to the best of my knowledge.

March 14, 2010

---

Date

*Tricia Winterbauer*

---

Tricia Winterbauer



**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  
IMPERIAL VALLEY SOLAR PROJECT  
(formerly known as SES Solar Two Project)  
IMPERIAL VALLEY SOLAR, LLC***

**Docket No. 08-AFC-5  
PROOF OF SERVICE  
(Revised 3/9/10)**

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DECLARATION OF SERVICE

I, Corinne Lytle, declare that on March 15, 2010, I served and filed copies of the attached, Applicant's Opening Testimony, dated, March 15, 2010.

The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[\[http://www.energy.ca.gov/sitingcases/solartwo/index.html\]](http://www.energy.ca.gov/sitingcases/solartwo/index.html).

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

*(Check all that Apply)*

FOR SERVICE TO ALL OTHER PARTIES:

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

by personal delivery;

by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses NOT marked "email preferred."

*AND*

FOR FILING WITH THE ENERGY COMMISSION:

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

*OR*

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

CALIFORNIA ENERGY COMMISSION

Attn: Docket No. 08-AFC-5

1516 Ninth Street, MS-4

Sacramento, CA 95814-5512

[docket@energy.state.ca.us](mailto: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 Signed By:* \_\_\_\_\_  
CORINNE LYTLE

# Applicant's Supplemental and Rebuttal Testimony

## Application for Certification (08-AFC-5) Imperial Valley Solar, LLC

**Submitted to:**  
**Bureau of Land Management**  
1661 S. 4th Street, El Centro, CA 92243



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



**Submitted by:**  
**Imperial Valley Solar, LLC**  
4800 N. Scottsdale Road, Suite 5500, Scottsdale, AZ 85251



**With Support From:**  
**URS Corporation**

**May 2010**



May 10, 2010

Mr. Christopher Meyer  
Project Manager  
Attn: Docket No. 08-AFC-5  
California Energy Commission  
1516 Ninth Street  
Sacramento, CA 95814-5512

Subject: Imperial Valley Solar (formerly Solar Two) (08-AFC-5)  
Applicant's Submittal of Supplemental and Rebuttal Testimony

Dear Mr. Meyer:

On behalf of Imperial Valley Solar (formerly Solar Two), LLC, URS Corporation Americas (URS) hereby submits the Applicant's Supplemental and Rebuttal Testimony.

Applicant hereby submits prepared testimony on the "remaining topics", as directed by this Committee's scheduling orders. Due to the nature of the testimony, there is also testimony in the "ready topics" where appropriate. With regard to the "ready topics", the only testimony filed in these areas in a timely fashion was the testimony of Tom Budlong. Applicant hereby submits rebuttal testimony in various areas addressed by Mr. Budlong. Finally, in order to fully address the issues, Applicant has responded to certain statements made in the timely filing of the California Native Plant Society, even though the plant society declared that their submittal was not testimony.

Additionally, this submittal contains four new exhibits and two new resumes, all of which are provided behind the supplemental and rebuttal testimony.

I certify under penalty of perjury that the foregoing is true, correct, and complete to the best of my knowledge. I also certify that I am authorized to submit on behalf of Imperial Valley Solar, LLC.

Sincerely,

A handwritten signature in black ink, appearing to read "Angela Leiba", is centered below the "Sincerely," text. The signature is written in a cursive, flowing style.

Angela Leiba  
Project Manager

AL: ml

Applicant's Exhibit List – Exhibits 1 through 25

Updated 5/10/2010

<u>Exhibit</u>	<u>Description</u>	<u>Docket Date</u>
1	Application for Certification, Volume I and II	June 6, 2008
2	Air Quality Information for Data Adequacy	July 25, 2008
3	Responses to Imperial County questions	September 3, 2008
4	E-mail regarding school impact fees	September 10, 2008
5	E-mail regarding property taxes	September 10, 2008
6	Data Adequacy Supplement	September 26, 2008
7	CEC/BLM DR Responses 1-52	December 8, 2008
8	SES Alternatives and Cumulative Impacts	February 8, 2009
9	CEC/BLM DR Responses 1-3, 5-10, 14-15, 24-26, 31-32, 36-38, 44, 111-127	March 19, 2009
10	CEC/BLM DR Responses 53-110	March 26, 2009
11	Supplemental Cumulative Analysis	April 29, 2009
12	CEC/BLM DR Responses 128-141	June 5, 2009
13	CURE DR Responses 1-143	June 6, 2009
14	Supplement to AFC	June 12, 2009
15	CEC/BLM DR Responses 31-32	July 2, 2009
16	CEC/BLM DR Responses 151-155	July 7, 2009
17	CURE DR Responses 143-178	August 5, 2009
18	Additional Supportive Materials, Biology & Water	September 23, 2009
19	CEC/BLM DR Response 142-150	October 17, 2009
20	Current Project Acreage	October 28, 2009
21	Supplemental Biology and Water Information	October 30, 2009
22	Revised page 300-1 of SWPP	December 21, 2009
23	Corridor Conflict Analysis	January 8, 2010
24	San Diego MTS Agreement	January 8, 2010
25	Glint and Glare Study	April 28, 2010
26	Juan Batista de Anza Historic Trail Visual Impact Analysis	January 22, 2010
27	Additional Information Related to SWWTF Improvements	February 26, 2010
28	Applicant's Comments in the SA/DEIS	March 12, 2010
29	Modeling Analysis for the Federal NO2 1-Hour Standard	March 31, 2010
30	Imperial Valley Solar Sediment Transport Analysis	April 26, 2010
31	Early Spring 2010 Botanical Surveys	April 26, 2010
32	Supplement to the AFC	May 5, 2010
33	Overview of the SWWTF Project Limits	May 10, 2010
34	Revised Project Wash Avoidance Site Plan	May 10, 2010
35	Letters of Project Support	May 10, 2010
36	Peninsular Big Horn Sheep Locations and Critical Habitat	May 10, 2010

SUPPLEMENTAL PREPARED AND REBUTTAL TESTIMONY  
OF  
MARC VANPATTEN  
**Project Description/Alternatives**

1. Q. Are you the same Marc Van Patten that submitted testimony in this proceeding on March 15, 2010

Yes. My resume submitted at that time is still valid.

2. Q. Are you sponsoring any additional exhibits in this proceeding?

Yes, I am sponsoring exhibit 27, Additional Information Related to SWWTF Improvements, exhibit 28, Applicants comments on the SA/DEIS, exhibit 32, Supplement to the AFC, and I am sponsoring exhibit 33, Overview of the SWWTF Project Limits.

3. Q. Why was it necessary to change the water line?

The water line route was changed slightly at the location of its entrance into the project site in order to avoid some environmentally sensitive areas on the northeastern portions of the project site. The water line route was extended further west along Evan Hewes Highway and then routed south under Evan Hewes Highway, then under the railroad track and then into the project site.

3. Q. Why is it necessary to revise the transmission line pathway?

SDG&E notified Tessera Solar in January/February of 2010 that they had revised the plan to connect the project to the Imperial Valley Substation with the objective to interconnect to Bus Bay 19. As a result of this revision, our transmission line needed to be moved a small amount near the Imperial Valley Substation in order to provide for a better interconnection route into the substation.

4. Q. Please describe the reasons for the change in the project's hydrogen use.

Although the SunCatcher technology is reliable and tested, as a relatively new technology, there are periodic modifications/improvements being made to make the technology more reliable, efficient and cost-effective. When the SunCatchers were constructed at Maricopa, the SunCatchers were modified from a distributed system to a centralized system supplying all the SunCatchers with hydrogen from a single location. As a result, the initial hydrogen fill amounts increased. Now, the amount of hydrogen stored for each SunCatcher will be increased from 3.4 to 11 standard cubic feet (scf). Additionally, the hydrogen replenishment system was adjusted (provides more hydrogen pressure sooner) to reduce the cyclic heat loading on the heater head of the SunCatcher's power conversion unit, thereby increasing the

longevity of the heater head. This adjustment had the effect of increasing the hydrogen use from 195 scf to approximately 600 scf per SunCatcher per year.

5. Q. Staff recommended that the project treat the SunCatcher units to reduce glint and glare. Has Tessera investigated the ability to treat the units?

Yes. Tessera Solar spent a considerable amount of time evaluating the glint glare issue and employed industry experts from POWER Engineers to develop a glint glare analysis. Based on the conclusions contained within the Glint/Glare Study and attendant visual animations, it was determined that painting the SunCatcher would 1) not have a notable effect reducing project contrast levels or levels of potential impact and 2) would have no effect on reduction of glint and glare as components that produce de minimus levels of glint and glare (mirrors and ceramic heat absorber) cannot be painted without rendering the SunCatcher inoperable. However, major features of the SunCatcher (e.g. boom, PCU, etc.) come out of the factory with non-specular surfaces that are blue/grey, similar to other electrical facilities (e.g. substations, transmission towers, transformers, etc.). Furthermore, the back of the mirror facets on each SunCatcher, although currently painted a shade of white, are always in the shade. Nonetheless, Tessera Solar and Stirling Energy Systems continue to investigate ways to improve the final surface treatment while staying within the requested Vis 1 Condition of Certification criteria.

6. Q. Now that Maricopa is operational, have you developed any conclusions on constructing and operating these units?

Yes. We learned many things from the construction of Maricopa and have subsequently restructured our field construction to a single BOP contractor and separated the assembly work to an on-site factory that will be separate from construction. In regard to operation, we have been able to use the Maricopa facility to validate what we predicted to be the most effective operations and maintenance practices. We have also been pleasantly surprised to have achieved such high availability (more than 95%) in only the first 2 months of operation.

7. Q. Dr. Chang makes three recommendations to reduce scour, do you agree with those mitigation measures?

Yes, with a single exception. All of the crossings can be at grade except the project needs a single crossing with culverts or arched bridges so that there is access to public roadways for emergency purposes during rainfall events. The design of this culvert or arch bridge crossing will be such that it does not adversely impact the natural flow or sediment transport in the washes that it crosses.

8. Q. Mr. Budlong has asserted in his opening testimony that the Stirling engine has no operating history. Do you have any comments on the viability of the SunCatcher technology?

While the SunCatcher is an innovative technology, I would not agree that it is unproven or untested technology. The SunCatcher was developed over a number of years by a number of parties including McDonnell Douglas, who developed it in 1984, and more recently was installed in the Sandia National Laboratory in 2004-2006. Since that time SunCatchers have been operated for over 38,000 hours on sun at Sandia National Laboratory. They have been tested under all types of conditions and repeatedly modified to improve the efficiency, reliability, and commercial applicability of the technology.

Maricopa Solar is a fully operational, commercial version of a power plant using the SunCatchers developed and refined at Sandia. The Maricopa plant consists of 60 SunCatchers capable of generating 1.5 megawatts of power. It represents the basic "building block" of the larger power plants being built by Tessera Solar – each plant is made up of multiple groupings of 60 SunCatchers (each 1.5 megawatts). Maricopa Solar has been operational since December of 2009. It has not only allowed us to demonstrate commercial operation of the technology but, as with any new technology, has taught us valuable lessons for subsequent commercial projects including the Imperial Valley Solar Project.

9. Q. Do you have any comments on the project's water source?

Yes. Although we are confident that the EIR for the upgrade of the Seeley Wastewater Treatment Facility will be approved, the upgrade completed and water resulting from the completed upgrade will be available to the Imperial Valley Solar Project, an alternate source of water is necessary so that project construction can commence on schedule. The Dan Boyer Water Company water is from an established source, operating under permit from Imperial County, which has a history of sales to industrial uses in the area since the 1950s. This water is not part of any community's potable water system, and no new facilities need to be constructed for use by the project. We have a contract for water from this source and are proposing to use it for construction and/or operation until water from the Seeley Wastewater Treatment Facility is available.

10. Do you have any comments on the alternatives discussed in the Staff Assessment/Draft Environmental Impact Assessment?

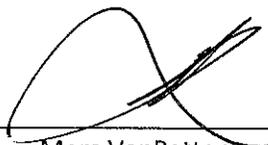
Yes. My primary concern with the alternative analysis contained in the SA/DEIS is that it did not fully address the feasibility or practicability of developing the various alternatives. The smaller alternatives, particularly the 300 MW alternative and the two drainage avoidance alternatives are not practicable because the economics of scale achieved with a 750 MW project would not be available and the price per SunCatcher would increase. With the smaller projects, the cost of producing and assembling the SunCatchers and the cost of common facilities, such as water pipe line, electric transmission line, the main services complex, water treatment facilities, and roads would be spread to a smaller number of SunCatchers. The resulting cost of this project would not allow it to satisfy the pricing terms of the Power Purchase Agreement, which has been submitted for approval by the California Public Utilities Commission.

The schedule for a smaller project would be similar to the current schedule for the first phase of the proposed project. As described in the SA/DEIS, not only is there no plan for replacing the capacity lost with a smaller alternative, but any schedule associated with developing the additional generating capacity would certainly be much later than if that capacity were to be constructed as part of this project. This would result in delaying the greenhouse gas benefits of solar energy production and could hinder the ability of California in meeting its renewable portfolio standard.

There are environmental impacts associated with the construction of facilities necessary to build this solar project. Many of these facilities, such as the transmission line interconnection, water delivery line and main services complex would have to be constructed for any additional project to make up the remaining capacity. These facilities are also likely to have unavoidable environmental impacts.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

5/10/10  
Date

  
Marc VanPatten

SUPPLEMENTAL PREPARED TESTIMONY  
OF  
JULIE MITCHELL  
**Air Quality**  
**Public Health**

1. Q. Are you the same Julie Mitchell that submitted testimony in this proceeding on March 15, 2010?

Yes, and my resume submitted in Applicant's Prehearing Conference statement is still valid.

2. Q. What is the purpose of your testimony?

My testimony provides our modeling for the new federal NO2 standard.

3. Q. Are you sponsoring any exhibits in this supplemental testimony?

Yes, I am sponsoring exhibit 29, Modeling analysis for federal NO2 1-hour standard.

4. Q. Will the Imperial Valley Solar facility comply with these rules?

Yes, it will.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 10/10  
Date

  
Julie Mitchell

PREPARED SUPPLEMENTAL AND REBUTTAL TESTIMONY OF  
MATT MOORE  
**Water Resources**

1. Q. Are you the same Matt Moore that submitted prepared testimony in this proceeding on March 15, 2010?

Yes. My resume, submitted in Applicant's Prehearing Conference Statement, remains valid.

2. Q. What is the purpose of your testimony in this proceeding?

Although Mr. Beltran of the California Native Plant Society claims that they "have no testimony", they also claim that "a water supply has not been identified". This testimony is intended to rebut this statement. I am sponsoring analyses contained within exhibit 27, Additional Information Related to SWWTF Improvements and portions of the water resources analysis contained in exhibit 32, Supplement to the AFC.

3. Q. Please describe the water supply for the Imperial Valley Solar project.

Based upon current engineering estimates, the project will require approximately 50 AFY during construction and approximately 33 AFY during project operations. In order to peak construction water demands (such as concrete pours), water would be stored onsite during times of lower water demands. There are two sources of water for project use: water from the Seeley Wastewater Reclamation Facility (WWRF) through SCWD and purchased water from Dan Boyer Water Company. As construction of the Imperial Valley Solar facility is expected to commence as early as October 2010, it is imperative to have a reliable water supply by this date.

4. Q. Please describe the Seeley water supply.

The town of Seeley lies approximately 12 miles east of the project boundary. The SWWTF currently treats the town's wastewater and this facility will be upgraded so that water will be treated to a tertiary level. Applicant has submitted a "will serve" letter for the project's use of this water.

5. Q. When will this water supply be available to the project?

The reclaimed water will be available for use by the Imperial Valley Solar Project following completion of the Seeley upgrade project and construction of the water transmission line. The upgrade project will be completed after certification of an Environmental Impact Report and approval by Seeley County Water Authority. It is currently anticipated that the EIR will be certified and the upgrade project considered and approved in November of 2010. I am confident that the environmental report will demonstrate that impacts to the environment from construction and operation of the Seeley WWRF will be less than significant. I have reviewed the environmental information developed for the Seeley

upgrade project and I believe that based upon my current understanding of the Seeley WWRF upgrades that it will not result in significant environmental impacts.

Seeley WWTF will file for a Petition for Change in Use. This is required by the California State Water Resources Control Board, Division of Water Rights, and will be submitted to the SWRCB by Seeley County Water Authority. Section 1211 of the Water Code requires that before making a change in the point of discharge, place of use, or purpose of use of treated wastewater, the owner of the treatment plant must seek approval from the Division of Water Rights, which is accomplished by filing a Petition for Change for Owners of Waste Water Treatment Plants (Petition for Change). The Petition for Change will be evaluated by SWRCB and applicable other state agencies (California Department of Fish and Game) for compliance with the California Environmental Quality Act.

Exhibits 27 and 32 contain additional information on the Seeley WWTF upgrade. I have concluded after reviewing this report that there are no major impediments to construction and operation of the Seeley WWTF upgrades.

6. Q. Please describe the Dan Boyer water supply.

The Dan Boyer water supply is an existing well located approximately 3.5 miles southwest of the western project boundary. Water from this well has been sold to a variety of users since 1958. Historically, up to 100 AFY of water has been sold from this well, although the current permit held by this water company restricts pumping to 40 AFY. The Applicant has contracted for this 40 AFY supply so that water will be available to the project when project construction is scheduled to commence.

Construction of the Imperial Valley Solar Project will take approximately 40 months. In the event that Seeley construction water supply will not be available to the Project prior to October 2010, the Project will receive construction water from Dan Boyer Water Company. While it is anticipated that that operational water supply from SWWTF will be available within one year from the start of construction, should the upgrades to Seeley be delayed, the Project would use water supplied by Dan Boyer Water Company for both construction and operation. Because the Applicant cannot control the date that the Seeley water will become available, the Applicant and URS have analyzed potential impacts from the Dan Boyer Water Company as the Project's water source. It was determined that it is a reliable water source and would not result in significant impacts if used for the life of the Project, if needed. Once water from the SWWTF is available, water from the Dan Boyer well will only be used as a back-up supply.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 10, 2010

\_\_\_\_\_  
Date



\_\_\_\_\_  
Matt Moore

PREPARED REBUTTAL TESTIMONY  
OF  
ROBERT K. SCOTT  
Water Resources

1. Q. Please state your name and place of employment

My name is Robert K. Scott and I am a Vice President and Principal Geologist with URS. I am a professional licensed geologist in California and Arizona and a Certified Hydrogeologist in California. My resume is attached behind my prepared testimony.

2. Q. What is the purpose of your testimony in this proceeding?

It is my understanding that various intervening parties have claimed that the Imperial Valley Solar Project does not have a viable water source. I was directed by the Project to determine the ability of the Dan Boyer well to deliver the volumes permitted by the existing well permit and evaluate the quality of the well water. I am sponsoring analyses contained in exhibit 32, which is our supplemental report on this water source.

3. Q. Please describe what is contained in exhibit 32.

Exhibit 32 contains an analysis of the Dan Boyer water well. This report contains information on the quality and quantity of water from this source. It also contains well water characteristics, transmissivity and drawdown discussions. I conclude that the permit limits are reasonable and that sales of the permit limit (40 AFY) can be supported by the aquifer and that use of this water by the Imperial Valley project will have no significant impacts on the aquifer.

4. Q. What is your conclusion regarding the project's use of the Dan Boyer well water.

First, the project will be using water that is not dedicated to a single, higher use, such as potable drinking water. It has historically served as a source of water for construction purposes. Second, the volume of water that will be used is consistent with the Conditional Use Permit (40 AFY). As our evaluation indicates, this water use will not have an adverse impact upon the aquifer. Finally, the characteristics of the water make it suitable for the proposed uses by the Project.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 10, 2010  
Date

Robert K. Scott  
Robert K. Scott

SUPPLEMENTAL PREPARED TESTIMONY  
OF  
PATRICK MOCK  
**Biological Resources**

1. Q. Are you the same Patrick Mock that submitted testimony in this proceeding on March 15, 2010?

Yes, and my resume submitted in Applicant's Prehearing Conference statement is still valid.

2. Q. What is the purpose of your testimony?

My testimony summarizes the additional biological resource data requested by the agencies and intervenors, presents our conclusions based on that additional data, discusses the approach we used in performing various biological resource surveys, and comments on specific items in the Staff Assessment/Draft Environmental Impact Statement.

3. Q. Are you sponsoring any exhibits in this supplemental testimony?

Yes, I am sponsoring exhibit 31, the survey results from the early spring botanical surveys and exhibit 36, Peninsular Big Horn Sheep Locations and Critical Habitat.

4. Q. The applicant has been criticized for its approach in performing the biological resource surveys. Can you summarize that approach and discuss why you believe the aggregated biological survey data is acceptable and appropriate to use in this case.

The Applicant has performed numerous surveys for biological resources for this project. In total we have had over 4,670 hours in the field on biological surveys. These have included surveys for:

- Sensitive Plants – (Spring 2007, Spring 2008, Spring 2010, and planned surveys in fall 2010 to verify previous results)
- Flat-Tailed Horned Lizard – (May 2007 and Supplemental surveys of linears in May 2008)

The survey protocol for each of these surveys was approved in advance by CEC and BLM. Each of these surveys either used approved protocols or modified protocols that were approved in advance by the agencies.

In all cases the individuals performing the surveys either had or were under the direct oversight of individual that had the appropriate training and levels of experience to perform the surveys.

In response to requests from the agencies and intervenors, we have gone back and performed additional surveys. The most recent sensitive plant surveys for example were performed in addition to the two preceding surveys in response to the low rainfall years experienced during the prior surveys.

In aggregate, we believe that the surveys represent a comprehensive and accurate picture of the biological resources located on or in the vicinity of the project site in sufficient detail to understand the potential impacts and define appropriate mitigation.

5. Q. With respect to the most recent botanical surveys performed during this year of above average rainfall; did you identify any sensitive plants that were not observed during the preceding two surveys?

Yes, we found three CNPS List 2 species and two CNPS List 4 Watch List species.

6. Q. How does the observation of those species effect your conclusion on the project's potential impacts and mitigation?

The List 2 species detected occur as individuals or small groups of individual plants. I feel that given the level of habitat conservation in the project vicinity (Anza Borego State Park, BLM Management Areas), it is likely that these sensitive species are adequately conserved offsite and that the proposed mitigation for Flat-tailed Horned Lizard would also contribute to conserving rare plant resources in the project vicinity.

7. Q. The BLM has requested the applicant to perform additional sensitive plant surveys this fall. Do you have any comment on those surveys?

The BLM's requirement was initially intended to identify plants that may emerge following the summer monsoon season. All of the species that could potentially bloom in fall also bloom in spring, so we do not expect any plants to be found in the fall that were not observed in the recent two rounds of spring surveys. We do not have a problem performing these surveys to verify this expectation and make modifications to mitigation requirements if any unexpected species are observed.

8. Q. Peninsula big horn sheep were observed on-site during the spring of 2009. What is your conclusion regarding this observation and impacts of the project on this species?

Detection of Bighorn Sheep was not expected by any of the biologists involved in the project, including the wildlife agencies. We believe the sighting was anomalous. The expectation that bighorn sheep make frequent and biological important use of the IVS site is low due to the distance of the site from the core habitat areas 4-6 miles west of the site.

9. Q. What is your understanding of the agencies conclusions on this issue?

The CEC, USFWS, CDFG, and BLM biologists are in agreement that the sighting of bighorn sheep on the site in spring 2009 was an unusual occurrence and is unlikely to occur again. Therefore, it is not anticipated that the project will adversely affect the bighorn sheep.

10. Q. The flat-tailed horned lizard has been found on the project site. Will you briefly discuss the status of this species, the population levels you expect on site, and the mitigation proposed?

The flat-tailed horned lizard was proposed by the USFWS for listing under the federal Endangered Species Act. We performed 332 sample plot surveys for flat-tailed horned lizards in (May 2007) and supplemental transect surveys of the two linear project components in May 2008. These surveys detected a total 4 individuals of flat-tailed horned lizards. Based on the amount of suitable habitat, we expect the population to be about between 20 and 30 on the project site. Other population estimates have ranged between 2100 and 3500, but we believe these are high because so few individuals were detected during the intensive survey effort. A non-sensitive horned lizard species is also present onsite, so detection of lizard scat is not necessarily indicative of flat-tailed horned lizards being present.

Although suitable flat-tailed habitat and vegetation may remain on-site during construction and operation, we are proposing to mitigation based on an assumed loss of the entire population on the site.

The mitigation consists of 1:1 for onsite habitat acreage impacts and 5:1 for habitat acreage impacts along the transmission line ROW that is within the Yuha Desert Management Area. This mitigation is consistent with the agency approved management strategy for the flat-tailed horned lizard.

11. Q. Do you have any concern with the mitigation proposed in the SA/DEIS?

As written, the mitigation proposed in the SA/DEIS will require onsite conservation for list 2 species. That is a concern because given the industrial nature of the proposed facility; we believe offsite habitat mitigation would be more beneficial to the plant resource than onsite retention of small isolated populations of plants and the associated edge effects that would be extant with the project. Maintaining sustainable populations on the project is not practicable given the sensitivity status of the species, the small numbers present, and their distribution within the project boundaries. Offsite habitat mitigation for FTHL will also benefit rare plant resources in the project vicinity.

We have not heard back from the staff whether this change is acceptable. We would like the Committee to consider this issue if it is not resolved at the staff level.

12. Q. New regulations have been issued by the U.S. Fish and Wildlife Service regarding potential impacts to golden eagles. How do those regulations affect the proposed project?

There are no known golden eagle nesting areas within 10 miles of the site, so the site is considered potential foraging habitat for raptor species such as eagles, but no effects to nesting eagles is expected. Therefore, we do not believe that these regulations should affect the proposed project.

13. Q. The Seeley Wastewater Treatment Facility has been identified as the preferred source of water for the project. Concerns have been raised regarding the potential biological resource impacts resulting from upgrades required to the treatment facility. Do you have any comment on the potential for biological impacts?

Since the construction work for the upgrades will be performed within the area already disturbed or previously developed by the existing treatment plant, the primary potential impact is indirect effects to riparian habitat and associated species resulting from the diversion of the treated effluent to the Imperial Valley Solar project. This concern was raised by CURE. In a comment on the Mitigated Negative Declaration issued by the Seeley County Water District, the U.S. Fish and Wildlife Service also raised questions on potential impacts to the Yuma clapper rail.

I have reviewed the biological survey and assessment work prepared by John Konecny and Dudek Associates. To date, Yuma clapper rail surveys have been reported as being negative and no incidental take of this listed species is expected.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

5-10-10

Date



Pat Mock

PREPARED TESTIMONY  
OF  
Michael Wood  
**Biological Resources - Sensitive Plants**

1. Q. Please state your name and position.

My name is Michael Wood and I am a botanist/ecologist with Wood Biological Consulting. I am under contract to Tessera Solar working on the botanical resource assessment for the Imperial Valley Solar Project. My résumé is attached.

2. Q. What is the purpose of your testimony?

My testimony discusses the applicant's 2010 botanical surveys.

3. Q. With respect to the most recent botanical surveys performed during this year of above average rainfall; did you identify any sensitive plants that were not observed during the preceding two surveys?

Yes, we found the following:

- Brown turbans, annual (*Malperia tenuis* - Asteraceae; CNPS List 2.3; 10 widely spaced individuals).
- Harwood's milk-vetch, annual (*Astragalus insularis* var. *harwoodii* - Fabaceae; CNPS List 2.2; 35 individuals at 4 locations).
- Wiggin's croton, perennial (*Croton wigginsii* - Euphorbiaceae; CNPS List 2.2; up to 7 seedlings/young plants at a single location).
- Utah vine milkweed (*Funastrum [=Cynanchum] utahense* – Apocynaceae [formerly in the Asclepiadaceae] ; CNPS "Watch" List 4.2; approx 818 plants at 22 locations).
- Thurber's pilostyles (*Pilostyles thurberi* – Apodanthaceae [Rafflesiaceae in the Jepson Online Interchange]; CNPS "Watch" List 4.3; approximately 12 infected host plants - dye plant (*Psorothamnus emoryi*) at 6 locations.

4. Q. Do you have an opinion as to why these additional species were identified during the 2010 surveys but not found during the two previous surveys?

Yes. The 2009-2010 winter rainy season ended a severe three-year drought, delivering above average rainfall to the Sonoran Desert. As a result, there was a substantially greater wildflower display during the spring of 2010 compared to 2008. The 2010 surveys added a total of 24 native plant species, 2 subspecies and 2 varieties to the 2008 inventory.

5. Q. Can you describe the 2010 spring botanical surveys?

I have been and am currently participating in the 2010 spring botanical surveys for the Imperial Valley Solar Project. These surveys have been carried out in accordance with protocols<sup>1</sup> approved by

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<sup>1</sup> See: California Department of Fish and Game (CDFG). 2009. *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities*. November 24. Available online at [http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols\\_for\\_Surveying\\_and\\_Evaluating\\_Impacts.pdf](http://www.dfg.ca.gov/biogeodata/cnddb/pdfs/Protocols_for_Surveying_and_Evaluating_Impacts.pdf); California Native Plant Society (CNPS). 2001. *Botanical Survey Guidelines*. Revised June 2. Available on line at [http://www.cnps.org/cnps/rareplants/pdf/cnps\\_survey\\_guidelines.pdf](http://www.cnps.org/cnps/rareplants/pdf/cnps_survey_guidelines.pdf); United States Fish and Wildlife Service (USFWS). 2000.

CEC, BLM, CDFG, and USFWS with fully qualified technical experts. All the personnel that performed the 2010 surveys are well trained botanists with many years of experience. Some members of the 2010 survey team participated in the 2008 surveys; the remainder, while new to the IVS site, have extensive experience with the flora of the California deserts. Prior to initiating each round of surveys, all personnel visited nearby reference populations of several of the target species and spent time on site working as a group to confer on the site's flora. Team members collected specimens in the field for plant identification working sessions each evening. A great deal of attention was spent on making species determinations and no species that could have been confused with any of the target species were left unidentified; all taxonomic uncertainties were resolved. All special-status target species found on site were collected and either compared with specimens stored in herbaria or were submitted to Dr. Jon Rebman, curator of the herbarium at the San Diego Natural History Museum.

6. Q. Based on your experience and expertise, do you believe that the surveys adequately identify all the native plants found on the project site?

Yes. Based on my experience, I am confident that the survey results provide a thorough and reliable identification of the native plants found on the site.

7. Q. The agencies are requesting that additional botanical surveys be performed during the fall. Do you have any comments regarding these surveys?

As suggested by Joy Nishida of the CEC, only 2 summer/fall flowering special-status species are known from Imperial County. These are Abrams' spurge (*Chamaesyce abramsiana* – Euphorbiaceae; CNPS List 2.2) and desert unicorn-plant (*Proboscidea altheifolia* – Martyniaceae; CNPS List 4.3). Abrams' spurge is an annual species found in habitats similar to those found in the study area and is recorded from the project vicinity; it might not have been recognizable during either the early or late spring 2010 surveys. Its current known distribution in Imperial County is east of Brawley and El Centro. No populations are known within 10 miles of the IVS site.

Desert unicorn-plant is a perennial, also recorded from habitats similar to those found on site. However, its recorded locales in Imperial County are entirely from the eastern portion of the county and, as a perennial, it would have been recognizable during the prior surveys. In my experience, it seems like an extraordinary requirement to complete fall surveys for a single species whose likelihood of being present onsite is moderate.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.



May 10, 2010  
Date

Michael Wood

PREPARED TESTIMONY  
OF  
MIKE FITZGERALD  
**Biology**

1. Q. Please state your name and place of employment.

My name is Mike Fitzgerald and I am the President and Senior Environmental Scientist with Ecosphere Environmental Services. Ecosphere is under contract to the Tessera Solar (TSNA) on the Imperial Valley Solar project. My resume is attached.

2. Q. What is the purpose of your testimony?

The purpose of my testimony is to discuss the potential biological impacts on aquatic resources that could result from the construction and operation of the Imperial Valley Solar Project.

3. Q. What exhibits are you sponsoring in this proceeding?

I am sponsoring Exhibit 31, entitled "Sediment Study for Three Washes at the Solar Two Project Site in Imperial Count, CA" January 2010. This report was performed by Dr. Howard H. Chang. I have reviewed this report and concur in the methodology and conclusions reached by Dr. Chang. I am also sponsoring Exhibit 34, entitled Revised Project Wash Avoidance Site Plan, provided within this submittal. This Figure was prepared by Ecosphere and shows a modified project design that the Applicant believes is the Least Environmentally Damaging Practicable Alternative (LEDPA).

4. Q. Please describe Dr. Chang's report

This study was completed to evaluate the potential direct and indirect impacts of the proposed project on stream hydrology and sediment transport both on and off the site. It evaluated three washes on the site and used the FLUVIAL-12 model to simulate hydraulics of flow, velocity, sediment transport, sediment delivery and potential stream channel changes along these washes. Dr. Chang made the following conclusions:

- a. Following project construction, flow depths in the washes in a 100-year flood are less than one foot and occur as low velocity events.
- b. The project would not result in substantial changes in channel bed in the studied channel reaches.
- c. At-grade road crossings will not cause major changes to sediment delivery patterns
- d. Sediment deposition and induced erosion by at-grade road crossings will not be substantial.
- e. Long-term sediment delivery and transport will not be impacted by the at-grade road crossings.
- f. Installation of sediment basins will have long-term impacts on sediment delivery onsite and down stream of the project area.

Dr. Chang's report concluded that to minimize impacts, it would be ideal if the project caused no substantial changes to sediment delivery. He identified proposed road crossings, sediment basins, culverts, vegetation and buildings as sources affecting sediment transfer. In order to "mitigate adverse impacts" Dr. Chang recommended the following mitigation measures:

- a. Delete all sediment basins,

- b. Change all road crossings to at-grade crossing with all culverts removed, and
- c. Consider the total scour depth of five feet in the Suncatchers in washes.

5. Q. Have the mitigation measures recommended by Dr. Chang been incorporated into the project by the Applicant?

With one exception, yes all the mitigation measures have been incorporated. They are described in the revised Plan of Development (POD) and in the project Clean Water Act 404B-1 Alternatives Analysis that evaluated avoidance and minimization of project impacts to Waters of the U.S. scheduled to be submitted to the US Army Corps of Engineers (USACOE or Corps) and the Environmental Protection Agency (EPA) on or before May 24<sup>th</sup>, 2010. In evaluating the potential to avoid and minimize impacts to waters of the United States, we determined that it was not possible to install at grade crossings along the entire Lifeline road, as the project needs to have one access road that will be passable during large storm events. Therefore, in order to adhere to Dr. Chang's recommendation to remove culvert crossings, TSNA is planning to construct an elevated concrete ConSpan or Bebo crossing; which is essentially a bridge over Wash G without piers in the channel. This should ensure that the few necessary elevated crossings do not impact long-term sediment delivery and transport of the drainages.

6. Q. Did the Applicant perform or contribute to other studies to understand the erosion and sedimentation issues associated with the proposed project?

Yes. At the recommendation of the USACOE, TSNA commissioned the Southern California Coastal Water Research Project (SCCWRP) to conduct a California Rapid Assessment Model or "CRAM" analysis of the ephemeral washes affected by the proposed project. In short CRAM is a methodology designed to support assessment and monitoring of all major wetland/riparian systems across all regions of the state. The output of the model is a single "condition score" for the assessment area, comprising the combined separate assessment scores for Landscape, Hydrology, and Physical and Biotic Structure. CRAM also provides the user with a separate "stressor checklist" to help identify sources of ecological degradation. Sedimentation and erosion is not the focus of CRAM, but is a component of the assessment tool. It should be noted that CRAM is not typically applied to desert wash systems and that in coordination with the USACOE and SCCWRP, this project is being used as a test case to determine how that model may need to be modified to accurately assess this type of environment.

CRAM assessments were completed for over 80 reaches of stream (ephemeral wash) systems on and off site to determine functional values of system. The results of the analyses are expected to be submitted to the USACOE on or before May 15<sup>th</sup>, 2010. Preliminary results, based on Ecosphere ecologists working with the SCCWRP personnel to collect the data, indicate that project washes will generally have low CRAM scores due to the simplicity of the physical structure of the systems and because relative to aquatic systems biological diversity is low.

7. Q. How do you anticipate that the results of the CRAM analysis will be utilized to help assess the project's impacts on aquatic resources?

As previously stated, the application of CRAM to desert wash systems is currently experimental. Because CRAM was designed for wetland complex and riverine systems we expect that condition scores will be low relative to wetter systems. It is my understanding that the Corps intends to use the condition score to supplement the characterization of ecological function and to possibly use this characterization to assist with the appropriate identification of suitable mitigation opportunities. However, as the results of the CRAM are still pending, precise application of the results is somewhat speculative.

8. Q. Moving on to the 404(b)(1) alternative analysis, can you please describe the efforts undertaken to evaluate the practicability of avoiding impacts to waters of the United States?

Under the Environmental Protection Agency's regulations, known as the 404(b)(1) Guidelines, the Corps can only authorize impacts to waters of the United States after it has determined that such impacts cannot practicably be avoided. An alternative is considered practicable if it is available and capable of being done taking in considerations of cost, logistics, and technology in light of the overall project purpose.

To assist the Corps in complying with these regulations, Ecosphere analyzed alternative project designs that could avoid or minimize impacts to waters of the United States and evaluated such alternatives for practicability. Ecosphere analyzed the practicability of and associated impacts to aquatic resources for the proposed project and five alternatives. The alternatives included the 300 MW Alternative, Corps Drainage Avoidance 1 and Corps Drainage Avoidance 2 alternatives evaluated in the SA/DEIS as well as modifications to the proposed project identified by the Applicant. The Applicant also analyzed the original project design considered by the Applicant which would have had a 900 MW nominal capacity and a no fill alternative.

9. Q. Please describe the results of this analysis.

Ecosphere determined the following:

The proposed project would result 166 acres of permanent impacts and 5.2 acres of temporary impacts to waters of the United States. It would achieve the Applicant's project purpose and would be practicable in terms of cost, logistics and technology.

The 300 MW alternative was designed to test the practicability of limiting the project to Phase 1 and would allow for the nominal generation of 300 MW of electricity. It would result in permanent impacts to 27 acres of waters of the U.S. and 7 acres of temporary impacts. It is not practicable as it would not allow the Applicant to meet its project purpose as it would result in a 60% reduction in the amount of energy generated and would significantly reduce the project's ability to assist SDG&E in meeting its Renewable Energy Portfolio requirements and to assisting SDG&E and the State of California in reducing greenhouse gas production. It is also not practicable in terms of cost as it would significantly increase the cost of generating electricity per KW to a level which would preclude the projects ability to sell the electricity to a regulated utility and to obtain necessary financing. It would also not be practicable in terms of logistics because it would preclude the placement of the main service complex in a central location.

The 900 MW alternative was the original project proposed by TSNA. It would result in permanent impacts to 205 acres and temporary impacts to 5.2 acres of waters of the U.S. It is practicable as it would allow the Applicant to meet its project purpose and would supply 100% of SDG&E's Renewable Energy Portfolio requirements. This alternative was practicable in terms of cost as it would significantly reduce the cost of generating electricity per KW to a level which would enable the project to sell the electricity to a regulated utility and to obtain necessary financing. This alternative, however, is not the LEDPA as it would result in an increase number of impacts to waters of the U.S.

The Applicants' Wash Avoidance Site Plan would allow for the generation of 709 MW of utility grade electricity. It was designed to test the practicability of washes identified by the Corps as providing

relatively high functions and values. It would result in permanent impacts to 54.4 acres of waters of the U.S. and 28.6 acres of temporary impacts. Although it represents a reduction of over 10 percent of renewable energy that would be available, it would still significantly contribute to assisting SDG&E in meeting its renewable energy requirements and would contribute California's goal for reducing greenhouse gases, although it would not maximize this opportunity. This alternative would meet the overall project purpose. The Applicant also determined that this alternative was practicable. Although it results in an increase in cost per KW, the Applicant believes that the increased cost will still allow for the generation of electricity that can be sold to a regulated utility at an acceptable price and to allow for the obtainment of necessary financing. It allows the project to meet the logistical constraints. Because this project significantly reduces impacts to aquatic resources, the Applicant believes that this alternative is the LEDPA.

The Corps' Wash Avoidance Alternative 1 would allow for the generation of 606 MW of utility grade electricity. It would result in permanent impacts to 38 acres of waters of the U.S. and 12.5 acres of temporary impacts. It is not practicable as it would not allow the Applicant to meet its project purpose as it would result in a 19% reduction in the amount of energy generated and would significantly reduce the project's ability to assist SDG&E in meeting its Renewable Energy Portfolio requirements and to assisting SDG&E and the State of California in reducing greenhouse gas production. Therefore, this alternative does not meet the overall project purpose. This alternative is also not practicable in terms of cost as it would significantly increase the cost of generating electricity per KW to a level which would preclude the projects ability to sell the electricity to a regulated utility and to obtain necessary financing.

Similarly, Corps Wash Avoidance Alternative 2 would allow for the generation of 438 MW of electricity resulting in 36.7 acres of permanent impacts and 10.4 acres of temporary impacts to waters of the U.S. This alternative would not be practicable for the same reasons as the Corps' Wash Avoidance Alternative 1.

The No Fill alternative would not allow for the construction of a utility grade solar project and would therefore not meet the project purpose.

10. Q. Based on these results, has the Applicant taken any actions?

Yes. Based on the determination that the proposed project could be modified to significantly reduce impacts to aquatic resources, the Applicant has informed the Corps that it is seeking authorization to construct the modified project design. The Applicant is currently working with the Corps to determine if the Corps concurs with the Applicant's practicability analysis.

The Applicant has also engaged Dr. Chang to evaluate this modified project design to qualitatively assess the reduction in on and off site sediment transport and resulting impacts. Dr. Chang's scope also includes making design recommendations for constructing the project perimeter fence across waters of the United States to minimize or eliminate impacts to aquatic resources entering and exiting the site.

11. Q. Does this complete your direct testimony?

Yes.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 10, 2010

\_\_\_\_\_  
Date



\_\_\_\_\_  
Mike Fitzgerald

SUPPLEMENTAL PREPARED TESTIMONY  
OF  
REBECCA APPLE  
CULTURAL RESOURCES

1. Q. Are you the same Rebecca Apple that submitted prepared testimony in this matter on March 15, 2010?

Yes and my resume submitted as part of the Applicant's Prehearing Conference Statement is still valid.

2. Q. What is the purpose of your testimony?

The purpose of my testimony is to provide supplemental information regarding the cultural resource investigation that has been completed to date on the site, to assess the significance of the resources found on the site, describe potential impacts to such resources, and describe potential mitigation measures.

3. Q. Please describe the cultural resource investigation that has been completed to date.

URS has conducted complete cultural resources surveys of the project sites and linear facilities. As reported in the Class III report (Nixon et al. 2009), 361 archaeological sites and 13 built resources were identified and recorded. Archaeological resources include 237 prehistoric, 70 historic, and 54 dual component/indeterminate sites. Prehistoric site types include lithic and/or ceramic scatters, trails, and scatters of artifacts and fire affected rock. Historic period sites include refuse scatters, benchmarks (survey markers), and roads. The dual component sites are typically historic refuse and lithics, while the indeterminate sites are rock features. Built resources include canals, railroads, gravel mining areas, and the Plaster City Plant.

4. Q. Have you made any conclusions regarding the significance of the cultural resources?

Based on investigations to date, recommendations for site eligibility have been provided in the Class III report (Nixon et al.) Eleven archaeological sites are recommended eligible and another 49 are potentially significant and additional data collection has been recommended. None of the built resources are recommended eligible.

5. Q. Please discuss potential impacts and mitigation measures.

As described in my previous testimony, consultation among the BLM, State Historic Preservation Office, the Advisory Council on Historic Preservation, the CEC, the National Park Service, and the Applicant is ongoing. Representative of Native American Tribes and interested members of the public ("invited consulting parties") have also been invited to participate in the consultation process. The consultation process has resulted in the development of a draft Programmatic Agreement which sets forth the procedures for how impacts to cultural resources will be addressed. The draft PA was distributed to the consulting parties and invited consulting parties for review and comment. It is currently anticipated that a final PA will be executed on or before August 25<sup>th</sup>, 2010.

The PA will guide cultural resources compliance efforts for the project. The PA calls for the preparation of a Historic Properties Treatment Plan (HPTP), an umbrella document similar to the Energy Commission's Cultural Resources Monitoring and Mitigation Plan (CRMMP), that will lay out the mitigation measures to address project effects to resources eligible for the National Register of Historic Places and the California Register of Historical Resources. It will also include regions contexts and an archaeological research design. Documents that will be prepared as part of the HPTP include a Monitoring Plan and a Discovery Plan. Because the PA is also addressing CEC mitigation requirements, provisions for these have been included in the document, specifically Appendix B.II Coordination with CEQA. This section describes the standards that will be used in determining what the appropriate mitigation measures for sources will be.

6. Q. Do you believe that implementation of these mitigation measures will reduce impacts to cultural resources to a less than significant level?

The measures will reduce a majority of the impacts to cultural resources to a less than significant level. However, some of the potential impacts such as impacts to the portion of the De Anza Trail Corridor that runs through the project site as well as visual impacts to sites such as mountains important to Native American tribe are difficult or impossible to mitigate. Therefore, it is likely that the project will still have significant impacts to cultural resources after all feasible mitigation measures are implemented.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 10, 2010  
Date

Rebecca Apple  
Rebecca Apple

REBUTTAL AND SUPPLEMENTAL PREPARED TESTIMONY  
OF  
SETH HOPKINS  
**Land Use**  
**Visual Resources**

1. Q. Are you the same Seth Hopkins that submitted testimony in this proceeding on March 15, 2010?

Yes. My resume, submitted in Applicant's Prehearing Conference Statement, remains valid.

2. Q. What is the purpose of your supplemental testimony?

My testimony responds to public comments and agency concerns regarding the land use and visual resource implications of the Imperial Valley Solar Project.

3. Q. Are you sponsoring any exhibits?

Yes, I am sponsoring exhibit 26, the Juan Batista de Anza National Historic Trail visual impact analysis.

4. Q. The Staff Assessment/Draft Environmental Impact Statement raised concerns regarding potential impacts to recreational lands administered by the BLM. What are your comments regarding these concerns?

The SA/DEIS concluded that "the conversion of approximately 6,500 acres of land to support the proposed project's components and activities would directly disrupt current recreational activities in established federal, state, and local recreation areas and would result in adverse effects on recreational users of these lands." (Page C.8-1)

The proposed project would not directly affect any *established* federal, state and local recreation areas. The project site does not contain any developed public recreational areas or facilities on federal lands (there are no BLM-designated campsites or points of interest located on the project site), and therefore no developed recreational areas would be directly affected by development of the proposed project.

Established recreational areas adjacent to the project site, including the Yuha ACEC on the south and the Plaster City Open Area on the north, would not significantly be affected by the proposed project, as described below.

According to the 1985 Yuha Desert Management Plan, the Yuha ACEC was nominated for wildlife and cultural resource values. The management plan states that due to the area's limited scenic quality, most sightseeing near the project site is associated with specific points of interest (e.g., Yuha Wells, Yuha Shell Beds, Crucifixion Thorn Natural Area). The proposed project will not affect the recreational use of the ACEC for recreational site specific sightseeing values within the ACEC. Six campsites and four points of interest are located within the Yuha ACEC; the proposed project would not disrupt usage of these existing developed recreational areas.

The proposed project would also not disrupt the highly intensive existing recreational uses within the Plaster City Open Area.

The BLM's CDCA Plan designates BLM lands within the project site as Multiple Use Class I, (Limited), which allows for low to moderate intensive recreational activities. Permitted recreational activities that would no longer be allowed on the proposed project site include: backpacking, primitive, unimproved site camping, hiking, horseback riding, rock hounding, nature study and observation, photography and painting, rock climbing, spelunking, hunting, land sailing on dry lakes, and non-competitive vehicle touring and events only on "approved" routes of travel. Therefore, the proposed project would preclude dispersed, undeveloped recreational activities associated with off-highway vehicle travel on designated routes occurring on federal lands. Due to the abundance of recreational opportunities in the immediate area of the project and the regional area the adverse impact of eliminating recreational opportunities from 6,140 acres of public lands within the boundary of the project site would be considered insignificant.

The SA/DEIS also states on page C.8-1 that the proposed project would result in significant and unavoidable impacts associated with the disruption of recreation lands and non-compliance with the Imperial County Land Use Ordinance for portions of the site zoned S-2, I do not agree with this conclusion. As discussed above, the project would not directly or indirectly disrupt activities in established federal, state, or local recreation areas and/or wilderness areas or substantially reduce the scenic, biological, cultural, geologic, or other important factors that contribute to the value of federal, state, local or private recreational facilities or wilderness areas.

Upon commencement of construction, the public would not have access in the project site. However, the public would continue to have access to the numerous recreational areas in the regional areas of the project listed in Land Use Table 1. Hence, construction of the proposed project would result in less-than-significant impacts related to recreational facilities and recreational opportunities.

In addition, the project site is not a designated location for specific recreational uses but provides a limited amount of dispersed, undeveloped recreational opportunities. Although the proposed project would preclude existing recreational opportunities from the project site, the impact would be insignificant because the proposed project would comply with the CDCA Plan listing establishment of a solar facility as an allowable use within the project site.

Operation of the project would limit access to the project site for continued recreational use within the project site since the project site would be fenced off and developed for solar one and south of the project site, to other regional parks and to other recreational areas. Current use of the Yuha ACEC and Plaster City OHV area by the public for recreational activities would continue. Although operation of the proposed project would impact dispersed recreational opportunities by limiting access to the project area, it would not be significant since the community would still have access to the surrounding open spaces listed in Table 1. Therefore, the proposed project would result in less-than-significant impacts related to recreational facilities.

No designated recreation sites exist within the Imperial Valley Solar facility site. The BLM lands within and surrounding the proposed project are used by the public for hunting, off-road vehicle use on approved routes of travel, rock and mineral collecting, and sightseeing (associated with historic, geologic, archeological and botanical resources). These parcels do not contain any established recreational facilities by the county, state, or BLM. The NAP private lands surrounded by the project area are designated by Imperial County as S-2 Open Space Preservation, which can be used for recreational, limited residential and commercial uses, and some energy production uses including solar power.

The SA/DEIS also states on page C.8-6 and C.8-15 that "The wilderness areas closest to the proposed project site are the Yuha ACEC which is adjacent to the southern boundary of the project site . . ." The Yuha ACEC, however, is not a congressionally designated wilderness area, nor is it a wilderness study area with wilderness characteristics.

5. Q. Does the BLM agree with these conclusions?

During the March 22, 2010 Energy Commission Staff Workshop and BLM Public Meeting on the SA/DEIS for the Imperial Valley Solar Project, it was indicated by Daniel Steward that there is a distinction between authorized permitted recreational uses and unauthorized passive recreational uses. On the Project site, unauthorized passive recreational uses are occurring, mainly related to OHV use. The BLM has indicated that there is a distinction, and that no designated recreational areas or developed recreational facilities exist on site. Any recreational use by OHVs is limited to designated open routes that traverse the Project site. Any other OHV use of the site is unauthorized, illegal and unplanned. Therefore, impacts to these uses are less than significant.

6. Q. Do you believe the proposed project will result in significant cumulative impacts to recreational resources?

No, I do not. I believe the amount and quality of recreational resources being displaced are relatively small compared to the opportunities that exist in the region.

7. Q. Currently the SA/DEIS restricts project construction to limited daylight hours. Do you believe that allowing construction activities to occur 24 hours/day is consistent with Imperial County LORS?

Yes. The County has processes that allow the review of specific nighttime construction activities during the course of project construction and the granting variances when appropriate. The County of Imperial has allowed some construction activities to be carried out at night on other projects according to certain conditions under a variance. Under a variance granted by the County, nighttime activities of the Imperial Valley Solar Project would satisfy the requirements of the General Plan and noise ordinance. We request that the Commission allow some construction activities to be carried out under a similar process.

8. Q. During the workshop on the project, concerns were raised by a member of the public regarding potential impacts of the project on operations of the U.S. Border Patrol. Are you aware of any concerns of the United States Border Patrol regarding this project?

We have discussed the project with the US Border Patrol. Although the Border Patrol cautioned that they would like to keep their concerns and the details of security suggestions confidential, I can summarize their concerns as follows:

- a. The Border Patrol would like to make sure they have access to the site when required,
- b. The Border Patrol approves of the use of high fences, security cameras and the presence of security personnel on site.

9. Q. Have you reviewed the Glint and Glare study prepared by Power Engineers?

Yes. I have read the report and discussed its analysis and conclusions with the authors.

10. Q. What are your conclusions on the necessity of a fence or other visual barrier to mitigate for impacts associated with glint and glare?

After reading the study, I conclude that the 20 foot tall fence or other visual barriers are not necessary to mitigate any rare impacts associated with glint and glare from the SunCatchers.

11. Q. Does this change your conclusions regarding the potential for significant adverse visual impacts to some individuals viewing the project?

No, the Imperial Valley Solar Project is still likely to represent significant adverse impacts to some viewers related solely to the size and visual dominance of the project irrespective of glint and glare effects.

12. Q. Do you believe that the California Energy Commission should consider an "override" for Land Use and Visual impacts?

Yes. From a Land Use perspective, I believe the chosen site is suitable, even ideal, given the unprecedented size and scale of the Imperial Valley Solar project. However, I understand how others may determine that a large solar facility does not fit within the definition of an "allowed use". This is a more of a legal issue than an environmental one. Personally I do not believe the visual impacts resulting from the project outweigh the potential benefits of the project; however I understand that others may disagree. I believe that the visual effects of the project may be seen as positive by some, such as myself, who would appreciate using this land for renewable energy production instead of passive OHV use. I believe caution dictates making the override determination.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

5/10/2010  
Date

Seth L Hopkins  
Seth Hopkins

SUPPLEMENTAL PREPARED TESTIMONY  
OF  
JASON PFAFF  
**Visual Resources**

1. Q. Are you the same Jason Pfaff that submitted testimony on March 15, 2010?

Yes. My resume, submitted in Applicant's Prehearing Conference Statement, remains valid.

2. Q. Did you complete the Glint and Glare study?

Yes. As discussed in my prepared testimony, Power Engineers conducted this study at the request of the Applicant. CEC staff commented on the tasks performed as part of this study. I am sponsoring this Glint and Glare study, exhibit 25.

3. Q. Please describe the process you went through in developing exhibit 25?

POWER used the following steps in the Glint/Glare study;

1. *Identify Potential Glint and Glare Issues*— POWER identified Key Observation Points (KOPs) where glint and glare may be an issue. Photography was taken from different KOPs around the Imperial Valley Solar Project site, and GPS locations and camera information were recorded. 7 KOPs were identified, including motorists on Interstate 8.
2. *Characterize* – POWER worked closely with Tessera Solar and Stirling Energy Systems (SES) to develop accurate computer simulations of SunCatcher™ operations. The POWER team traveled to the Maricopa Solar Project site to observe and characterize the conditions in which glint and glare may be produced and validate the computer simulation process.
3. *Evaluate* – Visual analysts studied the simulated project under different operation modes and lighting conditions, and at different times of the year. These simulations were used to evaluate and document when glint, glare and flashing effects may be visible to KOPs, and to determine if a 20-foot fence or berm will reduce the occurrence of these effects. POWER reviewed simulations to evaluate the potential visibility of glint and glare to the KOPs. Simulation results were then validated with observations at the Maricopa Solar site. Results
4. *Mitigate* – POWER developed recommendations to mitigate the visibility of glint and glare to KOPs (see Section 1.5).

4. Q. What are your conclusions?

Our conclusions were:

Glint/Glare - A 20' fence will provide minimal screening for all SunCatcher operations studied.

- Glint - During normal operations and when a SunCatcher™ is tracking the sun, glint will not be visible to offsite viewers. By design, the parabolic mirror focuses light to the PCU, which blocks all direct reflections of the sun, regardless of viewer position, season or time of day.

- Glint may occur when a SunCatcher™ is in an off-axis position. During morning and evening hours when the sun is low on the horizon, viewers looking east (evening views) or west (morning views) may experience glint from these conditions (up to 30 minutes).
  - In all KOPs reviewed, a 20-foot fence would have little or no benefit to block the effects of glint during off-axis situations. The location of the glint, high in the parabolic mirror could be visible to KOPs over the top of the 20-foot fence.
  - Simulations determined if the offset track position was moved from 10 degrees to 25 degrees, glint would be eliminated in most of these situations
- Glare – Glare will be visible during normal operations. This effect is experienced from the back and side of a SunCatcher™ when looking into the PCU. Simulation review determined a 20-foot fence would provide minimal blocking benefits and was not recommended as mitigation.

Flashing Effects - In certain, very rare conditions, a flashing effect may be experienced by motorists in their peripheral vision, outside their focused vision. Due to the location of the glint, high on the parabolic mirror, a 20-foot screen fence or berm in its proposed location would provide minimal glint screening.

- Flashing effects to motorists were determined to occur only where consecutive rows of SunCatchers™ are in an offset tracking position, moving from one dish to the next. Offset tracking conditions in the morning or evenings may produce this result.
- In all KOPs reviewed, a 20-foot fence or berm would have little or no benefit to block the effects of glint during offset tracking situations (approximate 1-5% reduction in the duration of glint). However, study of transportation animations determined if the offset track position was moved from 10 degrees to 20-25 degrees, glint would be eliminated in most of these situations

Overall, we concluded that a 20 foot high berm or fence would provide only minimal benefits. Our conclusions and recommendations are contained in exhibit 25.

5. Q. Please describe your recommendations.

We made the following recommendations:

- a. Move the offset tracking position from 10 degrees to a position of 25 degrees,
- b. Position the Suncatchers in the 25 degree tracking position several minutes prior to sunup,
- c. Position the Suncatchers into the night stow position after sundown, and
- d. Develop an emergency Glint Response Plan.

6. Q. Does that complete your testimony?

Yes.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

5/10/2010

Date

Handwritten signature in blue ink, consisting of the name "Jason" followed by a stylized, circular flourish.

Jason Pfaff

PREPARED SUPPLEMENTAL TESTIMONY  
OF  
TRICIA WINTERBAUER  
**Hazardous Materials**

1. Q. Are you the same Tricia Winterbauer that submitted testimony in this proceeding on March 15, 2010?

Yes. My resume, submitted in Applicant's Prehearing Conference Statement, remains valid.

2. Q. Are you responsible for the hazardous materials analysis of the increased hydrogen amounts on the Imperial Valley Solar site?

Yes.

3. Q. What analysis did you perform?

The details of the centralized hydrogen system have evolved over time. The amount of hydrogen stored for each SunCatcher will be increased from 3.4 to 11 standard cubic feet (scf) which would accommodate PCU's operation. The Project consists of up to 31,200 SunCatchers and will use hydrogen gas as the working fluid in the PCU. Because of the hazardous nature of hydrogen there is a risk that it may cause an offsite consequence upon uncontrolled release. The Project conducted an offsite consequence analysis (OCA) for a worst case scenario release to evaluate the potential hazard posed by the hydrogen at the Project Site. It is important to note that the OCAs for the Project provide conservative evaluations for accidental hydrogen releases. The OCAs were performed following the methodology provided in the RMP guidance (U.S. EPA 1999).

4. Q. What are your conclusions?

OCAs were performed using the EPA approved RMP\*Comp modeling program and confirmed through RMP OCA Guidance calculations. The purpose of conducting these OCAs was to evaluate any potential offsite hazards that may occur from the storage and use of hydrogen at the Project Site.

The maximum potential extent of impact in the event of a worst-case release from the largest vessel (hydrogen storage tank), as defined by the RMP OCA Guidance, would be equivalent to 0.06 mile. However, in the event of the worst case scenario induced from cumulative releases at the site, the maximum impacted distance is 0.3 mile. These distances are derived from an unrealistic hypothetical situation where all potential hydrogen present at the Project Site participates in a vapor cloud explosion. Results from the OCA modeling demonstrated that an accidental release of hydrogen, under conservative worst-case scenario conditions, will not impact the public or environmental receptors in the vicinity of the site.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 10, 2010

\_\_\_\_\_  
Date

*Tricia Winterbauer*

\_\_\_\_\_  
Tricia Winterbauer

PREPARED SUPPLEMENTAL TESTIMONY  
OF  
SEAN GALLAGHER  
**Override**

1. Q. Are you the same Sean Gallagher that submitted testimony in this proceeding on March 15, 2010?

Yes. And my resume submitted in Applicant's Prehearing Conference Statement remains valid.

2. Q. Are you sponsoring any exhibits?

Yes. Exhibit 36 provided with this submittal. This exhibit is a compilation of letters of support for the project. It is important to recognize that this project has widespread support on a local, state and national level. The letters are from Senator Dianne Feinstein, Governor Arnold Schwarzenegger, State Senator Denise Ducheny, Assemblyman Manuel Perez, Chairman of the Imperial County Board of Supervisors Wally Leimgruber, CEO of the El Centro Chamber of Commerce Cathy Kennerson, President and CEO of the Imperial Valley Economic Development Corporation Tim Kelley, and SDG&E Senior Vice President James Avery.

3. Q. Will you summarize the nature of the support expressed in these documents?

Overall the letters express support for the Imperial Valley Solar project for the contributions that it will make to economic development in Imperial County, and for its contributions to California's Renewable energy and Climate Change goals. The letters from local leaders emphasize the significant contribution the Imperial Valley Solar Project will make in providing jobs and economic stimulation for Imperial County. The letters from state leaders and Senator Feinstein additionally express support for the project for its contributions to California's renewable energy requirements and climate change goals..

4. Q. How do these documents relate to the overall findings the Commission is requested to make in approving the project?

These documents demonstrate that a variety of policy makers recognize the economic and environmental significance associated with developing the Imperial Valley Solar Project, and support the development of the project for these reasons.

I swear under penalty of perjury that this testimony is true and correct to the best of my knowledge.

May 10, 2010

\_\_\_\_\_  
Date

  
Sean Gallagher



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
COMMISSION OF THE STATE OF CALIFORNIA  
1516 NINTH STREET, SACRAMENTO, CA 95814  
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**APPLICATION FOR CERTIFICATION FOR THE  
IMPERIAL VALLEY SOLAR PROJECT**  
(formerly known as SES Solar Two Project)  
**IMPERIAL VALLEY SOLAR, LLC**

**Docket No. 08-AFC-5  
PROOF OF SERVICE**  
(Revised 4/12/10)

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\*indicates change

DECLARATION OF SERVICE

I, Corinne Lytle, declare that on May 10, 2010, I served and filed copies of the attached, Applicant's Supplemental and Rebuttal Testimony. The original documents, filed with the Docket Unit, are accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[\[http://www.energy.ca.gov/sitingcases/solartwo/index.html\]](http://www.energy.ca.gov/sitingcases/solartwo/index.html)

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)*

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by personal delivery;

by delivering on this date, for mailing with the United States Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses NOT marked "email preferred."

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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:

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Attn: Docket No. 08-AFC-5

1516 Ninth Street, MS-4

Sacramento, CA 95814-5512

[docket@energy.state.ca.us](mailto: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 signed by

—

\_\_\_\_\_  
**Corinne Lytle**



BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT  
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**APPLICATION FOR CERTIFICATION FOR THE  
IMPERIAL VALLEY SOLAR PROJECT**  
(formerly known as SES Solar Two Project)  
**IMPERIAL VALLEY SOLAR, LLC**

**Docket No. 08-AFC-5  
PROOF OF SERVICE**  
(Revised 4/12/10)

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\*indicates change

DECLARATION OF SERVICE

I, Corinne Lytle, declare that on May 17, 2010, I served and filed copies of the attached, Applicant's Submittal of Compiled Testimony. The original documents, filed with the Docket Unit, are accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:

[\[http://www.energy.ca.gov/sitingcases/solartwo/index.html\]](http://www.energy.ca.gov/sitingcases/solartwo/index.html)

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*AND*

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Sacramento, CA 95814-5512

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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 signed by

—

\_\_\_\_\_  
**Corinne Lytle**