CALIFORNIA ENERGY COMMISSION
1516 NINTH STREET
SACRAMENTO, CA 95814-5512

December 7, 2009

DOCKET
09-AFC-6
DATE DEC 7 2009
RECD DEC 7 2009

Gavin Berg, Senior Project Manager
Solar Millennium LLC
1625 Shattuck Avenue, Suite 270
Berkeley, CA 94709

RE: BLYTHE SOLAR POWER PLANT (09-AFC-6), DATA REQUESTS SET 1 (#1-260)

Mr. Berg:

Pursuant to Title 20, California Code of Regulations, Section 1716, the California Energy Commission staff seeks the information specified in the enclosed data requests. The information requested is necessary to: 1) more fully understand the project, 2) assess whether the facility will be constructed and operated in compliance with applicable regulations, 3) assess whether the project will result in significant environmental impacts, 4) assess whether the facilities will be constructed and operated in a safe, efficient and reliable manner, and 5) assess potential mitigation measures.

This set of data requests (#1-260) is being made in the areas of Air Quality (#'s 1-29), Alternatives (#'s 30-44), Biological Resources (#'s 45-97), Cultural Resources (# 98-152), Efficiency (# 153), Geological Hazards (# 154-156), Public Health (# 157-164), Reliability (# 165), Soil & Water Resources (# 166-229), Transmission System Engineering (# 230-231), Visual Resources (# 232-252), Waste Management (# 253-258) and Worker Safety and Fire Protection (# 259-260). Written responses to the enclosed data requests are due to the Energy Commission staff on or before January 6, 2010 or at such later date as may be mutually agreeable.

If you are unable to provide the information requested, need additional time, or object to providing the requested information, you must send a written notice to both the Committee and me within 20 days of receipt of this notice. The notification must contain the reasons for not providing the information, the need for additional time, and the grounds for any objections (see Title 20, California Code of Regulations, Sec.1716 (f)). If you have any questions, please call me at (916) 653-8236 or email me at asolomon@energy.state.ca.us.

Sincerely,

Alan Solomon
Project Manager

cc: Docket (09-AFC-6)
Proof of Service List

PROOF OF SERVICE (REVISED 11/18/09) FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 12/7/09
HA

Technical Area: Air Quality
Author: Jacquelyn Leyva & William Walters

BACKGROUND: BASELINE SITE CONDITIONS

In order to evaluate the air quality impacts from this project the current baseline conditions of the project site need to be understood.

DATA REQUESTS

1. Please describe the types of activities that emit combustion and fugitive dust emissions on the site currently and the quantities of those emissions that occur from those activities.
2. Please describe whether those activities will be permanently discontinued when the project is completed and estimate the reductions from the current onsite baseline emissions.

BACKGROUND: SURFACE SOILS SILT CONTENT, FUGITIVE DUST EMISSION CALCULATIONS AND PARTICULATE AIR DISPERSION MODELING ANALYSIS

The Application for Certification (AFC) does not provide the information regarding the surface soils silt content for the fugitive dust control calculations. This may be provided later by the Geotechnical Report that has not yet been submitted.

DATA REQUESTS

3. Please provide data to enable an estimate of the actual surface silt content at the site, which can be from the geotechnical report not submitted as part of the AFC.
4. Please update the construction and operations fugitive dust emissions calculations as appropriate based on the site specific surface silt content estimate.
5. Please update the construction and operations particulate modeling analysis, as necessary, based on the revised fugitive dust emission calculations.

BACKGROUND: CONSTRUCTION GREENHOUSE GAS (GHG) EMISSIONS CALCULATIONS

The AFC does not contain a construction GHG emissions estimate. Staff requires this estimate to complete the GHG analysis for the project.

DATA REQUEST

6. Please provide a GHG emissions estimate for the project construction in CO2-equivalent tons for the entire construction period.

BACKGROUND: CONSTRUCTION EMISSIONS CALCULATIONS

The emission calculations use assumptions that require additional information to be confirmed by staff. The electronic version of Appendix E-2 was only provided as a .pdf file. Staff needs the original spreadsheet file, with embedded calculations, to complete its review.

DATA REQUESTS

7. Please provide the spreadsheet version of the Appendix E-2 Construction Emission Worksheets with the embedded calculations intact.
8. Please identify whether all of the off-road equipment emission factors are based on Tier 3 engines, or if Tier 3 engines are only assumed for the engines listed with Tier 3 in the equipment name column.
9. Please provide the input assumptions to obtain the OFFROAD Model raw engine emission factors, the assumptions used to derive the equipment specific emission factors, and please provide the spreadsheets used to create the emission factors shown in Appendix E-2.

BACKGROUND: CONSTRUCTION EMISSIONS DISPERSION MODELING

The applicant's construction emissions dispersion modeling uses the same small area sources for both short-term and long-term modeling. However, construction over a year should include emissions over a much larger area of the site than is modeled. Therefore staff needs the applicant to either provide a defensible rationale for the location and extent of the area sources used in the annual impact modeling for construction, or provide a revised analysis that includes a more reasonable and conservative set of area source locations that would correspond to annual construction.

DATA REQUESTS

10. Please provide a defensible rationale as to why the locations for the area source emission inputs did not change from short-term to annual modeling, or please provide annual construction modeling that matches the extent of annual construction activities.
11. Please provide a defensible rationale why the modeling analysis focuses on the construction for the northwest Unit and not the other three units' construction.
12. Please provide an analysis that indicates whether the meteorological data shows that this would be a conservative modeling assumption for predicting worst-case fence line impacts.

BACKGROUND: CONSTRUCTION EMISSIONS MODELING - NO_2 IMPACTS

The results of the applicant's construction emissions modeling analysis, as shown in Table 5.2-33, indicate that the project would cause exceedances of the California 1-hour NO_2 standard. Staff has reviewed the applicant's modeling inputs and suggests a revision to the modeling procedures used by the applicant. Staff requests that the applicant revise the 1-hour construction NO_2 modeling analysis to include a NOx_OLM source group so that the ozone concentration is not added repeatedly to the results for each emission source. This modeling revision must use the recently corrected version of the AERMOD program, correcting issues with the NOx_OLM (ozone limiting method) source group option. Additionally, the use of both hourly ozone and hourly NO_2 background data, rather than using the worst-case hourly maximum NO_2 concentration as the background concentration, would reduce the conservatism of the modeling results. Therefore, staff needs the applicant to revise the modeling analysis to use the NOx_OLM modeling option with the NOx_OLM source group option, and if necessary revise the analysis using actual hourly background NO_2 data to determine the maximum NO_2 impacts from construction. Additionally, staff believes that the applicant's

suggested mitigation measure to limit construction activities to daylight hours is likely infeasible and unenforceable considering the very long construction period and remoteness of this project. Please note that hourly ozone and NO_2 data, if used in a revised modeling analysis, should be from the same monitoring station as close to the site and to the meteorological data source as possible and should use the same years as the meteorological data.

DATA REQUEST

13. Please provide a revised construction emissions NO_2 modeling analysis that uses the NOx_OLM option with an OLM source group, and if necessary or desired, that uses actual hourly background NO_2 data.

BACKGROUND: OPERATING EMISSIONS – MIRROR WASHING MAINTENANCE VEHICLE MILES TRAVELED

Estimations and assumptions seem unclear for vehicle travel related to solar mirror washing. AFC section 2.5.5.3, page 2-18 estimates that mirror washing will take place twice a week for half of the year from mid-spring to mid-fall and once a week for the other half of the year from mid-fall to mid-spring, accounting for 78 washes annually. Table E.3-7a however, estimates that mirror washing will occur 2 times per month for 6 months a year and once per month for the other 6 months per year, a total of 18 times per year.

The total mirror washing vehicle miles traveled (VMT) calculation in Table E.3-7a assumes that a complete mirror washing event would require the same travel distance as the number of miles of parabolic trough piping. Staff is concerned that the mirror washing vehicles would need to travel to and from the washing areas daily and also return to the maintenance complex to refill the water tank periodically. Additionally, the truck routes will go around the troughs increasing their distance in relation to the total piping length. Therefore, staff believes that the total mirror washing truck mileage, unless there are other mirror washing factors such as washing two troughs at a time, would be at least two times the parabolic trough pipe distance for each washing event cycle. Staff needs additional information from the applicant to support their miles per washing event estimate.

DATA REQUESTS

14. Please clarify the estimations and assumptions used in determining the number of mirror washing events per year.

15. Please provide a clear and defensible explanation of why the amount of parabolic trough pipe length is equivalent to the mirror washing vehicle mileage for each washing cycle event, or revise this estimate as necessary to obtain a more reasonable total vehicle mileage estimate for mirror washing.

BACKGROUND: OPERATING EMISSIONS - VEHICLE MITIGATION MEASURES

Staff is concerned that the overall criteria pollutant air quality benefit of the proposed project's solar energy production is being at least partially cancelled by the project's maintenance emissions.

Additionally, the emission factors assumed in the applicant's emission calculations appear to be overly conservative as staff will recommend a condition requiring that all site dedicated vehicles be new model year vehicles, which meet model year California

emission standards, at their time of purchase/lease/etc. Staff also needs to understand what additional dedicated onsite vehicle mitigation the applicant would be willing to stipulate to, assuming such mitigation is available and cost effective.

DATA REQUESTS

16. Please revise the emissions calculations for the onsite dedicated vehicle exhaust emissions assuming only new model year vehicles are used.

17. Please identify if the applicant would be willing to stipulate to a condition of certification that would require a review of available alternative low-emission vehicle technologies, including electric and hydrogen fueled vehicles, and use of those technologies to replace the proposed diesel and gasoline fueled vehicles used for operations maintenance if lower emission alternative technology vehicles are both available and not cost prohibitive.

BACKGROUND: OPERATIONS – EQUIPMENT REFUELING EMISSIONS

The AFC does not indicate that there will be an on-site gasoline tank or diesel tank for vehicle refueling at the site.

DATA REQUESTS

18. Please indicate what will be proposed for refueling the dedicated on-site gasoline and diesel fueled equipment fleet.

19. Please indicate if the additional vehicle mileage required for refueling offsite, either driving vehicles to nearby retail gasoline stations or contracting fuel/lube trucks for onsite refueling, is considered in the total vehicle miles estimates and emissions estimates, or please correct the estimates accordingly.

BACKGROUND: GHG ANALYSIS

Sulfur hexafluoride (SF_6) is one of the most potent greenhouse gases. SF_6 is often used for insulating and cooling of electrical equipment such as transformers and switchgear. The project is identified to have a significant number of electrical equipment that could use SF_6. While some of the electrical equipment is noted to be air cooled, the AFC GHG analysis does not include comprehensive information for all electrical equipment regarding if or how much SF_6 would be used. Staff needs to understand if SF_6 is a potential GHG emission from this project and the emission inventory of SF_6.

DATA REQUEST

20. Please provide an estimate of the SF_6 onsite inventory and leakage emissions both in operation and construction phases to complete the GHG emission estimates.

BACKGROUND: EMERGENCY GENERATOR ENGINE

One 300-hp diesel-fired emergency generator engine is proposed for each 250 MW power block for this project. Three other recently proposed solar thermal power facilities have proposed much larger emergency generator engines. The Abengoa Mojave project has proposed a 4,160 hp generator for each 125 MW power block, the Genesis Solar project has proposed a 1,341 hp engine for each 125 MW power block, and the Ivanpah project has proposed a 3,750 hp engine for each 100 MW of generation. So,

staff would like to confirm the size and purpose of the emergency generator engines proposed for this project.

DATA REQUEST

21. Please confirm the emergency generator engines size.
22. Please describe what facilities the emergency generators will support in an emergency.

BACKGROUND: AUXILIARY BOILER AND HEATER UTILITY AND PURPOSE

Other recent solar trough projects have proposed a single auxiliary boiler for startup support and HTF freeze protection, while this project has proposed a separate auxiliary boiler and heater. Staff would like to confirm that 500 hours is adequate for HTF freeze protection and would like to also confirm the purpose of the auxiliary heater. Staff would also like to confirm the purpose of the auxiliary boiler. Additionally, the Application for Certification (AFC) is unclear on the equivalent MWh generated or enabled by the auxiliary boilers. This information will be necessary for the GHG analysis discussion.

DATA REQUESTS

23. Please confirm that 500 hours of operation is sufficient for HTF freeze protection.
24. Please confirm that the sole purpose of the auxiliary heaters is for HTF freeze protection and that they will not be used directly for power generation or for rapid start support.
25. Please confirm that the use of the auxiliary boilers is strictly for rapid start support through overnight low load (25 percent) operation and early morning full load operation and that they will not be used directly for power generation or for HTF freeze protection.
26. Please identify the equivalent MWh generated or enabled by the rapid start support use of these boilers.

BACKGROUND: CUMULATIVE IMPACTS

The applicant's cumulative impact analysis, including information presented in Section 5.1 of the AFC, does not seem to include a request for a permit project list from the Mojave Desert Air Quality Management District (MDAQMD or "District"). Staff needs to make sure that there are no other large stationary sources that have recently been permitted, or are in the permitting process near the site.

DATA REQUESTS

27. Please provide a list from the MDAQMD of large stationary source projects with permitted emissions, for projects with greater than 5 tons of permitted emissions of any single criteria pollutant. Include projects located within six miles of the project site that have been recently permitted, but did not start operation prior to 2009 such as the Blythe Energy Project Phase II, or are in the process of being permitted.
28. Please provide a cumulative impacts modeling analysis in consultation with Energy Commission staff, if necessary, based on the project list provided by MDAQMD.

BACKGROUND: AIR QUALITY PERMIT APPLICATION PROCESS

A Determination of Compliance (DOC) analysis from MDAQMD will be needed for staff's analysis. Staff will need to coordinate with the applicant and District to keep apprised of any air quality issues determined by the District during MDAQMD's permit review.

DATA REQUEST

29. Please provide copies of any official submittals and correspondence to or from the MDAQMD within 5 days of their submittal to or their receipt from the District.

Technical Area: Alternatives
Author: Susan Lee (CEC)

BACKGROUND

In Section 4.0 Alternatives of the Application for Certification (AFC), page 4-7, Section 4.5.2, Project Site Alternatives, four alternative sites are identified. The sites are described as follows:

- El Centro – BLM property north of Plaster City, California
- Johnson Valley – BLM, State of California, and private property near Johnson Valley, California
- East of Lancaster – Private land east of Lancaster, California
- Chuckwalla Valley – BLM property in general area southwest of Blythe, California

These very general location descriptions do not allow staff to confirm the size of site, land ownership, location of existing and projected transmission lines, and environmental suitability, among other attributes (see Data Request below).

DATA REQUEST

30. In order to facilitate preparation of the SA/DEIS document and allow further analysis of the project site with alternative sites, please provide the precise locations of the four alternative sites (Township/Range/Section and/or parcel numbers) and GIS data if available.
31. Please identify the size (total acreage) and dimensions of each alternative site.
32. For private property sites, please indicate the number of individual landowners comprising ownership of the alternative site, the assessor's parcel number, and the acreage of each separate parcel and landowner.
33. For sites located on BLM-administered land, please indicate if the BLM has received a right-of-way application for use of any of the alternative site land and the status of the application, if available.

BACKGROUND

In AFC Section 4.0 Alternatives, page 4-7, Section 4.5.2, Project Site Alternatives, four alternative sites are identified. Criteria used to compare the alternative sites include: site suitability (grade, land use), site control, transmission, environmental sensitivity, and solar resource. The discussion of environmental sensitivity is very limited with an emphasis on conflicting land designation. The environmental suitability of a site encompasses many more attributes. Several environmental organizations (Audubon California, California Native Plant Society, California Wilderness Coalition, Center for Biological Diversity, Defenders of Wildlife, Desert Protective Council, Mojave Desert Land Trust, National Parks Conservation Association, Natural Resources Defense Council, Sierra Club, The Nature Conservancy, The Wilderness Society, and The Wildlands Conservancy) recently developed renewable siting criteria to provide ecosystem level protection to the California Desert Conservation Area by giving

preference to disturbed lands, steering development away from lands with high environmental values, and avoiding the deserts' undeveloped cores.

Understanding how the project site and the alternative sites compare in terms of these criteria will help staff compare potentially significant impacts at the proposed project site and the alternative site locations identified in Section 4.5.2.

DATA REQUEST

34. Please fill in Table 1 on the last page of this Alternatives Data Request section to compare the East of Lancaster alternative site with the proposed project. Please also include any information previously gathered on the El Centro, Johnson Valley, and Chuckwalla Valley alternative sites.

BACKGROUND

AFC Table 4-2 compares the four alternative sites with the proposed project for transmission interconnection. Table 4-2 states that three of the sites, including the proposed site, are either "good" or "excellent" as they are near existing or planned transmission lines or substation, one site is "medium" as it is 14 miles from an existing 500 kV line, and one site is "poor" as it is 31 miles from an existing 500 kV line, although it is 3 miles from a proposed LADWP transmission line. AFC Section 2.7, Transmission System, states that the "The Project facility will be connected to the SCE transmission system by constructing a single-circuit, three-phase 500-kV transmission line that will interconnect at the new Colorado River substation planned by SCE approximately five miles southwest of the BSPP plant site."

AFC Section 2.6 further states "Although the route has not been finalized, the gen-tie line is expected to proceed directly south from the Project site power block, eventually both crossing I-10 and turning westward to SCE's planned Colorado River substation. This will require several miles (expected to be less than 10), of overhead 500-kV single circuit, three-phase transmission line on BLM-managed lands between the plant site boundary and the Colorado River substation." and that transmission towers immediately west of Blythe Airport will be limited in height to 90 feet in accordance with FAA regulations. AFC Figure 2-1 shows a possible transmission line route. It does not indicate a possible substation location.

DATA REQUEST

35. Given the uncertainty regarding the transmission line route and possible substation location, please detail what additional transmission line routes or substations are being considered. Illustrate all options on a detailed map that includes section numbers and boundaries.

BACKGROUND

In AFC Table 4-2, the four alternative sites are compared to the proposed site. As with the proposed site, the East of Lancaster site is classified as "good" for the criteria of environmental sensitivity. In order to compare the biological and cultural attributes of the East of Lancaster Alternative with the proposed project, additional information is needed.

DATA REQUEST

36. One of the site selection criteria for the proposed Blythe SPP site was environmental sensitivity. Please provide the results of a CNDDB search for the East of Lancaster alternative site.

37. Please provide an Information Center search (Class I) for recorded sites identified within the East of Lancaster alternative site.

BACKGROUND

In order to define alternative sites that would be potentially viable, Staff has reviewed scoping comments (for the PEIS for solar development on BLM-administered land) and met with Energy Commission and BLM staff and identified other potentially viable sites. We have identified a potential additional site called the Blythe Disturbed Land alternative. In order to further evaluate this site, additional information is required. A GIS file of the Blythe Disturbed Land alternative will be provided along with this data request. A map in PDF format is attached (see Data Request Figure 1.)

DATA REQUEST

38. Please provide the results of a CNDDB search for the Blythe Disturbed Land alternative site.

39. Please provide an Information Center search (Class I) for recorded sites identified within the Blythe Disturbed Land alternative site.

BACKGROUND

In AFC Table 4-2, the four alternative sites are compared to the proposed site. The East of Lancaster sites are rated poor in terms of site control. Section 4.5.2.4 of the AFC states that the East of Lancaster region is privately owned and heavily subdivided. These same concerns may be present for the Blythe Disturbed Land alternative.

DATA REQUEST

40. To determine the feasibility of obtaining site control, please explain how many separate owners would result in an unacceptable probability of obtaining site control. Consider the Renewable Energy Transmission Initiative (RETI) Phase 2A Report's statement that: "At the recommendation of solar generators and other stakeholders, proxy solar projects in areas having more than 20 different owners per two-square mile area were deemed unlikely to be developed."

BACKGROUND

AFC Section 4.6, Alternative Site Layout, states that the proposed configuration is a result of geographic, site control, and environmental constraints as well as engineering design and operating constraints of a utility-scale 1,000 MW solar trough power plant. AFC Section 2.5.3, Energy Conversion Facilities Description, states that the solar fields are a modular, distributed system of solar collector assemblies (SCAs). The section also states that each collector loop consists of two adjacent rows of SCAs, about 1,300 feet long.

In order to protect some areas of valuable resources within the site, it may be necessary to consider eliminating areas of solar troughs in specific areas or rearranging the configuration of the troughs within the portions of the ROW application. As a result, staff needs a more thorough understanding of the engineering requirements of the project and its technology.

DATA REQUEST

41. Please describe in detail the engineering constraints, if any, to the development of a revised configuration of each 250 MW unit. A revised configuration may result in the rows of troughs not being as long and not configured in a solid rectangular area. As an example, it may be desirable to allow existing washes to pass through an undeveloped portion of the site and to allow troughs to be installed on either side of the wash.

    a. Please define whether there is a specific minimum or maximum length that each individual solar collector loop assembly must be, and if it is necessary that the solar collector loops be identical in length. Please define both engineering and economic constraints to having variable collector loop lengths.

    b. Please describe in detail whether there is flexibility in the lengths of the supply and return header piping or if these are specific to the solar collector assemblies, and if so, what is the flexibility.

    c. Please describe whether there is a distance between components of the solar field and the power block that would result in a loss of heat in the heat transfer fluid, such that extending it would reduce the economic or engineering feasibility of the project.

    d. Please describe if there is a minimum number of rows of solar collector loops that would make up a unit or if there is flexibility in the number of units that could be arranged to create a 500 MW power plant.

    e. Please describe if it is possible to have multiple and smaller power blocks (e.g., 50 or 100 MW) and describe how this would increase the flexibility of the solar field arrangement.

    f. Please explain the difference between the crossover pipe, HTF loops, and Heat Collection Elements. If a reconfigured solar array were developed, discuss whether these components would traverse desert washes to reach the power blocks.

42. Please provide detailed information regarding any alternative configurations/engineering considered but rejected by the applicant. Please include details regarding the engineering constraints to each alternative configuration.

43. Please see **Alternatives Data Request-Figure 2**, which illustrates areas within the project boundaries that are occupied by the most sensitive biological resources -- desert washes (shown in green) and special status plant species (shown in pink). The areas outlined in red identify potential revised configurations that would reduce effects on these resources. In order for the Energy Commission and BLM to evaluate a potential alternative that avoids effects on

these sensitive areas without reducing generation output, surveys must be completed within the portions of these areas that are outside of the current project footprint. Please complete biological and cultural resources surveys (as defined in Title 20, Section 1704, and Division 2, Chapter 5, Appendix B of the CCR for the 12 month process) for the areas outlined in red. Alternatively, complete biological and cultural resources surveys for other areas within the project ROW application boundaries (but outside of the current project footprint) that minimize effects on biological resources to the same degree as the areas identified on Figure 2.

44. Please provide detailed information regarding the feasibility, economic and engineering, of a reduced acreage alternative that would avoid the most sensitive biological resources. See Data Request - Figure 3 as example of a reduced acreage alternative based on avoiding impacts to desert dry wash woodland, waters (shown in light green) and special status plants (shown in pink), as well as wildlife movement corridors. The area outlined in white is within the project disturbance area. The area outlined in **Alternatives Data Request Figure 3** retains 75 to 80 percent of the original footprint.

Alternatives Data Request – Table 1

Environmental Criteria	Proposed Project Site	East of Lancaster	El Centro	Johnson Valley	Chuckwalla Valley
Is site mechanically disturbed?					
Is site located adjacent to degraded and impacted private lands?					
Is site a Brownfield?					
Is site located adjacent to urbanized areas (indicate distance)?					
Does site require the building of new roads (indicate length)?					
Could site be served by existing substations (indicate name and distance)?					
Is site located proximate to sources of municipal wastewater (indicate name and distance)?					
Is site located proximate to load centers (indicate name and distance?)					
Is site located adjacent to federally designated corridors with existing transmission lines?					

Environmental Criteria	Proposed Project Site	East of Lancaster	El Centro	Johnson Valley	Chuckwalla Valley
Does site support sensitive biological resources, including federally designated and proposed critical habitat; significant populations of federal or state threatened and endangered species, significant populations of sensitive, rare and special status species and rare or unique plant communities?					
Is site within an Area of Critical Environmental Concern, Wildlife Habitat Management Area, proposed HCP and NCCP Conservation Reserves?					
Does site contain land purchased for conservation including those conveyed to BLM?					
Does site contain landscape-level biological linkage areas required for the continued functioning of biological and ecological processes?					

Environmental Criteria	Proposed Project Site	East of Lancaster	El Centro	Johnson Valley	Chuckwalla Valley
Is the site within Proposed Wilderness Area, proposed National Monuments, and Citizens' Wilderness Inventory Areas					
Does the site contain wetlands and riparian areas, including the upland habitat and groundwater resources required to protect the integrity of seeps, springs, streams or wetlands?					
Is the site a National Historic Register eligible site and does it contain other known cultural resources?					
Is the site located directly adjacent to National or State Park units?					

Technical Area: Biological Resources
Authors: Susan Sanders and Carolyn Chainey-Davis (Energy Commission)
Mark Massar (Bureau of Land Management)

BACKGROUND

Desert Tortoise. Based on the description of survey results and habitat assessments provided on pages 69 through 73 of Appendix F, the Biological Technical Report, staff has concluded that the project disturbance area and the majority of the buffer contains suitable habitat for desert tortoise. The western areas provide higher quality habitat and are used more frequently by desert tortoise than the eastern areas, which is likely due to increased forage production and availability of caliche cave cover sites in the western area. While only one desert tortoise was observed within the anticipated disturbance area, the presence of scat and active burrows (some with egg shell fragments and tracks) shows that other desert tortoises live and forage within the western side of the disturbance area. Also, the Desert Tortoise Technical Report notes that lower than average rainfall and increased vegetation in the drainage areas of the western disturbance area probably lowered the detection rates of live desert tortoises and tortoise sign. According to the October 26, 2009 Data Adequacy Supplement, the transmission line survey area is low quality habitat for desert tortoise, although the presence of tracks south of I-10 indicates the area is currently occupied by tortoises. Staff needs additional information on the quality of the desert tortoise habitat within the project area and along the transmission line corridor to analyze project impacts in a regional context, and requests below a figure depicting the habitat using the Nussear et al. (2009) model. To conduct a GIS analysis staff also needs the shapefiles or an Excel spreadsheet of Attachment 4 from the Desert Tortoise Technical Report.

To fully assess project impacts to desert tortoise and to develop mitigation measures, staff also needs to review the desert tortoise relocation/translocation plan that must be included as part of the Staff Assessment/Final Environmental Impact Statement (SA/FEIS). In addition, staff needs to review the Incidental Take Permit application that should be submitted to the California Department of Fish and Game as soon as possible.

DATA REQUESTS

45. <u>USGS Desert Tortoise Habitat Model</u>. Please provide a figure depicting desert tortoise habitat within the project area based on the recent United States Geological Survey (USGS) model (Nussear et al. 2009). Please provide this figure at a 1:250,000 scale so that this information is depicted in a regional context (eastern Riverside County).

46. <u>Attachment 4 Shapefile/Excel Spreadsheet</u>. Please provide Attachment 4: Spreadsheet of Data Collected during Focused Desert Tortoise Surveys from the Desert Tortoise Technical Report as a shapefile or as an Excel spreadsheet.

47. Desert Tortoise Relocation/Translocation Plan. Please provide a draft Desert Tortoise Relocation/Translocation Plan that incorporates the most recent guidance from the USFWS and CDFG. A translocation is required when a desert tortoise must be moved more than 1,000 meters to clear it from the project site, while a relocation is required when a desert tortoise can be moved less than 1,000 meters to clear it from the project site. The goals of this relocation/translocation effort should be to:

- Relocate/translocate all desert tortoises from the project site to nearby suitable habitat,
- Minimize impacts on resident desert tortoises outside the project site,
- Minimize stress, disturbance, and injuries to relocated/translocated tortoises, and
- Assess the success of the relocated/translocated effort through monitoring.

Please discuss relocation/translocation procedures and guidance in the plan, including a description of clearance survey protocol and desert tortoise transportation and release procedures, and develop a post-translocation monitoring and reporting plan. All methods discussed in the plan should be consistent with the *Guidelines for Handling Desert Tortoises During Construction Projects* (Desert Tortoise Council 1999) or the most recent handling guidance provided by the U. S. Fish and Wildlife Service.

Generally, the relocation/translocation plan should include the following information:

a. Identify potential relocation areas within 1,000 meters of the project site based on the presence of suitable soils, vegetation community, vegetation density and abundance, perennial plant cover, forage species, geomorphology, and slope;

b. Identify potential translocation sites based on the presence of suitable soils, vegetation community, vegetation density and abundance, perennial plant cover, forage species, geomorphology, and slope;

c. A description of the survey methods that will be used for resident populations at translocation sites, including health assessment sampling;

d. Description of measures that would be implemented to prevent relocated/translocated desert tortoise entering the site or other hazardous areas;

e. Description of quarantine facilities to provide individual quarantine for all tortoises prior to translocation;

f. Description of health assessments that would be performed by qualified biologist or veterinarian on each tortoise prior to translocation;

g. A treatment/disposition plan for each tortoise, including those unfit for translocation;

h. Description of translocation procedures, including timing (e.g., time of year, time of day);

i. Description of post-translocation monitoring and adaptive management activities;

j. Description of methods used to mark relocated/translocated tortoises and fit them with transmitters to so that they can be located and identified during post-relocation/translocation monitoring; and

k. Description of how data would be compiled, synthesized, and reported to USFWS, CDFG, BLM, and Energy Commission staff.

The translocation site must:

a. be on Federal or State lands in California within the Eastern Colorado Desert Recovery Unit for the desert tortoise;

b. have no proposed rights-of-way or other encumbrances at the time of its establishment; and

c. be sufficiently distant from major highways (e.g. I-10) to provide a safety buffer for long-distance movements that some desert tortoises are likely to make following translocation.

48. Incidental Take Permit. Please submit an Incidental Take Permit application to the California Department of Fish and Game, including measures to avoid and minimize the take of desert tortoise and to fully mitigate the impact of that take.

BACKGROUND

Raven Monitoring/Control Plan. Mitigation measure BIO-57 consists of a brief description of Best Management Practices (BMPs) that will be employed to minimize project related increases in raven numbers, but the SA/FEIS will need to include a considerably more detailed Raven Monitoring and Control Plan as part of the conditions of certification.

DATA REQUEST

49. Raven Monitoring & Control Plan. Please provide a draft Raven Monitoring/Control Plan that describes methods to avoid attracting common ravens and/or providing subsidies during all phases of development and use, including construction, operation, and decommissioning. In situations where subsides such as power lines and structures for perching cannot be eliminated, the plan should require

implementation of best management practices such as reduction of available subsidies, raven monitoring and raven nest removal. Potential subsidies to be considered in the plan should include but not be limited to:

- Availability of water from dust abatement activities, equipment cleaning and maintenance, evaporation and retention ponds, drainage areas or landscaping;
- Potential perching, roosting, or nesting sites;
- Food sources from soil disturbance and road kill (e.g., small mammals, insects); and
- Food sources and attractants from human and animal food and waste.

To address the indirect and cumulative effects of the project, participation would also be recommended in a regional raven management plan either through monetary or in-kind contributions coordinated by the Desert Managers Group. The draft Raven Monitoring and Control Plan should incorporate the most recent guidance from the USFWS and include at least the following elements:

a. Purpose/objectives of the Plan;
b. Identification of project design features and other measures to manage potential introduction of subsidies that may attract ravens to the area;
c. Identification of the area covered by the monitoring and raven control activities;
d. Description of baseline data documenting the abundance of raven on the project site and out to one mile from the project boundaries;
e. Establishment of quantitative success criteria for achieving the objectives of the plan;
f. Documentation of the effectiveness of project design features and BMPs;
g. Identification of triggers that will prompt implementation of management actions to control ravens, and a description of those management actions (e.g., nest removal, elimination of problem ravens);
h. Description of a monitoring plan, including a discussion of survey methods and frequency, for establishing baseline data on pre-project raven numbers and activities and assessing post-project changes from this baseline;
i. Description of adaptive management practices used to ensure effectiveness of accomplishing the purpose of the raven management plan;

j. Regular reporting to document raven management measures that have been implemented and results of raven abundance and effectiveness monitoring throughout the life of the project; and

k. Description of worker education, at all phases of development, as it pertains to avoiding and reducing subsidies for ravens and to promoting desert tortoise awareness.

BACKGROUND

Impact Analysis and Mitigation for Western Burrowing Owls. Page 5.3-31 notes that Figure 5.3-8 of the AFC displays the locations of western burrowing owls observed, active burrows (i.e., those occupied by owls), and other locations where sign or potential sign were observed during surveys. Staff needs additional information about what indicators of signs were observed at "other locations". Trash, debris, or coyote scat are often placed at the apron of the burrow when owls are nesting to throw off their scent to predators, so an indication of the type of sign observed would be informative. According to the attribute table for the burrowing owl shapefile many of the burrows with owl sign were classified as potential owl burrows; staff needs clarification as to why these burrows with sign were classified as only potential. Staff also needs clarification as to why other burrows were labeled as potential owl burrows, but there was no indication whether sign was found at the burrow. It is unclear from the attribute table whether Burrow #17 was an occupied burrow. Staff needs a modified shapefile with a separate column in the attribute table for presence of owl sign that includes burrows with sign, burrows without sign, occupied burrows, owl location, and no data available.

Staff also needs additional information about the Phase III survey efforts. Page 6 of Appendix J, the Burrowing Owl Technical Report, lists the 11 surveyors who conducted the Phase III surveys, and indicates that a minimum of 4 site surveys were conducted between April 15 and June 15, 2009, but this does not provide enough information to evaluate the total time spent surveying the project area, where the surveys were conducted, or if surveys were conducted at the appropriate time of day (two hours before sunset to one hour after or from one hour before to two hours after sunrise). Page 5.3-41 of the AFC states that the project would impact burrowing owls by "*removing one active WBO burrow and habitat for one individual WBO. No WBO breeding in 2009 was documented during surveys*." On Page 7 of Appendix J the report concludes: "*A low density of western burrowing owls on the Project site is consistent with the documented general abundance of burrowing owls in the surrounding region*." Staff needs more information about the Phase III surveys to evaluate this conclusion.

Mitigation measure BIO-39 on page 55 of the AFC recommends passive relocation of burrowing owls to exclude them from their burrows to avoid construction impacts. Staff is concerned that passive relocation may be an inappropriate method for avoiding impacts to burrowing owls on very large acreage projects because owls excluded from burrows are likely to move to the

next available burrow within the project impact area, and will once again need to be excluded. A more active translocation effort may be required to avoid and minimize impacts to burrowing owls, as well as a detailed, comprehensive Burrowing Owl Translocation and Management Plan (Plan). The goals of the translocation plan component of the Plan should include:

- Translocating all burrowing owls within the project impact area to nearby areas that would provide suitable nesting and foraging habitat;
- Minimizing impacts to resident burrowing owls and other sensitive species within the translocation site;
- Minimizing stress, disturbance, and injuries to translocated owls; and
- Assessing the success of the translocation effort through monitoring.

DATA REQUESTS

50. Burrowing Owl Field Data.

    a. Please provide a detailed summary of the field data for the Phase III surveys, including date, start, and stop times of the surveys (not including travel time to reach the survey area), number and location of burrows surveyed during each visit, and the personnel conducting the survey.

    b. Please include in this summary the number of times each of the 92 active burrows that had burrowing owl sign were surveyed at the appropriate time of day (two hours before sunset to one hour after or from one hour before to two hours after sunrise), during the appropriate weather conditions (e.g., wind speeds <20 mph), and the type of sign at each of these burrows.

    c. Please clarify why many of the burrows with owl sign were classified only as potential owl burrows.

    d. Please clarify why some burrows were labeled as potential owl burrows even without indication of sign found at the burrow.

    e. Please provide a modified shapefile with a separate column in the attribute table for presence of owl sign with the following values: burrows with sign, burrows without sign, occupied burrows, owl location, and no data available.

    f. Please indicate the type of sign, if any, for all burrows (if no data are available please indicate).

    g. Please update all the maps in the report depicting burrowing owl locations with the following values: burrows with sign, burrows without sign, occupied burrows, owl location, and no data available.

    h. Please provide the data forms for the Phase III surveys.

51. Burrowing Owl Translocation Plan. Please provide a Burrowing Owl Translocation and Management that includes at least the following components:

   a. Translocation Area Habitat Description: Provide a description of the habitat characteristics of the translocation area with respect to burrowing owls (for example, vegetation, topography, soils, level of disturbance, presence of suitable burrow sites). Include a figure depicting the location of the proposed translocation area and existing land use in and near the area.

   b. Surveys of Translocation Area. Characterize the existing use of the proposed translocation site by burrowing owls, including surveys conducted in accordance with Phase II and Phase III Burrowing Owl Consortium Guideline protocols (CBOC 1993).

   c. Habitat Modifications at Translocation Area: If artificial burrows for burrowing owls are proposed at the translocation site, provide a figure showing the location of the proposed burrow construction. Include survey information to verify that construction of burrows would not affect desert tortoise or Mohave ground squirrel habitat. Design of the artificial burrows should be consistent with CDFG guidelines (CDFG 1995).

   d. Translocation Procedures. Provide a detailed description of clearance protocol, including trapping, transportation and release procedures, and provide a post-translocation monitoring and reporting plan. All methods discussed in the plan should be consistent with the most recent guidance from CDFG and USFWS.

   e. Management and Monitoring Plan. Provide a long-term management and monitoring plan for the translocated population of owls which reflects site-specific conditions, and which provides details on methods for measuring compliance goals and remedial actions to be taken if management goals are not met.

BACKGROUND

Pallid Bats: Page 5.3-28 of the AFC, Table 5.3-7 states: "*Roosting habitat for pallid bats is present in tree cavities in desert dry wash woodlands in the southeastern portion of the site*." If bats were roosting in the tree cavities there would be detectible sign from guano and staining on the trunk. Staff needs to know if surveyors examined trees for such evidence of bat occupancy.

DATA REQUEST

52. Bat Surveys. Please provide additional information on survey methods for assessing presence of special status bat species, including inspection of trees for guano or staining. If such evidence was detected during the surveys, please provide a complete description of those observations.

BACKGROUND

Nelson's Bighorn Sheep. Page 5.3-32 of the AFC states: "*The Nelson's bighorn sheep is a BLM sensitive species. The closest documented occurrence in the CNDDB is approximately 25 miles northwest of the BRSA*." However, according to Figure 5.3-9, bighorn sheep were documented in the disturbance area during 2009 field surveys. Table 4, Page 58 of Appendix F, states: "*Nelson's bighorn sheep scat and tracks were observed within the disturbance area during 2009 surveys*." The bighorn sheep droppings detected at the project area are quite significant because the three closest mountain ranges to this site (Riverside Mountains, Big Maria Mountains and McCoy Mountains) are areas where bighorn are believed to be extirpated (Epps 2007, Torres et al. 1994). However, no discussion is provided as to the significance of this finding.

DATA REQUESTS

53. Bighorn Sheep Survey Results. Please provide a more detailed description of the bighorn sheep scat and tracks detected in the project area, including photos if available, and describe the criteria used to distinguish the sign from desert mule deer, which are also potentially found in the project area.

54. Bighorn Sheep Movement Corridor. Please clarify the status of bighorn sheep in the project area, and discuss whether bighorn sheep are likely to use the project area for foraging or are likely to move through the project area. In particular, please address use of the project area as a movement corridor for Nelson's bighorn sheep between Wildlife Habitat Management Areas (WHMAs). Please provide any supporting documentation for any conclusions about the use of the project area by bighorn sheep, and the impacts of the project on that use.

BACKGROUND

Revisions to Delineation of Desert Washes. Energy Commission and CDFG staff met with the Applicant's biological consultants on November 3, 2009 at the project site to verify the delineation of state waters. Based on a discussion of field methodology during this site visit, and on a review of the methods section in the *Jurisdictional Delineation Report*, staff understands that the delineation of ephemeral drainages was based on the presence of field indicators of Ordinary High Water Mark (OHWM), which in this case consisted of defined bed and bank morphology and the presence of wash-dependent vegetation, principally woody riparian species such as ironwood. During the site visit CDFG and Energy Commission staff noted that several distributary alluvial fan features that were apparent on aerial photos were not delineated, apparently because these features lacked a well-defined bed and bank and woody riparian trees. In addition, staff noted that the delineation did not encompass the full width of the active floodplain or affected areas in these compound features because many of the smaller channels within the floodplain boundaries intermittently lacked a defined bed and bank.

The traditional use of OHWM to identify the limits of non-wetland waters is confounded in the arid west by highly variable flow pathways within the channel (Lichvar and McColley 2008). The location of the OHWM indicators is transitory in these environments immediately following a geomorphically effective discharge (typically a 5- to 10-year storm event in arid channels), where OHWM indicators are predominantly concentrated near the margins of the affected area. Subsequent smaller discharge events scatter the OHWM indicators within or below the limits of the last geomorphically effective event (Lichvar and McColley 2008).

In *A Field Guide to the Identification of the Ordinary High Water mark (OHWM) in the Arid West Region of the United States* (Lichvar & McColley 2008), page 33 states: "*The OHW zone in low-gradient, alluvial ephemeral/intermittent channel forms in the Arid West is the active floodplain. The dynamics of arid channel forms and the transitory nature of traditional OHWM indicators in arid environments render the limit of the active floodplain the only reliable and repeatable feature in terms of OHW delineation. In arid channel systems, the active floodplain functions in the same manner as the bankfull channel within a perennial channel form, in that most of the hydrological and fluvial dynamics produced by repeating effective discharges is confined within its boundaries. Also, the extent of flood model outputs for effective discharges—5- t0 10-year events in arid channels—aligns well with the boundaries of the active floodplain, and the characteristic vegetative behavior and sediment texture associated with the active floodplain/low terrace transition are readily observable in aerial photographs and in the field (Lichvar et al. 2006).*"

Staff also noted during the site visit that wash-dependent vegetation is not restricted to ironwood, palo verde, and other woody trees. Many of the smaller drainages lack woody vegetation, but support a strong association of galleta grass, one of two wash-dependent herbs noted in the delineation report (page 7).

CDFG and Energy Commission staffs have concluded that these smaller features should be included as state waters, despite the absence of woody riparian trees. These smaller washes provide vegetative cover for wildlife in the form of galleta grass and other shrubs and herbs, and seasonal availability of flowing water or moisture. These washes are distinctly different from the surrounding drier uplands of sparse creosote or desert pavement, and are significantly more valuable to wildlife because they provide cover, breeding and nesting sites, shade, movement corridors, and food sources.

To ensure that state waters are not under-represented, staff and CDFG requests below that the delineation of state waters be revised. The revised delineation should include the full width of the active floodplain for these compound features, as described in Lichvar & McColley (2008, page 33). In arid environments the limit of the active floodplain is the only reliable and repeatable feature in terms of OHWM delineation (Lichvar & McColley 2008). The outer boundaries of the active floodplain, which may contain multiple channels and interfluves, are readily observable in aerial photographs. In the field the galleta grass plant community

also distinguishes the active floodplain boundaries, but these channels will not necessarily have a component of desert wash trees.

The revised delineations should include the new substation and transmission line route described in the Data Adequacy Supplement, as well as any new road construction (including spur roads) or improvements to existing roads associated with transmission line construction.

DATA REQUESTS

55. Revise Delineation of Waters. Please provide figures at a scale of 1:4800 (1 inch = 400 feet) that depict a revised delineation of ephemeral drainages within the project footprint and along project linear features, including the transmission line and substation. The revised delineation should include:

    a. drainage features that lack a continuous component of woody riparian trees but which support a well-defined herb-dominant riparian flora of galleta grass and/or other wash-dependent herbs and shrubs;

    b. drainage features which are apparent on aerial photos but which periodically lack strong OHWM field indicators due to normal seasonal or annual variability, and

    c. the full width of the active floodplain for these compound features, as described in Lichvar & McColley (2008, page 33).

56. Please provide a table of revised acreages and lineal feet of waters delineated according to the guidelines described above.

BACKGROUND

Waters of the State – Connection to McCoy Wash: McCoy Wash, a tributary to the Colorado River, occurs about 2,000 feet from the northeastern corner of the project site trending northwest to southeast. Figure 5.17-15 *Existing Drainage and Surface Water Flow Path* shows McCoy Wash and drainages on the project site, but does not depict the path of drainages east of the project site boundaries. According to page 5.17-29 of the AFC: "*Upon reaching the eastern portion of the BSPP, water moves south as there is a topographic high due east of the Project site and artificial berms have been places along the western margin of agricultural land. Surface water moves south along these features eventually crossing through former agricultural land north of the Blythe Airport*." To understand the characteristics and functions of the project area drainages in the context of larger drainages in the watershed, staff needs to know if stormwater flows ultimately connect with McCoy wash, and if so, under what conditions. Staff also needs information about which private irrigation ditches and ditches maintained by the Palo Verde water district might be affected by the project.

DATA REQUESTS

57. Drainage Path Downstream of Project Boundaries – Pre-Project. Please provide a figure, analysis, and discussion of the current path of project

area waters after they leave the project site boundaries under 10-, 2-, 1-, and 0.2-percent annual chance flood events within the watershed.

58. Drainage Path Downstream of Project Boundaries – Post-Project. Please provide a figure, analysis, and discussion of the anticipated post-construction path of water after it leaves the project site boundaries under 10-, 2-, 1-, and 0.2-percent annual chance flood events within the watershed.

BACKGROUND

Delineation of Channels Downslope and Upslope of Project Boundaries. The delineation of ephemeral drainages and wash-dependent vegetation described in the Jurisdictional Delineation Report terminates at the project footprint boundary, but staff needs information about drainages and wash-dependent vegetation downslope of the project. The drainages downstream of the project boundaries could be affected by diversion of floodwaters into manmade channels and by other indirect impacts. Diversions would significantly alter the hydrology and dependent wash vegetation of any features that may occur downstream of the project area, an effect that is quite apparent below Interstate 10 (I-10) at the Corn Springs exit where expanses of desert wash trees have died in response to the diversion of smaller channels into collector ditches for I-10.

Page 5.17-39 states that: "*The proposed onsite drainage improvements seek to replicate the existing flow patterns as nearly as possible*" and that runoff will be diverted into five primary channels. However, the delineation did not include mapping desert washes downstream of the project area. The delineation also did not map of any of the smaller features on or offsite, all of which contribute to habitat structure, species diversity, and spatial complexity. Staff requests that any drainages and wash-dependent vegetation that occurs downslope of the project area and which might be affected by diversions be mapped. It is also reasonable to expect changes in hydrology at, and below, the discharges. These changes are likely to include increases at the point of discharge for the five proposed channel outlets, and decreases or complete diversion of flows in the smaller features. These potential effects were not analyzed in the AFC.

Each of the five rerouted channels will end in diffusers to return flood flows to approximate location and depth that occur in the existing condition. Staff needs more information on existing conditions and on plans for the design and configuration of the discharges below the project footprint to ensure that "*downstream drainage conditions are restored to their approximate existing patterns.*"

Staff also needs information about the drainages upslope of the project area. The channels along the west sides of the property will intercept flow from the upstream watershed. Depending on the design of the intercept and the hydrology of the inflow to the intercept, staff believes that this structure could produce channel head-cutting and lateral bank erosion in upstream drainages. Erosion in these upstream channels could adversely affect their functions and values for

vegetation and wildlife, and could also necessitate bank protection measures that would also diminish the biological resource values of these features.

DATA REQUESTS

59. Delineate Drainages Downslope and Upslope of Project Footprint. Please provide figures at a scale of 1:4800 (1 inch = 400 feet) that depict a delineation of ephemeral drainages and wash-dependent vegetation downslope and upslope from the project boundaries. Delineation of drainages upslope to the project boundaries should extend at least 150 feet, or as far upstream as any project effects such as lateral erosion and head-cutting might occur, whichever is greater. The revised delineation should include the same components described above in Data Request #5 a, b and c. The downslope delineation should include any drainages that could potentially be indirectly impacted by the project.

60. Acreages of Drainages Upslope and Downslope of Project Boundaries. Please provide a table of acreages and lineal feet of delineated drainages.

61. Effects of Diffusers. Please provide a detailed description of how the diffusers will preserve or replace the existing functions and values of ephemeral drainages and water-dependent plant communities and sensitive species (for example, Harwood's milk-vetch) downslope of the project boundaries.

62. Upslope Drainages. Please provide a discussion of potential project impacts to ephemeral washes upstream of the project boundaries, including any proposed bank protection, and an estimate of acreage and lineal feet of drainages that might be impacted by erosion and/or bank protection measures.

BACKGROUND

Avoiding Impacts to Desert Washes. The delineation of project area waters in the AFC (pending a revision based on the guidance above) describes a total area of all waters of the State within the project footprint of approximately 128.8 acres comprised of 120.5 acres of desert dry wash woodland and 8.3 acres of unvegetated ephemeral dry wash (Table 5.3-5, page 5.3-17). Ephemeral washes such as those occurring on the project site provide many important functions and values, including: landscape hydrologic connections; stream energy dissipation during high-water flows that reduces erosion and improves water quality; water supply and water-quality filtering; groundwater recharge; sediment transport, storage, and deposition aiding in floodplain maintenance and development; nutrient cycling; wildlife habitat and movement/migration corridors; and support for vegetation communities that help stabilize stream banks and provide wildlife habitat (Levick et al. 2008).

California Wetlands Conservation Policy (EO W-59-93) provides for "no overall net loss" of jurisdictional areas and achieving a "long-term net gain in the quantity, quality, and permanence of [jurisdictional areas] acreage and values in

California." The first priority in meeting this no-net loss standard is to avoid impacts to state waters where possible. Staff needs more information than is currently provided in the AFC to determine if an adequate assessment was made as to the feasibility of avoiding or minimizing impacts to the project area ephemeral washes. Staff also needs more detailed information about the functions and values of all the ephemeral washes on the site, including small drainage features and those lacking woody vegetation.

DATA REQUEST

63. Alternatives to Impacting Desert Washes. Please provide a detailed discussion, with supporting quantitative analysis, of alternatives in the project design or layout that were considered that would avoid significant impacts to some or all of the project area ephemeral washes. If an alternative was rejected because it was considered to be economically infeasible, please provide a detailed justification for that assessment.

64. Functions and Values of Project Area Washes. Please provide a description of the beneficial functions and values (for example, hydrologic, geomorphic, plant and wildlife support) provided by the ephemeral washes and wash-dependent vegetation on the project site.

65. Effect of Project on Functions and Values of Washes. Please discuss how the proposed project would affect the functions and values of washes within and near the project area.

BACKGROUND

Revegetation Plan/Maintenance Program. The Conceptual Drainage Study described on pages 5.17-32 – 5.17-35 discusses a plan to reroute existing washes and replicate the existing flow patterns as nearly as possible. Five channels would be constructed adjacent to or across the site (the north, central, southeast, south, and west channels). Three of these channels (north, west, and south channels) would intercept the flows prior to their entry to the site then re-direct them around or through the site and convey them to the same locations where they exit the site under existing conditions. The remaining two channels (central and southeast channels) would collect runoff from the solar fields and convey them to the same locations where they exit the site under existing conditions. The rerouted channels would vary in width from a minimum bottom width of 140 feet for the North Channel to 30 feet for the South Channel. All channels would be "*revegetated with native vegetation to minimize habitat disturbance.*"

Page 32 of the Conceptual Drainage Plan notes that channels would be constructed with native material and would include necessary earth compaction and riprap side-slope protection along key reaches (e.g., directional transitions, proposed-to-natural channel transitions, and reaches with significant design velocities). The bank protection selected for the rerouted channels is a source of concern to staff because riprap composed of large, angular boulders could pose

an entrapment hazard for desert tortoise, particularly for juveniles. The extent of erosion protection on the channel bottom is also of interest to staff because the unarmored portions of the channel bottom provide the only opportunity for native species to revegetate and for natural geomorphic processes to occur.

Staff also needs more information about how sand and sediment deposited in the channels will be managed. Aeolian deflation and deposition (winds' ability to erode, transport, and deposit materials) could result in significant accumulations of sand within the low-lying diversion channels. Major storm events could also result in deposition of large amounts of sediment, and could damage bank protection or grade control structures. Accumulations of sediment or damage to the channel could pose an entrapment hazard or impediment to wildlife movement. The AFC provides no details as to the frequency of sand and sediment removal or proposed inspection and maintenance of the channels, and no information as to the potential impact of maintenance activities on revegetation efforts and wildlife habitat.

Staff need details on proposed revegetation within the engineered drainages to assess whether the new channels could replace or recreate natural soil characteristics (biological soil crust, permeability), microtopography (microcatchments for moisture, seeds), hydrology, geomorphology, and vegetation and wildlife functions and values. In addition to a revegetation plan staff also needs more detail than that provided by the Conceptual Drainage Plan on the proposed design of the rerouted channels. The plan needs to provide information about the area available for revegetation within the channel (extent of unarmored banks and channel bottom), whether or not grade control structures are needed to prevent erosion and sedimentation of downstream waters and habitat, how wildlife would move throughout the channel if grade control structures were present, how sediment and flood flows will move through the rerouted channels under different storm water conditions, and whether the channel design would support natural geomorphic and hydrological processes.

To fulfill requirements that, but for the Energy Commission’s exclusive permitting authority under the Warren-Alquist Act, would have been satisfied by the CDFG Streambed Alteration Agreement, staff needs detailed information about how the proposed diversion channels would be designed, revegetated, maintained, and decommissioned. As described in Soil & Water Data Requests, staff will need detailed design drawings prior to publication of the staff assessment. In addition to detailed design, creation of new channels to carry floodwaters around and through the site would need to be accompanied by creation of a Maintenance District to maintain those channels for the life of the project. Before the project is constructed a firm commitment would be needed from a Maintenance District to undertake a Channel Maintenance Program for the life of the project. The Data Requests below outline the information that will be needed on the re-routed channels before staff can complete the Staff Assessment.

DATA REQUESTS

66. Revegetation Plan for Re-Routed Channels. Please provide a draft Revegetation Plan for the re-routed channels that include at least the following elements[1]:

    a. Overall Goal. Explicitly state the overarching goal of the revegetation plan, which should include at least replicating the hydrological and biological functions and values of the impacted desert washes.

    b. Existing Functions and Values. Describe the existing functions and values of the drainages that are being replaced by the engineered channels. Include a discussion of the characteristic soils (biological soil crust, permeability), sediment transport and other geomorphic processes, microtopography (microcatchments for moisture, seeds), vegetation (zonation, composition, cover density, dominants in each stratum, rare or uncommon species or communities, non-native component), and wildlife habitat and values (connectivity and corridors, rare species, habitat elements).

    c. Reference Reach. Select one or several reference reach(es) of the existing channels that would provide a target for mitigation design and success criteria, and provide photos and a hard-copy and GIS [shape files & metadata] map of the reference reach(es). Provide a detailed description of the reference reach and how the features of the reach(es) relate to the success criteria for the mitigation design and goals. Include a rationale for selection for the reference reach(es).

    d. Proposed Mitigation Design. Describe the mitigation goals and target functions/values (hydrologic, geomorphic, water quality, habitat function/value) of the revegetation plan and a rationale for these goals and targets. Include a discussion of compensation ratios, indicating the ratio(s) of acreage of impacted vegetated wash to the recreated acreage, long-term goal(s) for target habitat to be created at the site 10, 20, and 30 years following implementation.

    e. Success Criteria. Provide a table of success criteria and quantitative parameters to measure successful achievement of these criteria. The criteria should address each major aspect of the project, including replication of natural hydrological and geomorphological processes and establishment of appropriate vegetation and wildlife habitat values.

    f. Monitoring Methods. Describe proposed methodology for measuring progress toward success criteria and a rationale as to each method has been chosen to evaluate progress in relation to each success

[1] Refer to the California Department of Conservation's *Rehabilitation of Disturbed Lands in California: A Manual for Decision-Making (Newton & Claasen 2003) @ http://www.consrv.ca.gov/omr/reclamation/Pages/index.aspx for additional guidance on development of a revegetation plan.*

criterion. Describe sampling methods used and include size of sample units and number of samples.

g. Monitoring Schedule. Monitoring should be tied to the appropriate spring growing season, with the "first year" of monitoring occurring one full growing season following completion of installation. Given the slow pace of revegetation in desert ecosystems, a monitoring period of 10-years is appropriate. In addition to quantitative methods, ground and/or aerial photos can be used to illustrate year-to-year progress of the overall project.

h. Implementation Plan. Describe equipment, procedures, access paths, and any measures used to avoid sensitive areas outside of the grading plan during revegetation. Of particular important is topsoil storage and disposition. The implementation plan should include a description of how the top layer (top 1 inch) of soil will be salvaged from the existing washes, stockpiled and maintained to sustain viability, and how these soils will be applied during revegetation efforts. Indicate storage location of topsoil, area required for storage, duration of intended storage, and ultimate disposition of topsoil material in the engineered channels. Discuss how the area available for revegetation in the channel bottom would integrate with the channel slope protection and erosion control and any opportunities for bioengineering.

i. Weed Control. Describe method(s) to be used to remove noxious plants from the mitigation site during the course of revegetation and monitoring, and specific triggers for when weed control is required.

j. Planting/Seeding. Provide a table of species to be planted and indicate geographic source of plants (of local origin), type of propagules to be used, and season in which seeding/planting/transplanting is to be done. Include size and quantity of propagules and/or intended spacing. For transplant propagules, describe method, location of harvest site, and duration of storage, if applicable

k. Irrigation. Revegetation projects should be hydrologically self-sustaining, and may need irrigation only in the early years of a project to give new vegetation a head start at becoming established. If irrigation is proposed, describe recommended irrigation methods, including estimated frequency, and indicate month(s) in which it is to occur. Also indicate water source(s) for irrigation.

l. Implementation Schedule. Provide a schedule showing intended timing (by month) of site preparation, any seed/topsoil storage, seed/topsoil application, and plantings.

m. Maintenance and Monitoring. Describe planned maintenance activities (e.g. inspection of irrigation system, inspection of water structure(s), erosion control, weeding, etc.). Identify any pest species (plant and/or animal) that might cause problems on the site, and provide a control

plan for these species if appropriate. Indicate the critical threshold of disturbance that will trigger the implementation of control methods. Provide a table showing proposed schedule of frequency of maintenance inspections over the life of the project.

n. Monitoring Reports. Monitoring reports to the Compliance Project Manager are typically due January 31st of each year. Describe the overall content and purpose of the annual reports.

o. Contingency Measures. If an annual performance goal is not met for all or any portion of the mitigation project in any year, or if the final success criteria are not met, describe how the failure will be remedied. Include a process for analysis of the cause(s) of failure and propose remedial action for CPM and agency approval. Remedial actions might include replanting, weed or herbivore control. Provide a funding mechanism to pay for planning, implementation, and monitoring of any contingency procedures that may be required and present all necessary assurances that the funds will remain available until success criteria have been achieved.

p. Long-Term Management. Integrate long-term management (weed/vegetation management, preventing wildlife entrapment hazards) with the Channel Maintenance Program described above so that when revegetation success criteria are fulfilled the responsibility for channel and vegetation maintenance will be transferred to the Maintenance District.

67. Maintenance District. Please identify and provide evidence of coordination with a suitable public entity that could serve as the Maintenance District. The Maintenance District would maintain the re-routed channels and undertake all activities needed to preserve the integrity, design, and design discharge capacity of the channels. Please describe a funding mechanism that would serve to support activities of the Maintenance District for the life of the project, or in perpetuity if the channels are to remain in place after operation of the project ceases.

68. Channel Maintenance Program. Please provide a draft Channel Maintenance Program that would eventually be adopted by the Maintenance District as the guidelines for routine maintenance activities, as well as Capital Improvement Projects and emergency repairs. The Channel Maintenance Program should include at least the following elements:

i. *Purpose and Objectives*. Include a discussion of the main goals of the Channel Maintenance Program (for example, maintenance of the diversion channel to meet its original design to provide flood protection, support mitigation, protect wildlife habitat and provide a wildlife movement corridor, and maintain groundwater recharge).

ii. *Guidelines for Maintenance.* Define standards for acceptable conditions and action triggers for: sediment removal, vegetation/weed

management, debris collection, blockage removal, fence repairs, and access road maintenance. Discuss bank protection and grade control structure repairs that might be needed to repair eroding banks, incising toes, scoured channel beds, as well as preventative erosion protection. At a minimum the District would need to implement instream repairs or management actions when the problem (1) causes or could cause significant damage to the project, adjacent property, or the structural elements of the diversion channel, (2) is a public safety concern, (3) negatively affects groundwater recharge, or (4) negatively affects adjacent plant communities or poses a hazard to wildlife. Include a discussion of Routine Channel Maintenance - trash removal and associated debris to maintain channel design capacity; repair and installation of fences, weed management, gates and signs; grading and other repairs to restore the original contour of access roads and levees (if applicable); and removal of flow obstructions at BSEP storm drain outfalls. Describe how capital improvement projects and emergency repairs would be funded and implemented.

iii. *Reporting*. Provide a monitoring and reporting schedule and an outline for annual reports to be submitted to the Compliance Project Manager.

BACKGROUND

Decommissioning of Re-Created Channels. Section 3.0 of the AFC, Closure, does not specify whether the five engineered channels would be removed at the end of the project operating life or if they would be maintained in perpetuity. Staff needs information regarding the eventual fate of these channels to develop appropriate conditions of certification. If the channels will be removed or filled during decommissioning of the facility, the site would need to be restored to preexisting hydrology. Filling these re-created drainages at the end of the project could have significant impacts to sensitive biological resources, possibly including impacts to listed species. Furthermore, restoring the original topography of the existing desert washes is only the first step in restoring the functions and values of those drainages. A substantial revegetation effort would need to be implemented and sustained for five to ten years to ensure recruitment of native vegetation in the newly graded channels, and to prevent dominance by noxious weeds. Staff needs more information about plans for decommissioning of the washes and creation of new channels to provide an impact assessment and develop appropriate conditions of certification and establish a funding mechanism to implement those conditions at the end of the project.

DATA REQUEST

69. Conceptual Restoration Plan After Decommissioning. Please provide a conceptual decommissioning plan that addresses the fate of the engineered channels. If these channels will be filled, please provide a conceptual plan for filling the re-created channels and restoring drainages on the project site, including a description of a revegetation plan for restoring the function and values of the ephemeral drainages. Please

include a cost estimate, adjusted for inflation, for implementing the closure, including the revegetation component of the closure activities for the drainages, and provide a conceptual plan and funding mechanism for monitoring and maintenance of the ephemeral drainages until existing functions are reestablished.

BACKGROUND

Wildlife Movement. Page 5.3-44 of the AFC states: "*The fence would represent a permanent barrier and prevent movement across the site by most terrestrial wildlife species. The five rerouted channels located between and around the solar fields will be fenced from the solar fields, but will remain open at the ends thereby leaving a 150-foot wide corridor for species to use*." …." *the five channels would provide an opportunity for species to move through and around the site, but some species may avoid the channels within the disturbance area in response to human presence which could potentially force them to go completely around the site. However, much of the land surrounding the site is expected to remain as natural desert plant communities for the foreseeable future, which would allow regional movement by common terrestrial wildlife species to continue outside of the perimeter of the site without significant impediment*."

Page 5.3-48 of the AFC states: "*The rerouted washes will replicate as nearly as possible the flow regimes under current conditions and allow for wildlife to move through the Project disturbance area. Considering other proposed development in this valley floor (Figure 5.1-1), the rerouted drainages will help maintain connectivity between adjacent habitat areas, specifically between mountain ranges to the southwest and northeast of the BSPP*."

Staff needs to determine if opportunities exist to improve the channels as wildlife corridors. Based on the discussion in the Conceptual Drainage Plan staff understands that the channel design was dictated by hydraulic considerations, with channel bottom widths established to promote relatively shallow flows to minimize erosive forces. However, channel width and other design features have considerable bearing on the capacity of the channel to support native vegetation and on its value as wildlife habitat and a movement corridor. Staff needs to know if other channel designs and configurations (for example, a wider channel) were considered to provide a more functional wildlife corridor.

Staff also needs clarification about the perimeter fencing in relation to the channels, and how the fences might affect wildlife use within the channels. Staff is concerned that eight-foot high fences in close proximity to the channel bank would provide perching opportunities for ravens, which could prey on desert tortoise and other wildlife within the channels, particularly in the early years of project operation when vegetation would be sparse in the channels and would provide little cover.

DATA REQUESTS

70. Wildlife Use of Washes. Please provide information about which species of wildlife are likely to currently be using the project area washes as dispersal and movement corridors, and which species might use the rerouted channels to move through the site.

71. Width of Channels. Please provide a discussion of wider channel designs that might enhance the utility of the rerouted channels as a movement corridor for wildlife and which would minimize the potential for human disturbance to wildlife using the channel. If alternative designs and wider widths are rejected because of economic infeasible, please provide a detailed justification for that assessment.

72. Fencing. Please provide a figure depicting the location of the perimeter fencing in relation to the rerouted channels, and an assessment of the potential for these fences to provide perching sites for ravens

BACKGROUND

Groundwater Pumping Impacts to Biological Resources. The Water Resources section of the AFC (pg 5.17-38) concludes that the pumping would produce a drawdown of area wells no greater than five vertical feet between 2,790 and 8,350 feet from the well, and that no significant impacts related to area wells, drainage, water quality, or storm runoff are expected. However, staff has insufficient information to conclude that the pumping would have no effect or an insignificant effect on any sensitive biological resources as a result of a pumping. To ensure that impacts to any water-dependent vegetation, seeps and springs, and associated wildlife are adequately assessed, staff needs additional information on these resources in the area of potential effect. Plant communities and features that may be dependent on groundwater include ironwood forests, mesquite bosques, succulent chenopod scrubs, seeps and springs. Staff needs additional information on these groundwater-dependent vegetation communities, including maps depicting vegetation communities in the affected areas described in the AFC, and the effect of the drawdown on vegetation, seeps, springs, and (if applicable) playas.

DATA REQUESTS

73. Groundwater Dependent Communities. Please provide a map and description of the vegetation (including dominant species, any facultative or obligate wetland plants or riparian species present, physiographic setting, habitat function and values, special-status species associates) that occur within all areas potentially affected by project groundwater pumping. The mapping should be on an aerial photo at a form and scale similar to that submitted in the Data Adequacy Supplement (e.g., Figure 5.3-7B). Please include acreage of each plant community type within this mapped area.

74. Springs and Seeps. Please provide a figure depicting any seeps, springs or other groundwater discharges that could be potentially affected by project related groundwater pumping. Most features are not depicted on USGS topographic maps and should not be the sole source of information. Evaluation of high resolution aerials with at least some ground-truthing, consultation with BLM district and field office staff, and a review of the data sets available from the Mojave Desert Ecosystem Project (MDEP) is recommended. Please also include a discussion of the wildlife that might be expected to use these resources.

BACKGROUND

Special Status Plant Surveys: Staff needs additional information as to where intensive (versus reconnaissance-level) botanical surveys occurred within and outside of the project footprint. Page 9 of the Botanical Survey Report, Appendix F, states: "*The surveys included all locations within the BRSA where suitable habitats for sensitive plant species were present. In the buffer zone of the BRSA (extending out one mile from the facilities fenceline), vegetation mapping was conducted from strategic vantage points whenever direct access was not feasible. Suitable habitats were determined based on geography, slope aspect, soil substrate, vegetation community, associated plant species*."

App F, page 26, states: "*The portions of the disturbance area with potential to support rare plants were surveyed by pedestrian transects, with biologists walking parallel transects ranging from 10 to 100 feet apart based on distribution of the resource and topography*." Staff needs to know how surveyors decided whether to survey an area or not, and what level of survey effort, if any, was accorded to areas deemed to have no potential for rare plants.

Staff also needs information about survey methods and results in the buffer area to assess the projects' potential indirect impacts to special-status plants occurring outside the disturbance area (for example, herbicide drift, spread of non-native plants).

DATA REQUESTS

75. Criteria for Rare Plant Surveys. Please provide:
    a. details on the extent of the special-status plant surveys within the footprint and in the buffer area, including the criteria for establishing the level of survey effort or intensity and
    b. a discussion of where suitable habitat was found in the buffer area for special-status plants considered to have the highest potential for occurrence.
76. Figure for Plant Survey Transects. Please provide a figure and shapefile depicting where transects occurred within the footprint and in the buffer area, or percent coverage of survey effort, and indicate which access

roads, if any, were surveyed for rare plants. The figure should be prepared at a scale and size identical to the figures presented in the AFC.

77. Figure of Suitable Habitat for Rare Plants Within the Buffer Area. Please provide a figure and shapefile depicting areas within the buffer that contain suitable special-status plants considered to have the highest potential for occurrence.

BACKGROUND

Reference Site Visits. Page 26 of the AFC states: "*When appropriate, known locations of rare plants were visited to verify that the status of these species during the 2009 growing season (e.g., germinating, flowering, seeding, etc.). Areas were visited more than once as necessary to detect sensitive plants*." On page 27 of the AFC: "*The below average rainfall in January 2009 and lack of late season rain events may have depressed germination of annual plant species, but based on conditions observed by field staff and conditions at known reference populations, sensitive plant species (annual and perennial) were detectable in spring 2009 when the surveys were conducted*." Page 18 notes that biologists visited a CNDDB reference population near the Coachella Valley on April 17, 2009 to determine if Coachella Valley milk-vetch was blooming, but no other information about reference site visits was provided. CDFG guidelines for conducting botanical inventories specifies that "nearby accessible occurrences [of the plants with potential to occur] should be observed to determine that the species are identifiable at the time of the survey, and that reports "should include a description of the reference site(s) visited and phenological development of rare, threatened, or endangered plant(s)". Staff needs additional information to assess the adequacy of the rare plant surveys.

DATA REQUEST

78. Reference Site Visits. Please provide additional information on reference site visits, including the target species for which reference visits were made, location, timing of survey, and results (phenological development of special-status plants at the time of the visit). If reference sites were not available for all CNPS List 1B and List 2 taxa, please provide dates of herbaria visits.

BACKGROUND

Transmission Line and Substation Survey Results: Surveys to identify special-status species potentially occurring along the Project's proposed 4.9 mile transmission line route and solar fields were conducted during Spring 2009. The AFC did "*not include the potential impacts of a Project gen-tie line route*" because the location of the substation had not been identified at the surveys. Upon identification of the location for the new SCE Colorado River Substation (at the terminus of the Project gen-tie line), the applicant's biological consultants conducted additional surveys on October 8 and 9, 2009, according to the October 26, 2009 Data Adequacy Supplement. Protocol survey results for desert tortoise will be submitted in at the end of November, burrowing owl surveys and

avian point count surveys by April 2010, and rare plant survey results in June or July 2010. Staff cannot complete their analysis until survey results are submitted, and request below that the remaining surveys be completed as soon as possible.

DATA REQUEST

79. Submit Transmission Line and Substation Survey Results: Please submit surveys results, impact analyses, and mitigation recommendations as soon as possible for the following protocol surveys for the proposed substation and transmission line:

    a. Desert Tortoise

    b. Special-Status Plants

    c. Burrowing Owls

    d. Avian Point Counts

BACKGROUND

Mojave Fringe-Toed Lizard Survey Results. Page 16 of the Data Adequacy Supplement describes Mojave fringe-toed lizards as likely to occur at high densities along approximately 80.7 acres of the transmission line disturbance area because of the presence of their preferred habitat, active sand dunes. Staff needs survey information about Mojave fringe-toed lizards within the proposed transmission line disturbance area to assess impacts and develop conditions of certification.

DATA REQUEST

80. Mojave Fringe-Toed Lizard Survey Results: Please submit surveys results, with GPS UTM NAD 83 locations, impact analyses and mitigation recommendations as soon as possible for Mojave fringe-toed lizards along the proposed substation and transmission line. Please provide a figure at a scale of 1:4800 (1 inch = 400 feet) for all observations of this species and for potentially occupied habitat.

BACKGROUND

Spring 2010 Special-Status Plant Surveys: Because of seasonal limitations surveys for special-status plants, including Coachella Valley milk-vetch cannot be conducted until February 2010 at the earliest. The Data Adequacy Supplement includes a map of vegetation communities occurring along the newly identified substation and transmission line route (Figure 2, Vegetation Communities and Special Status Species, dated October 2009). Figure 2 indicates that the substation is located on a stabilized or partially stabilized dune, and transitions to creosote bush scrub to the north, south, and west of the substation. Coachella Valley milk-vetch is a federal-listed plant species that occurs on "*dunes and sandy flats, along the disturbed margins of sandy washes, and in sandy soils along roadsides, in areas formerly occupied by undisturbed sand dunes. Within the sand dunes and sand fields, this milk-vetch tends to occur in the coarser*

sands at the margins of dunes, not in the most active blowsand areas. As this species is strongly affiliated with sandy substrates, it may occur in localized pockets where sand has been deposited by wind or by active washes. It may also occur in sandy substrates in creosote bush scrub, not directly associated with sand dune habitats", according to the Coachella Valley Multiple Species Habitat Conservation Plan (CVAG 2007, page 9-27). The soils map of the proposed substation site (Figure 5.12-1c of the Supplement) indicates that sandy soils occur across a larger area than that mapped as dune habitat in the map of vegetation communities, suggesting that there may be suitable habitat for Coachella Valley milk-vetch that extends beyond the mapped dunes within the areas mapped as creosote bush scrub.

Staff's research, including consultation with regional botanists (A. Sanders, J. Andre, T. LaDoux, D. Silverman pers. comm.), indicate that there are valid vouchered specimens of Coachella Valley milk-vetch in the Chuckwalla Valley area. UC Riverside has three correctly identified collections of Coachella Valley milk-vetch from the Desert Center area (Dice 980324-2; Dice 980324-3; and Sears 1173). Full data for these collections can be viewed on the Consortium of California Herbaria database: http://ucjeps.berkeley.edu/consortium/. However, there are also vouchered specimens for the common taxon (*A. l. variabilis*) in the Chuckwalla Valley. Another variety of *Astragalus lentiginosus*—Borrego milk-vetch (a CNPS Watch List plant)—is also documented from the region, along the Colorado River. *Astragalus lentiginosus* in the Riverside County range of *A. l. coachellae* have been interpreted as either *A. l. borreganus* or *A. l. coachellae*, mainly on the degree of pod inflation and inflorescence elongation

The distribution of Coachella Valley milk-vetch is primarily restricted to the Coachella Valley in Riverside County, between Cabazon and Indio, with the exception of six outlying occurrences within a 5-mile area along the Rice Road in the Chuckwalla Valley north of Desert Center (CVAG 2007.). These Desert Center "outliers" were most recently observed in March 1998. In good years, 100's to 1000's of individuals have been described in a population, but often reports are of less than 20 plants. Specific data on population size and dynamics are not available for Coachella Valley milk-vetch. It blooms from February to May, producing pink to deep magenta-colored flowers. It is distinguished in part from other milk-vetches by its strongly inflated, two-chambered, mottled pods. However, distinguishing *Astragalus lentiginosus* varieties is challenging and would require verification by an expert on this genus for a confirmed identification.

Although the proposed substation is separated from the easternmost documented occurrences by I-10 and a distance of 30 miles, it is located within the same landform and dune system of Chuckwalla Valley. Additionally this region is not well surveyed, relative to other areas within the taxon's range. For all the reasons described above, the potential for this federal-listed plant to occur within the substation and transmission line project area cannot be ruled out.

Surveys will be required at the appropriate time of year (February through May), and identification of any *Astragalus lentiginosus* variety detected during the surveys would need to be confirmed with experts on Coachella Valley milk-vetch.

Until the spring surveys for Coachella Valley milk-vetch and other special-status plants have been conducted, staff has insufficient information to complete an analysis of impacts to rare plants or assess alternatives that would avoid potential habitat. However, staff can make progress on the analysis prior to receiving survey results with more detailed information about the suitability of the habitat to support Coachella Valley milk-vetch and other special-status plants. Because time is short for planning and conducting spring surveys and habitat mapping, staff also seeks to work with the Applicant's biological consultants in developing and implementing a survey plan for Coachella Valley milk-vetch, as described in the data request below.

DATA REQUEST

81. Survey Plan for Coachella Valley Milk-vetch and Other Special-Status Plants. Please submit a Special-Status Plant Survey Plan for the spring 2010 floristic surveys along the proposed transmission line route and substation, and include the following components:

    a. Habitat Mapping. Please provide a description of plans for the mapping effort to delineate habitat along the substation and transmission line that could potentially support Coachella Valley milk-vetch and other special-status plant species. The mapping will need to be based on ground-based surveys and professional grade GPS. Habitats may be ranked according to its quality or potential to support Coachella Valley milk-vetch, based on criteria developed by recognized expert on this species. An area calculation for suitable habitat within the project area will also be needed, and the map should depict the approximate boundaries of the habitat on an aerial photo at a scale and level of detail similar to that submitted in the Data Adequacy Supplement (1 inch = 2000 feet).

    b. Survey Plan. Develop a study plan for the field survey that is consistent with all guidelines contained in *Guidelines for Conducting and Reporting Botanical Inventories for Federally Listed, Proposed, and Candidate Plants* (USFWS 2000). Include one or more visits to the Desert Center Rice reference population or other known population of Coachella Valley milk-vetch to obtain a visual image and to accurately time the spring surveys to coincide with the identification period. Please include the names and qualifications of personnel who will be conducting the surveys.

    c. Expert Consultation/Voucher Collections. Identify recognized experts on Coachella Valley milk-vetch that would be available to assess the suitability of the habitat on site to support this plant, and its potential to occur in the project area. Review the vouchered collections from the

Desert Center area (Dice 980324-2; Dice 980324-3; and Sears 1173), review the collection data (http://ucjeps.berkeley.edu/consortium/), and

d. Schedule. Provide a schedule for accomplishing the tasks listed above and for submitting a report describing the results of the habitat mapping and surveys.

BACKGROUND

Special Community Types: Many plant assemblages, in addition to providing habitat for special-status wildlife, have their own patterns of rarity. The California Department of Fish and Game (2003) has identified "special community types" as plant alliances and associations that "*are either known or believed to be of high priority for inventory in CNDDB. Lead and trustee agencies may request that impacts to these communities be addressed in environmental documents*." (CDFG 2003, pages 2-3). These communities are marked by an asterisk in the *List of California Terrestrial Communities Recognized by the California Natural Diversity Database (CNDDB)* (CDFG 2003). The 2003 list of alliances and associations is available online at:
http://www.dfg.ca.gov/biogeodata/vegcamp/pdfs/natcomlist.pdf

Page 5.3-14 of the AFC says that "*Two of the five vegetation communities are considered sensitive: desert dry wash woodland and unvegetated ephemeral dry wash. Desert dry wash woodland and unvegetated ephemeral dry wash are sensitive because they are also state waters under the jurisdiction of CDFG*". During the November 3, 2009 site visit of the project area, staff noted an additional rare natural community as denoted in the 2003 List of California Terrestrial Natural Communities: creosote bush -galleta grass association. This association occurs as a desert wash community type on the smaller ephemerals but was not delineated because it did not contain a uniform or consistent component of riparian trees. Galleta grass occurs as an understory component of the dry wash woodland of ironwood and palo verde but also occurs outside of the delineated woodlands generally within the active floodplain of compound features of multiple smaller ephemeral washes, many of which were not delineated.

Staff needs additional information about the occurrence of creosote bush-galleta grass association and any other uncommon plant associations recognized by BLM, or recognized in the CNDDB 2003 list. This information should include an estimate of the area occupied by galleta grass associations within the active floodplain of the ephemeral washes that occur outside of the areas mapped as desert dry wash woodland. These compound features are easily identifiable on the aerial photos used to delineate waters, at least one of which was ground-truthed during the November 3, site visit. These associations would not necessarily be detected under a coarser level of vegetation classification (such as Holland [1986]). Information is also needed about the wildlife values of these special community types.

DATA REQUESTS

82. Special Plant Community Types: Please provide an estimate of the area occupied by galleta grass associations within the active floodplain of the ephemeral washes that occur in the project area. Please provide information on the occurrence within and near the project area of any other special plant community types identified by CNDDB (i.e., those identified by an asterisk in the *List of California Terrestrial Communities Recognized by CNDDB* [CDFG 2003]). Please include any such special community types that occur within the project footprint and along linear facilities, and those which are outside of the project boundaries but that may be indirectly affected by the project (e.g., by water diversions). Include a discussion of their location, physiographic setting, dominant and associated species, and their value to wildlife.

83. Special Community Types Figure. Please provide a figure at a 1:4800 (1 inch = 400 feet) scale showing the approximate location of these special community types within and near the project disturbance area and linear facilities, and provide an estimate of their acreage. Please also provide shapefiles.

84. Impacts/Mitigation for Impacts to Special Community Types. Please provide an analysis of the potential direct and indirect impacts to special community types of project construction and operation, and describe any mitigation measures to avoid, minimize or compensate for impacts.

BACKGROUND

Special-Status Plants Observed But Not Discussed in Report. The Botanical Survey Report (page 26), describes the occurrence of one California Native Plant Society (CNPS) List 4 plant found in the western portion of the project area: Utah milkvine (*Cynanchum utahense*). The location is described in narrative but not depicted in the map of special-status plants. However, according to the list of plant species observed (Attachment C, Biological Resources Technical Report), two additional CNPS List 4 (Watch List) plants were observed but are not addressed in the report text or depicted in the figures of special-status plants detected in the project area: ribbed cryptantha (*Cryptantha costata*) and desert unicorn plant (*Proboscidea althaeifolia*). Because another List 4 plant (Utah milkvine) was discussed in the Botanical Survey Report (Appendix F of the Biological Resources Technical Report); we believe this omission may be an oversight.

Impacts to CNPS List 4 (Watch List) plants may be considered significant under CEQA if they occur at the periphery of a species' range, exhibit any unusual morphology, or occur in atypical habitats or substrates. In the case of the Utah milkvine, an occurrence in the project area would represent a range extension, as it is a Mojavean species not currently known to extend this far south and into the Colorado Desert region with the exception of a collection in the Big Maria Mountains. This species is not very likely to occur in the project area, according

to regional experts (A. Sanders and J. Andre, pers. comm.). Staff therefore needs this information about this occurrence and other CNPS List 4 plants detected during the surveys. Staff also needs CNDDB field forms and the GIS shape files and metadata for all special-status plant species detected during the surveys

DATA REQUESTS

85. Description and Map of Utah Milkvine and Unicorn Plant. Please provide:
    a. a description of the location/distribution of these species in the project area;
    b. the location of the occurrences relative to the California range of these species;
    c. whether individuals within these occurrences exhibit any unusual morphology, or if they occur in atypical habitats or substrates; and
    d. an estimate of the number of plants observed

86. Figure for CNPS 4 Plants. Please provide a figure depicting depict the locations of all the CNPS List 4 plants observed during the surveys on an aerial photo at a scale similar to that submitted in the Data Adequacy Supplement, Figure 5.3-6.

87. Shape Files/Metadata for Special-Status Plant Occurrences. Please provide the GIS shape files and metadata for all special-status plants found in the project area.

BACKGROUND

Additional Special-status Plant Species to Consider. Pages 16 and 17 of the Botanical Survey Report lists the special-status plants targeted for surveys, but omit some species that have potential to occur based on: known occurrences in the project vicinity; information from regional botanical experts at UC Riverside, Joshua Tree National Park, and the Sweeney Granite Mountains Desert Research Center; and/or CNDDB records, including unprocessed reports. Staff acknowledges that suitable microhabitat may not be present in the project area to support all of the following taxa but there is no discussion of these regional plant species in the AFC or technical reports upon which staff can base its assessment. The following species were not included on the list of target special-status plants:

CNPS List 1B Plants:
Harwood's woolly star (*Eriastrum harwoodii*)
Flat-seeded spurge (*Chamaesyce platysperma*)

CNPS List 2 Plants:
Abram's spurge (*Chamaesyce abramsiana*)

bitter hymenoxys (*Hymenoxys odorata*)
lobed ground cherry (*Physalis lobata*)
small-flowered androstephium (*Androstephium breviflorum*)
Spearleaf (*Matelea parviflora*)
Argus blazing star (*Mentzelia puberula*) (new addition to the CNPS Inventory and new *Jepson Manual, split off from M. oreophila*)
California ayenia (*Ayenia compacta*)

CNPS List 4 Plants:
pink velvet mallow (*Horsfordia alata*)
desert portulaca (*Portulaca hamiloides*)
bitter snakewood *(Condalia globosa* var. *pubescens)*
winged cryptantha *(Cryptantha holoptera)*

DATA REQUESTS

88. CNPS List IB and 2 Species.
    a. Please provide a detailed discussion of the potential of CNPS List 2 species to occur in the project area, based on the presence or absence of general and micro-habitat conditions required by these species
    b. Provide information on the location and status of the nearest known occurrences from the sources listed above (UCR, Joshua Tree National Park, and the Sweeney Granite Mountains Desert Research Center), as well as CNPS and the Consortium of California Herbaria.
    c. Provide a map and shapefiles showing the location of suitable habitat (if present in the project area) on an aerial photo at a scale similar to that submitted in the Data Adequacy Supplement, Figure 5.3-6.
89. Surveys for CNPS List IB and 2 Species.
    a. If potentially suitable habitat is present to support the rare plant taxa listed above, please re-survey areas within the project footprint focusing on suitable habitat. Surveys should be timed to coincide with the identification period for these taxa, and/or under appropriate environmental conditions, or provide an explanation as to why these surveys could not be conducted.
    b. Please also include on the target list of species for surveys of the transmission line spur roads and any other areas not surveyed during the Spring 2009 surveys.
    c. If any of these species are detected, provide a description of the survey results, including the CNDDB field survey forms and GIS shape files and metadata for any found occurrences.
90. CNPS List 4 Plants.
    a. Please discuss whether suitable microhabitat for any of the List 4 plants occurs within the project footprint.

b. If suitable general and microhabitat is present and it is likely that the taxon occurs in the project area, please provide a brief discussion of the significance of such an occurrence (if present), e.g., whether it occurs on the periphery of the taxon's range in California.

BACKGROUND

Late Season Plant Surveys: The project area occurs in a region known for a bi-modal or monsoonal pattern of precipitation. "*On average, August receives the most rainfall, although rainfall is also received in the winter months of December, January, and February* (WRCC 2008)". Correspondingly, this region supports ephemeral annuals and perennials including rare taxa that have evolved in response and may only be detected within a month or two following these summer-fall rain events; the standard spring survey alone may not be adequate for detecting such rare plants, according to local and regional botanical experts at UCR, Joshua Tree National Park, and the Sweeney Granite Mountains Desert Research Center. Approximately 40 percent of all vascular plants in the regional flora bloom in fall (and summer) and approximately 35-40 percent of the approximate 350 CNPS-listed plant species in the region bloom in summer/fall (J. Andre, pers. comm.). These experts have therefore concluded that significant findings may be missed if surveys are only conducted within the mid-March through mid-April window, and that a full inventory at multiple temporal windows when conditions are appropriate (e.g., after a minimum 12- to 18-mm rain event) needs to be conducted for a complete floristic survey. This guidance is consistent with directions in the Energy Commission's Recommended Biological Resources Field Survey Guidelines for Large Solar Projects (2008) which specifies that botanical surveys be conducted in accordance with CDFG and CNPS guidelines. CDFG (2000) guidelines for botanical surveys specify that surveys should be conducted at the proper time of year when rare, threatened, or endangered species are both evident and identifiable. Botanical survey guidelines from USFWS (2000) add that, "*Multiple site visits during a field season may be necessary to make observations during the appropriate phenological stage of all target species*."

A number of summer and fall-flowering rare plants are known to occur in this region, and many more have potential to be present. Rare plant taxa with potential to occur in the project area but may not be detected during a spring survey (according to regional botanical experts consulted) include:

- Adam's spurge (*Chamaesyce abramsiana*)
- Glandular ditaxis (*Ditaxis claryana*)
- Angel trumpets (*Acleisanthes longiflora*): Aug-Oct is the optimum survey time for this extremely rare species in California
- Pink velvet mallow (*Horsfordia alata*)
- Lobed ground cherry (*Physalis lobata*)

- Desert portulaca (*Portulaca hamiloides*)
- Flat-seeded spurge (*Chamaesyce platysperma*)

DATA REQUESTS

91. Assess Habitat Potential for Late Season Rare Plants. Please provide a detailed discussion of the potential of these species to occur in the project area, based on the presence or absence of general and micro-habitat conditions required by these species.

92. Map of Suitable Habitat. If suitable habitat is present onsite for these late season rare plants, please provide a map and shapefile showing the location of suitable habitat in the project area on an aerial photo at a scale and level of detail similar to that submitted in the Data Adequacy Supplement, Figure 5.3-6.

93. Assess Significance of Occurrences.
    a. Please provide an assessment of the eco-geographical significance of an occurrence (if present) relative to its distribution within California.
    b. Include a table that itemizes the area of suitable habitat within the project area and provide an analysis of the extent and distribution of suitable general habitat and microhabitat within the cumulative effects study area, taking into account ownership and management of the habitat as well as all reasonably foreseeable projects that could eliminate the plants and/or their habitat.
    c. Please consult botanical expertise from UC Riverside, Joshua Tree National Park, and the Sweeney Granite Mountains Desert Research Center.
    d. Please also provide a map or discussion of the reported/documented occurrences within the NECO planning area.

94. Rainfall Data. Please provide any available 2008/2009 rainfall data from a source as close as possible to the project site.

BACKGROUND

Special status Plant Impacts.

Las Animas Colubrina. Page 5.3-36 of the AFC states that fifty-seven Las Animas colubrina (CNPS List 2.3) individuals were detected within the disturbance area and these plants would be permanently and directly impacted by the project. In addition, 117 individuals were detected in the western portion of the buffer area. The AFC concluded that the direct impacts to Las Animas colubrina would be considered significant if left unmitigated. The AFC does not provide any additional information or context for assessing the regional and cumulative significance of this impact. The proposed mitigation is described in BIO-19, and involves collecting seed and growing them in 1 gallon containers, then planting these either in the re-routed channels or north of the disturbance

area. In addition, the mitigation measure recommended providing an herbarium specimen to the San Diego Natural History Museum for long-term documentation of this rare species.

Staff considers off-site compensation through propagating and planting as a mitigation choice of last resort, to be considered only in the event avoidance/minimization efforts fail or if no feasible alternatives exist for enhancing or compensating for the net loss of plants from other mitigation methods. Transplanting or replacement planting should not be used as a substitute for avoidance and minimization measures to reduce the project impacts to a level less than significant unless attempts at all other avoidance/minimization or enhancement measures have been exhausted. Techniques such as transplanting and replacement planting do not necessarily conserve the genetic variation, metapopulation characteristics, symbionts and other associated species, or the community, habitat, or ecosystem of a rare, threatened, or endangered plant and may not be successful in conserving a species within its evolutionary and ecological contexts. Further, staff is not aware of successful examples of transplantation or replacement planting success for Las Animas colubrina. If all other efforts to avoid or compensate for impacts to Las Animas colubrina are infeasible, then a detailed propagation and replacement planting plant would need to be developed.

Harwood's Milk-vetch. Page 5.3-24 of AFC states that Harwood's milk-vetch was not observed within the disturbance area, but notes that five individuals were recorded in the northeastern portion of the buffer, in the buffer area. BIO-18 recommends that measures shall be taken to avoid and minimize impacts to Harwood's milk-vetch to the greatest extent possible, including avoiding unnecessary or unauthorized trespass by workers and equipment, staging and storage of equipment and materials, refueling activities, and littering or dumping debris in areas known to contain Harwood's milk-vetch that are not within the designated construction footprint.

For both species, neither BIO-18 nor BIO-19 provides sufficient detail or assurances of mitigation implementation, monitoring, and success upon which staff can base its assessment. Additional details are needed on proposed avoidance, minimization and compensation measures to ensure that impacts to special-status plants are adequately minimized and compensated, if significant. The proposed mitigation needs to be consistent with the management and mitigation prescriptions for special status species described in the Northern and Eastern Colorado Desert Coordinated Management (NECO) Plan, as described in the NECO Record of Decision and NECO plan pages 2-18 through 56 and Appendix D.

DATA REQUEST

95. Special-Status Plant Avoidance/Mitigation Plan. Please prepare a draft Special-Status Plant Avoidance and Mitigation Plan for potential significant

direct impacts to 57 Las Animas colubrina that occur within the project footprint, and for avoiding impacts to special-status plants occurring in close proximity to construction (including Harwood's milk-vetch). Specifications for avoiding accidental impacts to special-status plants occurring in close proximity to construction might include: designating Environmentally Sensitive Areas (ESAs) during construction; management guidelines to prevent the spread of noxious weeds; protecting preserved plants from herbicide or soil-stabilizer drift, construction and operation dust, sedimentation, fire, and alteration of the site hydrology; and ensuring permanence through fencing where necessary to protect from accidental harm and signage. For any potentially significant impacts to special-status plants that cannot be avoided or minimized by the measures described above, please also describe and quantify the remaining impacts and investigate opportunities for off-site mitigation through any of the following, listed in order of priority:

a. Off-site Compensation through Restoration: Provide an assessment of restoring degraded special-status plant populations on or off-site (for example, by controlling unauthorized vehicle use, or noxious weed management).

b. Off-site Compensation through Acquisition/Protection: Provide an assessment of the feasibility of compensating for unavoidable impacts through acquisition and protection of other populations and watershed lands important to the ecological health of populations of these special-status plants. Include deed restrictions and a management plan to ensure the long-term viability of the population.

c. Off-site Compensation through Transplanting or Propagating and Planting These measures are choices of last resort if mitigation methods listed above are infeasible or insufficient to reduce impacts to less-than-significant levels, or to be used in conjunction with the methods described above. Transplanting or replacement planting of most rare plants are untested and generally unsuccessful, and thus cannot be used alone as a substitute for avoidance and minimization measures (or the measures described above) to reduce the project impacts to a level less than significant. Considerable advance planning or lead time is typically required for seed collection, cleaning and testing, storage, and planting, particularly for desert plants in a region of widely variable climatic conditions; viable seed may not be produced every year. Please provide a detailed transplantation or replacement planting plan that includes, at a minimum:

   - baseline and target conditions;
   - background information on the reproductive ecology and micro-habitat requirements of the affected species, and any information available on germination requirements;

- detailed description of pre-construction seed collection, including timing of collection, handling of seeds, storage and propagation;
- a table of success criteria and quantitative parameters to measure successful achievement of these criteria;
- implementation and monitoring specifications;
- management guidelines (noxious weeds and other indirect effects), and
- triggers for remedial action.
- If the success criteria are not met, describe how the failure will be remedied. Include a process for analysis of the cause(s) of failure and propose remedial action for CPM and agency approval.
- Include guidelines for implementation and monitoring of any contingency procedures that may be required.

Please also provide a plan for seed collection and delivery to an appropriate organization to preserve the plant's germplasm, and provide evidence of coordination with an appropriate organization to accept the seeds (for example Rancho Santa Ana Botanic Garden Seed Program).

BACKGROUND

Creosote Rings. Certain common California desert plants are protected under the California Desert Native Plants Act and include certain cacti, succulents, and any creosote bush rings ("creosote rings") greater than 10-feet in diameter. Staff understands that the site has a high level of historic disturbance from past military operations but finds no discussion of creosote rings in the AFC or appendices, and needs to know if surveys were conducted for these features or an analysis made from high resolution aerial photography.

data request

96. Creosote Rings. Please provide an analysis (and mapping if present) of high-resolution aerial photos for the presence or absence of creosote rings greater than 10 feet in diameter within the project footprint, including the transmission line route, substation, and access roads to these facilities.

BACKGROUND

Weed Management. Impacts of the project on the introduction and spread of noxious weeds and other invasive non-native plants is discussed as a potential indirect effect to natural plants communities, sensitive species such as Las Animas colubrina, Harwood's milk-vetch, and desert tortoise, and other wildlife. The AFC indicates that Russian thistle and Saharan mustard occur in disturbed portions of the project area, along roads, and in adjacent agricultural areas. These species are particularly troubling and highly invasive weeds that can degrade habitat for listed species, and are therefore targeted for control by many

weed management agencies and public-private coalitions. An active program of weed management is needed during construction and operation of the project because of the potential for spread of these weeds into adjacent uninfested areas.

The AFC's conclusion that these indirect effects would be reduced to less-than-significant through mitigation measures rests on the one-paragraph of discussion in BIO-14 (page 5.3-50). Staff needs a considerably more detailed Weed Management Plan to minimize the risk of introduction and spread of noxious weeds associated with ground-disturbing activities and activities that alter vegetation. The plan should be consistent with the BLM's (Manual 9015) Integrated Weed Management (1992), available on the BLM website: http://www.blm.gov/ca/st/en/prog/weeds/9015.html and with the guidelines described below. The Weed Management Plan should address California Department of Food and Agricultural (CDFA) "A" and "B" rated weeds, BLM "A" and "B" ranked weeds, and Californian Invasive Plan Council (Cal-IPC) "High" and "Moderate" ranked weeds (CDFA weeds sorted by pest ratings is available at: http://www.cdfa.ca.gov/phpps/ipc/weedinfo/winfo_list-pestrating.htm and definitions of the ranks at:
http://www.cdfa.ca.gov/phpps/ipc/encycloweedia/winfo_weedratings.htm

DATA REQUEST

97. Weed Management Plan. Please prepare and provide a draft Weed Management Plan that includes at least the following elements:

    a. Plan Goals and Objectives. Define the goals of the Weed Management Plan. At a minimum, the Weed Management Plan should include a goal that the plan will protect the biological resources surrounding the project from the harmful effects of weeds and potential unintended harm from weed management techniques, and will be consistent with all applicable LORS. Identify specific weed management objectives (eradication, suppression, or containment) for each non-native plant species that could potentially threaten the areas affected by the project.

    b. Noxious Weed Inventory/Baseline Conditions. Please describe the baseline conditions (weeds found, vectors, population densities, etc.) and provide a map showing concentrations or the approximate distribution of the noxious weeds and other invasive non-native plants described in the AFC. Include the location of project features, areas where soil disturbance will occur, and roads used by the project during construction, operation, and closure. For weeds too widespread to map, depict their approximate distribution and include specifications for a detailed baseline mapping at a future date as part of the Plan implementation.

    c. Define and Map the Weed Management Area. – Identify the areas that will be included as part of the Weed Management Area (WMA), which

should include at least project facilities, linear facilities and a buffer area 100 feet out from the boundary of these features; and access roads and a buffer 25 feet out from both sides of the roads. A GIS-based map of the project area should be included to clearly define these buffer zones and facilities as part of the Weed Management Area.

d. Weed Risk Assessment. – Consistent with BLM guidelines for weed management, conduct a weed risk assessment for each component of the Project construction, operation, and closure that involves soil disturbing activities or altering vegetation; the stepwise risk assessment is available online at: http://www.blm.gov/ca/st/en/prog/weeds/9015.html.

e. Monitoring and Survey Methods. Describe survey and monitoring methods that will be used during construction and operation to ensure timely detection and prompt eradication of weed infestations. Describe how locations of noxious weed occurrences and other data (detection date, growth stage, infestation extent, treatments implemented, results of treatment, and current status) will be mapped and maintained during the construction and operation phases.

f. Weed Management. Describe measures that will be employed during construction, operations, and site closure to prevent the establishment of new weed species, eliminate small, rapidly-growing infestations, prevent large infestations from expanding, and reduce or eliminate large infestations. Include implementation schedules, monitoring reporting requirements, budgets, and responsible parties. Include the following elements: Prevention & Exclusion; Early Detection & Rapid Response; Eradication & Management; Restoration (of treated sites); Employee Education & Training; Funding & Resources; Enforcement & Compliance. Please refer to BLMs Weed Prevention and Management Guidelines online: http://www.blm.gov/ca/st/en/prog/weeds/weedprevent.html

g. Reporting Requirements. Describe the proposed content of construction-phase monitoring reports and longer term weed control progress reports. Reporting during construction should include weekly summary reports describing observations and activities relevant to noxious weeds management, and a compilation and analysis of this information into quarterly reports. Upon completion of construction a report should be prepared describing the overall results of noxious weed management and current weed status at the project site. Thereafter annual monitoring reports should be produced for the duration of the monitoring period. The annual reports should include information on noxious weed surveys and management activities for the year, a discussion of whether the weed management goals for the year were met, and recommendations for weed management activities in the upcoming year.

h. Attachments/Other Information. If the following elements were not included in the body of the report they could be included as attachments to the Weed Management Plan: detailed maps (see map guidelines, above); herbicide use protocols and sample record forms; sample monitoring data forms; Cal-IPC and CDFG rankings and ratings and details on management strategy and control methods for each observed and potentially occurring noxious weed on the project site; species -specific goals and Objectives (measurable, with time frame); and methods for evaluation of success in achieving weed control goals.

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Sanders, Andrew. University of California, Riverside. Phone and electronic communications with Carolyn Chainey-Davis, Energy Commission, September and October 2009.

Silverman, David. Botanist, Xeric Specialties Consulting, Ridgecrest, CA. Electronic communications and field review with Carolyn Chainey-Davis, Energy Commission, October 2009.

Technical Area: Cultural Resources
Authors: Beverly E. Bastian (CEC) and Christopher Dalu (BLM)

The Energy Commission cultural resources data requests are organized to show which requests would be pertinent to which cultural resources review approach (approaches 1, 2, or 3) the applicant chooses, as outlined in the December 1, 2009 letter to the applicant from Alan Solomon, Energy Commission Siting Project Manager.

Approach 1

If the applicant chooses cultural resources review approach 1, all of the data requests below would need to be answered except for # 120. (For approaches 2 and 3, go to the end of the cultural resources data requests.)

Data Requests From Beverly E. Bastian, Cultural Resources Specialist, California Energy Commission

BACKGROUND

AFC Figure 2-4 is inadequately detailed for the analysis of the proposed project's potential impacts to cultural resources because the small scale renders the labeling illegible and the line types indistinguishable. Additionally, a number of project components which should be displayed are not depicted or not discernable. To facilitate its analysis, staff needs detailed maps at a more usable scale.

DATA REQUESTS

98. Please provide Figure 2-4 revised as a series of color figures at a larger scale (suggested: 1"=500 feet) and using colored line types to show linear facility routes and other project features such as fences and roads of various types.

99. Please include in the revised Figure 2-4 series, in addition to components already depicted, the following additional project components:

    - on-site transmission lines
    - off-site transmission lines (preferred and alternatives, if any)
    - on-site fiber optic system, overhead and/or underground, on- and off-site
    - on-site steam lines
    - on-site wells and water pipelines
    - on-site firewater system pipelines
    - septic tanks and leach fields
    - shared buildings and switchyard, labeled as "shared"

- natural gas pipelines, on- and off-site
- SCE natural gas "custody transfer station"
- drainage diversion channels
- all project-constructed roads, on- and off-site
- culverts
- Land Treatment Units

BACKGROUND

The AFC does not provide the length of the "new public road" that would be the site access road connecting the plant site with Black Rock Road (the northern I-10 frontage road). To assess the project's potential impact on cultural resources, staff needs additional information on the areal extent of ground disturbance associated with this road.

DATA REQUEST

100. Please provide the length of the site access road from Black Rock Road to the plant site entrance.

BACKGROUND

To assess the proposed project's potential impact on buried archaeological resources and on potentially historic built-environment resources, staff needs information on the dimensions of ground disturbance associated with the installation of various project components and on the potential effect on the integrity of setting of various project structures.

DATA REQUESTS

101. In a table, please list all linear facilities that entail trenching or the excavation of holes for footings, and provide, for both the on- and off-site segments of each, the total length of each facility, and the trench dimensions (width and depth of excavation) required to install each.
102. In a table, please list all buildings and equipment whose foundations require excavation and provide the dimensions and depths of holes that would be dug to construct these foundations.
103. In a table, please list all buildings and structures and provide the height of each.

BACKGROUND

The AFC describes the proposed Land Treatment Units as 8.3 acres in total size and having 5-foot-thick clay liners (pp. 2-19–2-20). This suggests they could entail considerable ground disturbance. To assess the project's potential impact on buried archaeological resources, staff needs additional information on the

extent of ground disturbance associated with the Land Treatment Units, both on- and off-site.

DATA REQUESTS

104. Please provide the dimensions and depth into the ground of the holes excavated for the Land Treatment Units.

105. Please provide a description of the process of constructing the Land Treatment Units.

BACKGROUND

The AFC describes the re-routing around and through the proposed plant site of the surface water run-off from McCoy Wash (pp. 2-24–2-25), but does not provide the dimensions of the channels. To assess the project's potential impact on buried archaeological resources, staff needs additional information on the extent of ground disturbance associated with this proposed project activity.

DATA REQUESTS

106. Please provide the length, width, and depth of each diversion channel segment.

107. Please provide a map, at a scale of 1"=500', showing each diversion channel segment, labeled for easy reference to the above dimension data.

BACKGROUND

The AFC states (p. 2-14) that the five maps constituting Figure 2-1 show the proposed natural gas pipeline route from the plant site to the supply pipeline south of I-10. The referenced figure does not show the pipeline route. To assess the project's potential impact on buried archaeological resources, staff needs a map accurately showing the natural gas pipeline route.

DATA REQUEST

108. Please provide a revised Figure 2-1 showing the natural gas pipeline route.

BACKGROUND

The AFC describes the proposed Land Treatment Units as having 5-foot-thick clay liners (pp. 2-19–2-20). This suggests they could entail the need for considerable fill material. The AFC also states that although the balancing of cutting and filling is planned, the project may require additional fill material (p. 2-25). Staff needs to know whether or not any non-licensed, non-commercial borrow or disposal sites that may be used by the proposed project have been surveyed for the presence of cultural resources.

DATA REQUEST

109. Please indicate whether the proposed project might use any non-licensed, non-commercial soil borrow or disposal sites. If so:

- Please have a qualified archaeologist survey these sites and record on Department of Parks and Recreation (DPR) 523 forms any cultural resources that are identified; and
- Please submit to staff, under confidential cover, a report on the methods and results of these surveys, with recommendations for the treatment of any cultural resources identified in the surveys.

BACKGROUND

The AFC states that horizontal directional drilling would be used to install the natural gas pipeline under I-10 and possibly under other buried linear facilities as well (p. 2-28). To assess the project's potential impact on buried archaeological resources, staff needs additional information on the extent of ground disturbance associated with the proposed directional drilling.

DATA REQUESTS

110. Please provide the number, dimensions, and depth of the bore pits.

111. Please provide a map showing all locations where the proposed project could use directional drilling, with the bore pits shown to scale.

BACKGROUND

The AFC indicates that Figure 5.14-1 illustrates the monopole structures that will be used to support the gen-tie line, but neither the description nor the figure provides the depth of ground disturbance entailed in constructing the concrete foundations for them. The AFC also indicates that the final support tower design will vary depending on the intervals between towers and on what type of support is needed (tangent, angle, dead-end, splicing, or pull-off). The tower height may also vary (pp. 2-29–2-30). Additionally, the extent of the surface area of disturbance entailed in installing the towers is stated to be 20 feet X 20 feet, but for which type of tower is not specified. To assess the project's potential impact on buried archaeological resources, staff needs additional information on the extent of ground disturbance associated with the construction and conductoring of the monopole supports.

DATA REQUESTS

112. Please provide the dimensions (diameter, depth) of the holes necessary for the construction of the foundations associated with the various types of support towers (tangent, angle, dead-end, splicing, and pull-off).

113. Please provide the extent of the area of surface disturbance associated with the installation of the various types of support towers (tangent, angle, dead-end, splicing, and pull-off).

114. Please provide the extent of the area of surface disturbance associated with the conductoring of the support towers at the approximately three pulling sites and between support towers.

BACKGROUND

The AFC states that the part of the transmission gen-tie line north of I-10 would run next to the new proposed site access road, and stub roads would be constructed from the site access road out to individual support tower locations. South of I-10, a new access road for constructing the gen-tie is proposed, but additional stub roads are not mentioned (pp. 2-30–2-31). To assess the project's potential impact on cultural resources, staff needs additional information on the extent of ground disturbance associated with the new transmission line access road south of I-10.

DATA REQUESTS

115. Please provide a map showing the route and dimensions of the new transmission gen-tie access road south of I-10, including all stub roads, if any.

116. Please provide the dimensions of the new transmission gen-tie access road south of I-10, including all stub roads, if any.

BACKGROUND

The AFC states that overhead fiber optic cables would be installed from the same pulling sites as the transmission gen-tie conductors, but it is not clear if the same poles would be used for both (p. 2-30). To assess the project's potential impact on buried archaeological resources, staff needs additional information on the extent of ground disturbance associated with the fiber optic cable system.

DATA REQUESTS

117. If the same support towers are not used for the fiber optic cable system, please describe the supports and provide the dimensions (diameter, depth) of the holes necessary for the construction of the foundations of the supports for this system.

118. Please provide a map showing the locations of the supports for the fiber optic cable system.

BACKGROUND

Volume 2 of the AFC includes an appendix for a report of the geotechnical investigations at the proposed project site. The appendix indicates that a report of the geotechnical investigations will be provided when it is completed. To

assess the proposed project's potential impacts on buried archaeological resources, staff needs a copy of the geotechnical report.

DATA REQUEST

119. Please provide a copy of the geotechnical report for the proposed project when it becomes available.

BACKGROUND

In lieu of clarifying and detailing the exact number, character, and extent of ground disturbing activities that would result from the construction of the proposed project and then determining which significant cultural resources would be impacted by which activities, staff may conduct its analysis of the project's physical impacts on cultural resources at a coarser level of data resolution. Staff has developed an alternate concept of the area in which cultural resources would be impacted by the project—an alternate concept of the project area of analysis—as one large, three-dimensional spatial block, entailing the full extent of the project's below-grade impacts (inclusive of all foundations and trenches) and above-grade impacts (inclusive of all above-ground facilities), and delimiting both the project's physical impacts to surficial and buried cultural resources and perceptual impacts to the settings of built-environment resources and traditional cultural properties. Staff's analysis would entail assuming that all cultural resources located within that block would be significantly impacted by the project and that these impacts would require mitigation. For this approach, staff needs the applicant to determine the boundaries, in three dimensions, of an "impact block" for the plant site (with septic tank and leach field), for the Land Treatment Units, and for each of the linear facilities, including the stormwater diversion and detention system, gas pipeline boring pits, and stub roads, and any alternative facility corridors and alternative site locations. Staff suggests the following steps as the simplest way to accomplish this:

- Use the footprint to provide the preliminary horizontal dimensions;
- Expand the footprint horizontally in all appropriate directions to accommodate the viewshed of any built environment resources and/or traditional cultural properties;

This expanded footprint is the plan of the impact block;

- Generalize the greatest vertical dimension, both into the ground and into the air, of the planned facilities to the rest of the impact block;

This is the profile of the impact block, which is a coarser resolution variant of the project area of analysis.

DATA REQUEST

120. Please provide to staff a series of scaled and dimensioned plan-and-profile views of the proposed project's (and alternative locations') impact blocks.

BACKGROUND

Per Energy Commission Data Regulations, the applicant provided copies of reports for previous cultural resources investigations conducted on or within 1.0 mile of the areas where the proposed project's activities could affect cultural resources (AFC vol. 2, App. G, Att. 2 (9/28/09)). The Preliminary Draft Cultural Resources Technical Report for the Proposed Blythe Solar Power Project, Riverside County, California (AFC vol. 2, App. G, 8/24/09; hereafter: Preliminary Draft Cultural Resources Technical Report) lists the reports of the previous cultural resources investigations (pp. 33–34) and identifies those that covered parts of the areas subject to the effects of the proposed project's activities (p. 32). Two of the latter reports were not included in the copies provided in AFC vol. 2, App. G, Att. 2. To have complete information on the cultural resources that could be impacted by the proposed project, staff needs copies of those reports.

DATA REQUEST

121. Please provide, under confidential cover, copies of the following cultural resources reports:

    - Crew, Harvey, "An Archaeological Survey of Geothermal Drilling Sites in Riverside County" (Report No. 00982)
    - Swenson, James, "An Archaeological Assessment of the Proposed Wastewater Treatment Plant Site in Section 33 and 28, T6S, R7E, SBBM, in the Coachella Valley, Riverside County" (Report No. 01334)

BACKGROUND

Per Energy Commission Data Regulations, the applicant provided copies of the applicant's completed California Historical Resources Information System inventory forms for the cultural resources identified during the applicant's pedestrian archaeological survey of the areas where the proposed project's activities could affect cultural resources (AFC vol. 2, App. G, Att. 5). The Preliminary Draft Cultural Resources Technical Report lists the identified cultural resources (pp. 52–63). Inventory forms for two of the latter cultural resources were not included in the copies provided in AFC vol. 2, App. G, Att. 5. To have complete information on the cultural resources that could be impacted by the proposed project, staff needs copies of the forms for those resources.

DATA REQUEST

122. Please provide, under confidential cover, copies of the forms for the following cultural resources:

    SMB-H-522

    SMB-P-431

BACKGROUND

The Preliminary Draft Cultural Resources Technical Report indicated that copies of historic maps would be provided (p. 57). Staff did not find these historic maps in the materials the applicant subsequently provided. Staff needs to review copies of these maps for its analysis of potentially California Register of Historic Places (CRHR)-eligible built environment resources.

DATA REQUEST

123. Please provide color copies of the following United States Geological Survey (USGS) historic maps:
    - McCoy Peak (1951, 1975)
    - McCoy Spring (1952, 1983)
    - McCoy Wash (1951, 1983)
    - Ripley (1952, 1975)
    - Roosevelt Mine (1952, 1983)
    - Ehrenberg (1943)
    - Colorado River (1903)

BACKGROUND

The applicant submitted a report to the BLM entitled, "Cultural Resources Class III Survey Draft Report for the Proposed Blythe Solar Power Project," of which Angela Keller was a co-author, along with Christopher Doolittle. To ensure that staff has all relevant cultural resources information for the proposed project, staff needs a copy of this report.

Ms. Keller's resume was not among those submitted in compliance with the Energy Commission's Data Regulations. Because she apparently had an important role in producing cultural resources information for the project, staff needs a copy of her resume.

DATA REQUESTS

124. Please provide, under confidential cover, a copy of "Cultural Resources Class III Survey Draft Report for the Proposed Blythe Solar Power Project."

125. Please provide a copy of the resume for Angela Keller.

BACKGROUND

Staff's review of AFC Cultural Resources section 5.4 (8/24/09), of the Preliminary Draft Cultural Resources Technical Report (8/24/09), and of the Supplemental Cultural Resources Report #1 for the Blythe Solar Power Project, Riverside

County, California (10/26/09) (hereafter: Supplemental Cultural Resources Report #1) found that the applicant did not explicitly define in any text or depict on any map the project's surface area of potential effects (APE) for archaeological resources. A discussion in the Preliminary Draft Cultural Resources Technical Report seems to equate the surface APE with "the entire area surveyed … including the Project plant site disturbance area, the originally proposed linear features, and CEC-mandated buffers…" (p. 13), but that equivalence is not explicitly stated. The maps in the Preliminary Draft Cultural Resources Technical Report depict an "Archaeological Survey Area" that the applicant may regard as the surface APE, but, again, that is not explicitly stated. The built-environment APE and the archaeological surface APE for the proposed gen-tie transmission line are explicitly defined and mapped in other documents, but staff and BLM need a definitive map of the archaeological surface APE, covering both the proposed plant site and the proposed gen-tie route.

DATA REQUESTS

126. Please provide a definition of the archaeological surface APE for the proposed project, identifying the areas included in it.

127. Please provide a map at a scale of 1:24,000 depicting the final and definitive archaeological surface APE for the proposed project.

BACKGROUND

Staff reviewed the DPR 523 forms, provided by the applicant, for the newly identified archaeological resources (Preliminary Draft Cultural Resources Technical Report, Att. 5) and compared them to the list of new sites in the Preliminary Draft Cultural Resources Technical Report, presented in Table 9. Staff noted a number of inconsistencies between data in the DPR 523 forms and data in Table 9. For example, in Table 9, site SMB-M-270 is described as a historic debris scatter and lithic scatter (debris from stone toolmaking), and the presence of both prehistoric lithic debitage and historic-period artifacts, indicated to be cans, miscellaneous metal, glass bottles, and brick, is shown (p. 59). The form for this site describes it as primarily a prehistoric lithic scatter with glass bottle fragments also present. The form also describes a prehistoric cairn made of cobbles, some of them thermally altered. The site sketch map does not, however, depict this cairn, and the entry in Table 9 does not mention it. Other noted inconsistencies: The Table 9 entry for SMB-H-247 indicates that the site's cultural context is "mining," but the site form associates it with the WWII Desert Training Center activities. Also, for both prehistoric and historic-period sites, the site forms often provide more precise dating information than Table 9 does, although neither the table nor the forms ventures site dates as precise as should be possible given the dates of the artifacts described, particularly those of the historic period.

Staff has not checked every site form against the data in Table 9, but finding some errors casts doubt on the data in all the forms and in all the Table 9 entries.

To compile the most basic reliable inventory of the cultural resources present in the proposed project's surface APE, staff needs to have accurate site data.

DATA REQUESTS

128. Please check field notes for all newly identified sites and ensure that the data in the DPR 523 forms is correct; then cross-check the data in Table 9 with the data in the forms and correct any errors in Table 9.

129. Please interpret more precise dates for all sites, based on the observed artifacts, and revise the forms to reflect this additional analysis.

130. Please provide, under confidential cover, the revised DPR 523 forms to staff.

131. Please provide, under confidential cover, a corrected Table 9 in which the site data have been revised and into which the gen-tie survey and results have been integrated.

BACKGROUND

Among the DPR 523 forms for the newly identified archaeological resources, numerous historic-period archaeological sites that were recorded individually in the field have been "lumped" together, not as sites, but as "Groups," and forms for the Groups were provided to staff (Preliminary Draft Cultural Resources Technical Report, Att. 5). The applicant's rationale for the "lumping" of these sites is brief and general, and staff wants to reserve the option to consider the possibility of identifying archaeological districts as groupings staff would determine. To compile the most basic reliable inventory of the cultural resources present in the proposed project's surface APE, staff needs to review as individual resources the sites "lumped" together by the applicant.

DATA REQUESTS

132. Please provide, under confidential cover, individual DPR 523 forms for the historic-period archaeological resources that were "lumped" into Groups in the forms provided in Preliminary Draft Cultural Resources Technical Report, Att. 5.

133. Please revise these individual forms to respond to the request for more precise dating information, made in the previous data request.

BACKGROUND

One of the authors of the Preliminary Draft Cultural Resources Technical Report informed the Bureau of Land Management (BLM) archaeologist of the Palm Springs Field Office that "additional survey has been completed in association with various alternate transmission lines" (C. Dalu, review of "Cultural Resources Class III Survey Draft Report for the Proposed Blythe Solar Power Project, Riverside County, California," p. 2). Staff has not found any information in the AFC or Data Adequacy Supplement indicating that more than one gen-tie

transmission line is being considered. If the applicant is considering alternate gen-tie routes, to assess the proposed project's potential impact on cultural resources, staff needs to have a map showing those routes and needs to have the cultural resources survey information that has been gathered for those routes.

DATA REQUESTS

134. Please provide the length and width of all gen-tie transmission line alternative routes and of all associated new gen-tie access roads, including stub roads, if any.

135. Please provide a map showing all gen-tie transmission line alternative routes and the routes of associated new transmission gen-tie access roads, including all stub roads, if any.

136. Please provide, under confidential cover, completed site forms, including more precise dating information as requested above for all new DPR 523 forms, for all cultural resources identified within or near all surveyed alternative gen-tie transmission line routes.

BACKGROUND

Among the newly identified resources reported in the Preliminary Draft Cultural Resources Technical Report are nine prehistoric "thermal cobble features" (SMB-P-434, SMB-P-436, SMB-P-437, SMB-P-438, SMB-P-440, SMB-P-441, SMB-P-445, SMB-P-448, and SMB-P-454), some of which evidence the use of fire, suggestive that they were roasting pits (p. 64). The cobble features are concentrated along the eastern side of the proposed plant site. In the same zone, to the east, northeast, and south of the cobble features, are four previously recorded prehistoric quarry sites, encompassing one small (CA-Riv-3417) and three large (CA-Riv-2846, CA-Riv-3418, CA-Riv-3419) pebble terraces. These terraces are abandoned gravel deposits of former channels of the Colorado River, dating from the Pleistocene epoch (before 12,000 years ago). These terraces have been a source of abundant material for stone tools throughout California prehistory for Native Americans in this area (Preliminary Draft Cultural Resources Technical Report, p. 16). The CHRIS record for quarry site CA-Riv-3418 also noted the presence of four associated roasting pit features. Staff thinks this zone may be an archaeological district, inclusive of the cobble features and the quarries (and perhaps other sites or features as well), evidencing the repetitive visits by Native Americans to the quarries to assay and mine toolstone and their associated subsistence activities. Staff needs additional data on this potential archaeological district and a recommendation on its National Register of Historic Places (NRHP) and California Register of Historical Resources (CRHR) eligibility.

DATA REQUESTS

137. Please propose and submit for staff approval a research plan (including methods that do not entail significant impacts to the sites), a proposed schedule, and personnel resumes, to provide data supporting or discounting the existence of an archaeological district representing the Native American toolstone mining of local Pleistocene pebble terraces, located in and adjacent to the east side of the proposed surface APE.

138. Please implement the staff-approved research plan and, under confidential cover, provide staff with a report, presenting all the collected data, describing and dating the potential archaeological district, and making a recommendation on its CRHR-eligibility, supported by the collected data.

BACKGROUND

Neither the AFC Cultural Resources section 5.4 (8/24/09), nor the Preliminary Draft Cultural Resources Technical Report (8/24/09), nor the Supplemental Cultural Resources Report No. 1 (10/26/09) provided geoarchaeological information about the location of the proposed project. In the Preliminary Draft Cultural Resources Technical Report, the applicant suggests that only in the area along the western edge of the Pleistocene "pebble terraces" (in the eastern part of the proposed plant site) is the potential for buried archaeological deposits relatively high, due to that area being one of active, low-velocity deposition of fine-grained alluvium. For the remainder of the project area, the applicant indicates that subsurface deposits are unlikely (p. 16). To assess the proposed project's potential impacts on buried archaeological resources, staff needs more detailed information on the landforms in the project's APE.

DATA REQUESTS

139. Please obtain the services of a professional in geoarchaeology: a person who, at a minimum, meets the U.S. Secretary of the Interior's Professional Qualifications Standards for prehistoric archaeology, as published in Title 36, Code of Federal Regulations, part 61, and has completed graduate-level coursework in geoarchaeology, physical geography, geomorphology, or Quaternary science, or who has education and experience acceptable to staff. Please submit the resume of the proposed geoarchaeologist for staff review and approval.

140. Please have the approved geoarchaeologist provide a discussion, based on the available Quaternary science and geoarchaeological literature, of the historical geomorphology of the proposed project's APE, including:

    - A description of the development of the landforms, with dates, focused on the character of the depositional regime of each landform from the Late Pleistocene epoch to the present;

- Data on the geomorphology, sedimentology, pedology, hydrology, and stratigraphy of the APE, and the near vicinity; and
- The relationship of landform development to the potential in the APE for buried archaeological deposits.

141. Please have the approved geoarchaeologist produce a map or maps of the landforms present in the project area at a scale of not less than 1:24,000; the data sources for the maps may be any combination of published maps and/or satellite or aerial imagery that has been subject to field verification, and/or the result of field mapping efforts; the maps should overlay the project APE on the landform data. Please also provide the metadata for each overlay used.

142. Absent sufficient technical literature pertinent to the reconstruction of the historical geomorphology of the project APE, and absent sufficient field data to elucidate landform relationships, please have the approved geoarchaeologist design a primary geoarchaeological field study of the project APE, submit a research plan for staff approval, and conduct the approved research. The purpose of the study is to facilitate staff's assessment of the likelihood of the presence of subsurface components for previously known or found surface archaeological deposits and of buried archaeological deposits in the project's APE. The primary study should, at a minimum, include the following elements:

- Use any natural exposures that reveal aspects of the stratigraphy of the portions of the landforms in the project APE;
- A subsurface sampling strategy to document the landform stratigraphy not revealed in natural exposures;
- Data collection necessary for determinations of the physical character, the ages, and the depositional rates of the various sedimentary deposits and paleosols that may be beneath the surface of the landforms in the project APE, to the proposed maximum depth of ground disturbance. Data collection at each sampling locale should include a measured profile drawing and a profile photograph (with a metric scale), and the screening of a small sample (three 5-gallon buckets) of sediment from the major sedimentary units in each profile through □ - inch hardware cloth. Data collection should also include the collection and assaying of enough soil humate or other organic samples to reliably radiocarbon date a master stratigraphic column for each sampled landform; and
- An analysis of the collected field data and an assessment, based on those data, of the likelihood of the presence of subsurface components for previously known or found surface archaeological deposits and of buried archaeological deposits in the project APE, and, to the extent possible, the likely age and character of such deposits.

143. Please have the approved geoarchaeologist prepare a report of the primary field study and submit it to staff under confidential cover.

BACKGROUND

Energy Commission and BLM cultural resources staff must conduct both California Environmental Quality Act (CEQA) and National Environmental Policy Act (NEPA) analyses of the proposed project. The latter requires a robust analysis of project alternatives, so the applicant must identify and analyze a reasonable range of alternative project sites, configurations, or technologies and provide to staff the conclusions of that analysis and the data acquired and used to conduct the analysis.

The Energy Commission, with the assistance of BLM, has identified a reasonable range of alternative for the proposed project, but cultural resources data on these alternatives was not included in the AFC or AFC Data Adequacy Supplement. Staff needs these data to conduct the required NEPA alternatives analysis comparing the proposed project's impacts to cultural resources with those of the alternatives.

DATA REQUESTS

144. Pursuant to achieving a BLM Class III inventory for the alternative project site location(s), please provide to staff, under confidential cover, the following:

- Copies of DPR 523 site forms for all previously known cultural resources from California Historical Resources Information System (CHRIS) record searches, and from BLM records (if pertinent), for the alternative locations, out to 1.0 mile beyond the sites' and linear facility corridors' boundaries;
- Copies of CHRIS reports of previous archaeological excavations and architectural surveys conducted within the boundaries of the alternative sites and their linear facility corridors;
- A copy of the results of the Native American Heritage Commission's (NAHC) sacred lands database search for each alternative location;
- Copies of all letters sent to and received from Native Americans identified by the NAHC as interested in development at each alternative location;
- A pedestrian archaeological survey of 100 percent of the acreage of the alternative location, including a visit to all previously recorded archaeological sites to verify location and to update content and condition;
- An examination of historic maps to identify former and extant buildings and structures, including trails, roads, and other infrastructure, aged 45 years or older, for each alternative location;

- A windshield built-environment survey of all of the trails, roads, and historic-period use areas in each alternative location, identified from the examination of historic maps; and a visit to all previously recorded built-environment sites to verify location and to update content and condition;
- Copies of DPR 523 site forms (with as precise dates as possible) for all cultural resources newly identified or updated through the applicant's additional pedestrian archaeological surveys and windshield built-environment surveys for each alternative location;
- A map at a scale of 1:24,000 depicting the locations of all previously known and newly identified cultural resources for each alternative location; and
- A discussion of the comparative advantages and disadvantages of the proposed project and each alternative location, with respect to cultural resources.

145. If the applicant has analyzed other alternatives, unique to the proposed project, please provide to staff the above requested information for each additional alternative.

BACKGROUND

Staff knows that the region in which the proposed project is located has areas the use of which continue to contribute to the maintenance of cultural cohesion in known groups of Native Americans. Staff surmises that such areas played a similar role for Native Americans prior to a catastrophic disruption of traditional practices, such as the profound degradation of oral history that occurred in the early historic period among many Native American groups. To complete its analysis of the potential impacts of the proposed project on cultural resources, staff needs information on the possible presence of traditional use areas in or adjacent to the APE.

DATA REQUESTS

146. Please explicitly discuss the efficacy of modeling the potential archaeological characteristics and spatial distribution of at-this-time unknown Native American traditional use areas on the basis of available ethnographic information and theoretical principles of ethnogeography.

147. If reasonably practicable, please develop such a model and submit for staff review and approval a research plan for the field verification in the APE of the model's predictions and recordation of identified traditional use areas.

148. Please implement the staff-approved plan and provide to staff a report on the results and a comprehensive discussion of the traditional use areas in and adjacent to the project APE that may be subject to the visual impact of

the construction, operation, and maintenance of the proposed project (e. g., landforms in sight of the APE on which sacred or other traditional activities took place). Please include any additional DPR 523 site forms in an appendix.

Data Requests From Christopher Dalu, Archaeologist, Bureau Of Land Management

BACKGROUND

Per Energy Commission Data Regulations, the applicant provided new DPR 523 forms for the archaeological sites and built-environment resources newly identified in the surveys of the proposed project areas (Preliminary Draft Cultural Resources Technical Report, Att. 5). Not provided, however, were DPR 523 forms for "isolates" (defined as <4 artifacts at a location) (Preliminary Draft Cultural Resources Technical Report, p. 65). To fully consider the possible presence of archaeological or historic districts in the proposed project areas, staff needs DPR 523 forms for the isolates completed and submitted for staff review.

DATA REQUEST

149. Please complete and provide, under confidential cover, copies to staff of DPR 523 forms for the isolates identified during all cultural resources surveys.

BACKGROUND

The Survey Methods section of the Preliminary Draft Cultural Resources Technical Report (8/24/09) does not provide information on the field conditions experienced by the archaeological survey teams. Staff needs more details on conditions that could have had an effect on the efficacy of the field surveys.

DATA REQUEST

150. Please provide a description of the field conditions experienced by the survey teams for the archaeological surveys of both the proposed plant site and the later gen-tie route, including ground visibility, temperatures, terrain, etc.

BACKGROUND

The Preliminary Draft Cultural Resources Technical Report provides very brief descriptions of the newly discovered archaeological sites within or near the proposed project's surface APE (Table 11), and recommends evaluative testing on 30 of them that could be CRHR-eligible, if project impacts to these sites cannot be avoided (p. 98, Table 12). Similarly, the Supplemental Cultural Resources Report #1 adds to the findings of the earlier survey the results from the later survey of the proposed gen-tie transmission line and recommends evaluative testing on five sites, if impacts cannot be avoided (p. 27, Table 6).

Because staff needs to evaluate all of the sites that would be impacted by the project and therefore needs data from evaluative testing on all of those sites, staff concurs in the applicant's recommendation of archaeological testing.

The applicant also recommends that an additional 14 lithic scatter sites (Preliminary Draft Cultural Resources Technical Report, Table 13: 11 sites); Supplemental Cultural Resources Report #1, p. 27: 3 sites) qualify for the programmatic treatment offered by the California Office of Historic Preservation and known as CARIDAP (California Archaeological Resource Identification and Data Acquisition Program) (p.64). Staff concurs in this recommendation also.

DATA REQUESTS

151. For all archaeological sites for which project impacts cannot be avoided, please submit for staff approval a plan, including a research design and methods that do not entail significant impacts to the sites listed in Tables 12 and 13, for using test excavations or the CARIDAP protocol to determine if any subsurface deposits are present and to acquire sufficient data to make recommendations of NRHP and CRHR eligibility for these sites, with the potential of the recovered data evaluated according to its applicability to the research questions posed in the research design. The testing plan should include the following analyses:

    - Dating all or a sample of datable materials recovered from tested sites, including obsidian, charcoal, bone, and shell;
    - Detailed lithic analysis of debitage addressing manufacturing techniques and sourcing of toolstone materials, including, if locally derived, an estimated collection radius; and
    - Site-specific and landscape- or APE-based strategies for ceramic analysis to generate such attributions as source, age, mineral content, and paste characteristics that are consistent with J. Schaefer's ongoing research efforts.

152. Please provide to staff a report on the testing and results at these sites, presenting an analysis of the recovered data and recommendations regarding the eligibility of the sites.

Other Review Approaches (Data Request Subsets)

Approach 2

If the applicant chooses cultural resources review approach 2, all of the above data requests would need to be answered except for # 120. Additionally, data request # 142 would be modified to reduce the required phase I archaeological survey to a BLM class II level and reduce the survey coverage from 100% to 25%. Required part "e" would therefore read as follows:

A pedestrian archaeological survey of a 25% stratified random sample of the acreage of the alternative location, where the subject sample is developed using project area landforms and known cultural parameters as stratification criteria (One layer of the sample would reflect the known landforms in the project area, a second layer would reflect known prehistoric settlement pattern parameters such as proximity to past or present water ways or stands of economic plant species, and a third layer would reflect historic period cultural parameters such as proximity to known historic transportation and utility corridors, mining districts or areas, and townsites.); a visit to all previously recorded archaeological sites to verify location and to update content and condition;

Approach 3

If the applicant chooses cultural resources review approach 3, the above data requests that would need to be *answered* would be limited to:
109;
120;
121;
#s 124–133;
#s 135–136; and
#s 139–148.

Technical Area: Power Plant Efficiency
Author: Erin Bright

BACKGROUND

The fact sheet preceding section 2.0 of the AFC provides footprint area for each of the four units of the project as well as nominal power output per unit. Each unit is said to be identical, consisting of similar major components and producing the same nominal power output, but the footprint area of the units is different (1600 acres for units 1 and 2 and 1200 acres for units 3 and 4).

The most significant environmental impacts caused by solar power plants result from occupying large expanses of land. The difference in unit footprint for the project would correlate to a significant difference in land use efficiency between the units, the cause of which is unexplained in the AFC.

DATA REQUEST

153. Please explain the reason for the difference in footprint area between the units of the project.

Technical Area: Geological Hazards and Resources
Author: Patrick Pilling, Ph.D., P.E., G.E., D.GE.

BACKGROUND

Site-specific subsurface information is essential to completely evaluate a site with respect to potential geological hazards and how the existing geological materials may impact design, construction, and operation of the facility. The information is also useful in establishing the geological profile with respect to potential paleontological resources. The AFC notes that geotechnical investigations are being performed for the project site, but no data was included in the AFC.

DATA REQUEST

154. Please provide copies of any geotechnical data/documents that have been completed for the project site.

BACKGROUND

Seismic ground shaking can have a significant effect on the operation of the proposed facility, and development of this project must include an analysis of seismic shaking. Such an analysis typically includes a listing and description of significant seismic sources that could affect the site. This information was not presented in the AFC.

DATA REQUEST

155. Please provide a listing and description of all significant seismic sources within a 100-mile radius that could affect the site. The information should include the fault name, a description of the fault, fault type, fault class, slip rate, maximum magnitude, approximate site-to-source distance, and estimated peak ground acceleration at the plant site due to the maximum credible earthquake occurring along the fault.

BACKGROUND

Development of this project must be assessed for its potential to impact geological resources of recreational, commercial, or scientific value. Such resources could include aggregate and mineralogical resources. The AFC does not specifically address these potential resources.

DATA REQUEST

156. Please provide information with respect to the potential presence of such resources, the techniques used to identify and evaluate these resources, and the project's potential to impact such resources.

Technical Area: Public Health
Author: Dr. Alvin Greenberg

BACKGROUND

The AFC did not provide diesel particulate matter (DPM) emission factors for equipment and vehicles that will be used during construction activities nor was a health risk assessment prepared for diesel emissions from construction activities. Tables 5.2-17 and 5.2-18 of the AFC provide modeling results for combustion sources during construction activities for criteria pollutants, including PM10 and PM2.5, but not DPM. While staff understands that project construction emissions are short-term and may indeed pose an insignificant risk to public health as the AFC states, staff needs to verify this by reviewing the DPM emission factors and health risk assessment for construction activities.

DATA REQUEST

157. Please provide DPM emission factors from construction activities and a health risk assessment for diesel construction equipment emissions.

BACKGROUND

DPM emissions from on-site vehicles are presented in Table 5.2-26 of the AFC (including mirror wash trucks, trucks that apply soil stabilizer, trucks used for weed abatement activities, water trucks and other maintenance vehicles). In determining risks due to operational activities at the proposed project, the AFC did not include diesel emissions from these vehicles used on-site for maintenance activities. In order to properly assess the risk posed to workers at the site and to the off-site public, this source of DPM emissions should be included in the health risk assessment.

DATA REQUESTS

158. Please provide DPM emission factors for on-site solar field and equipment maintenance activities in pounds per day and tons per year. This value can be submitted as a single number estimate of total emissions from all vehicular sources used on-site.

159. Please conduct a health risk assessment for diesel emissions from vehicles involved in on-site solar field and equipment maintenance activities during plant operations.

160. Please provide a cumulative PM2.5 emissions estimate on a daily and yearly basis when fugitive dust emissions are added to the DPM emissions from the above stationary and mobile sources, assuming that all DPM from diesel engines are PM2.5.

BACKGROUND

The AFC indicates that 69% of the total cancer risk estimated at the maximally exposed individual resident is due to benzene emitted from four heat transfer

fluid (HTF) expansion/ulllage tank vents. The AFC states that VOC emission rates used are estimated based on data provided by the existing Kramer Junction Solar Energy Generation facility, however this information is not provided in the AFC.

DATA REQUEST

161. Please provide the Kramer Junction Solar Energy Generation facility data used in the AFC, specifically emission rates of benzene and other HTF thermal degradation products emitted.

162. Please provide any other information obtained specific to thermal degradation of HTF, biphenyl and diphenyl ether, and the source of that information.

BACKGROUND

In addition to dry cooling towers used for the primary steam cycle, the project will use 4 smaller auxiliary wet cooling towers to remove residual heat, utilizing water supplied from onsite groundwater wells. Emissions of chloroform (resulting from the use of sodium hypochlorite as a biocide for cooling tower maintenance) from the auxiliary wet cooling towers are included in the health risk assessment, but the AFC does not evaluate potential toxic metal emissions due to metals present in groundwater.

DATA REQUEST

163. Please provide groundwater concentrations and emission rates for metals present in groundwater from the auxiliary wet cooling towers and conduct a health risk assessment on metals emitted.

BACKGROUND

Risks and hazards are estimated at the location of the nearest known residential receptor. In order to evaluate the potential for a higher risk to occur at another location, it is also important to estimate risk at the point of maximum impact (PMI) predicted in the modeling.

DATA REQUEST

164. Please provide the location(s) of the point of maximum impact predicted in the air dispersion modeling for cancer risk, chronic hazard and acute hazard due to facility operations. Please estimate risk and hazard at the PMI.

Technical Area: Power Plant Reliability
Author: Erin Bright

BACKGROUND

To ensure that a project will operate reliably, a quality control program is often applied to the project to make certain that appropriate quality measures are applied to all systems and components of the project such that desired reliability and availability are achieved.

DATA REQUEST

165. Please describe the quality control program that would be utilized for the project, including examples of appropriate controls that would be applied to each of the stages of project development.

Technical Area: Soil and Water Resources
Author: John Thornton, P.E., Michael Donovan, P.G., C.Hg., Michael Daly, P.E.

BACKGROUND: Cut & Fill

In section 5.12.3.1 of the AFC, the report states: "Grading of the Project site will result in a less than one percent slope downward from the west to the east of the site. Earthwork associated with the Project will include excavation for foundations and underground systems, and the total earth movement that will occur is approximately 8.3 million cubic yards."

Staff is concerned that insufficient information is available to evaluate the overall site grading activities.

DATA REQUEST

166. Please show how much cut and fill will occur at the site?
167. If the cut and fill quantities are not balanced, please show the calculations or resolve the balance differences.
168. Please provide calculations supporting that the size of the stockpile locations are sufficient to support the volume of soil and vegetation expected to be generated.

BACKGROUND - Soils – Erosion Control

In the Mojave Desert, rainfall usually occurs during brief but intense rainstorms. An average of less than four inches per year of rainfall can be expected at the project site. The water that does not infiltrate into the ground or evapotranspirate, flows as surface runoff and at times can result in flash flood conditions. The plants on the property, on that the project is proposed, help retain sediment and reduce erosion potential from runoff. Removing all the vegetation to the root system as well as any desert pavement, varnish or armored-soils would dramatically alter the surface runoff pattern that has naturally developed and likely allow transport and deposition across and off site. At such a large scale, up to 7,030 acres of vegetation removal and ground disturbance, management of the surface water flows would require extensive engineering to protect against potential impacts from erosion and sedimentation.

DATA REQUEST

169. Please provide plans and maps showing how sheet and channel flow across the project site, over roads, around the mirrors, and off the site would be managed through engineering controls.
170. Please provide erosion and deposition predictions on the up-slope and down-slope sides of the project.

171. Please provide information showing how soils will be maintained to prevent erosion during operation.

172. Please provide maps and plans showing how the site soils will be returned to their original state along with long-term management of the site soils upon decommissioning of the project. (Staff's current understanding is that desert pavement and varnish can take 100s to 1000s of years to form – see USGS Bulletin 1793 - The Response of Vegetation to Disturbance in Death Valley National Monument, California).

BACKGROUND - Soils – Dust Control

In section 5.12.3.2 of the AFC, the report states: "With the implementation of BMPs, and associated monitoring activities included in the operations phase SWPPP/DESCP, soil erosion would be expected to be minor during Project operations. Further, the Project will utilize soil stabilizers within the solar array area in order to reduce the amount of dust deposited on the solar collectors (dust adversely affects their efficiency). Also, the water from mirror washing and compaction of the driving surfaces over time will serve to control dust." Staff is concerned that techniques described are inadequate to prevent dust control/wind erosion.

DATA REQUEST

173. Please provide a comprehensive discussion of how dust control would be achieved by mirror washing and compaction. Specifically identify:

    a. How water from mirror washing would be directed to all the disturbed areas.

    b. How equipment traffic will compact the soil and not break up soil crusts and/or create silt.

    c. How would water be applied when mirror washing is not occurring.

BACKGROUND: Climate and Precipitation

The applicant has provided some information on climate but neglected to include information on evapotranspiration.

DATA REQUEST

174. Please provide information on regional and site specific information on evapotranspiration. If citing regional data, a scaled map should be included that depicts the location of the station where the data was collected and the project location.

175. If citing regional data (such as Indio), please provide a comparison between any regional stations and more localized stations to see if the local stations may be more representative of site conditions. The

California Irrigation Management Information System (CIMIS) has stations in Ripley and near Palos Verde that are significantly closer to the site than Indio.

BACKGROUND - Basin Plan Objectives

In section 5.17.2.2 of the AFC, the report states: "The Colorado River Hydrologic Region is subdivided into 28 groundwater basins, one of which is the Palo Verde Mesa Groundwater Basin where the Project site is located (Figure 5.17-1). West of the Project site is the Chuckwalla Valley Groundwater Basin that is separated from the Palo Verde Groundwater Basin by a gap in the McCoy and Mule Mountains. The Palo Verde Mesa Groundwater Basin is bound by the McCoy Mountains to the west, the Little Maria Mountains to the northwest, and the Big Maria Mountains to the northeast. There are no significant subsurface structural features that restrict groundwater flow within the Palo Verde Mesa Groundwater Basin according to the DWR, and the Palo Verde Mesa Groundwater Basin is not listed on the DWR list of adjudicated groundwater basins (http://www.water.ca.gov/groundwater/). In the Palo Verde Mesa Groundwater Basin, groundwater provides a source of water for domestic, industrial, and agricultural water supply."

The LORS portion of the document indicated that there are water quality objectives; but did not discuss what those objectives are. Specifically, the Basin Plan indicates for the Hayfield beneficial use area: "Discharges of wastes or wastewater shall not increase the total dissolved solids content of receiving waters, unless it can be demonstrated to the satisfaction of the Regional Board that such an increase in total dissolved solids does not adversely affect beneficial uses of receiving waters." Since the applicant proposes to use Reverse Osmosis (RO) reject water for dust suppression, a discussion of basin plan and water quality objectives is required.

DATA REQUEST

176. Please provide a detailed discussion of the basin plan and water quality objectives for both surface water and groundwater. Be sure to include springs and any other hydrologic features that might be impacted by proposed project.

BACKGROUND - Hydrogeology

The applicant has briefly described the geology however there is no discussion on the structure or formation of the basin which may have a strong influence on groundwater occurrence and flow. Specifically, the applicant states in Section 5.17.2.3 of the AFC that "Regionally, this valley formed as a structural depression or a pull-apart basin and is composed of two broad geologic units, consolidated rocks and unconsolidated alluvium. The consolidated rocks consist of pre-Tertiary age igneous and metamorphic rocks, which form the basement complex,

and in some locations, Tertiary-age volcanic rocks that overlie the basement complex. The consolidated rocks are nearly impermeable except for areas where fracturing or weathering has occurred. It is uncertain the extent that these rocks yield water to the alluvium. The flux of groundwater into and out of the bedrock is unknown." Similar conditions in other adjacent valleys (Hayfield) have suggested faults that may compartmentalize the groundwater system.

In addition, as stated in Section 5.5 of the AFC: "In addition, no active fault zones are present within one mile of the Project site; however, the site is approximately 1.5 miles east of an unnamed fault located at the western end of the McCoy Mountains (DMG 1967, 1994). This fault has not been mapped by the USGS (2009) as a Quaternary (sufficiently active) fault, and is not listed by the EQFAULT (Blake, 2000) program as a fault potentially affecting the Project site."

Moreover, the description of groundwater resources failed to identify springs, seeps, surface discharges, and playas in the area (not just the project site). There is a potential for groundwater extraction associated with water supply to impact groundwater levels and correspondingly discharges from springs, seeps, surface discharges, and playas at distances exceeding several miles over the life of the project.

A more comprehensive discussion of the geology and hydrogeology is required as several important elements have not been completely developed including the presence of springs, seeps, surface discharges, and playas and potential compartmentalization of the groundwater system.

DATA REQUEST

177. Please include a detailed discussion of the geology including structure, faults, and other features that may have an influence on the occurrence and movement of groundwater. Include a geologic map, structural contour map and cross-sections.

178. Please provide a comprehensive assessment of springs, seeps, surface discharges, and playas in the area that may be affected by groundwater extraction at the site. The assessment should include:

    - identification and location of known springs, seeps, surface discharges and playas;
    - spring type (if known) and discharge quantity (gpm) and whether perennial or ephemeral; and,
    - general water quality

BACKGROUND - Groundwater Recharge

In section 5.17.2.5 of the AFC, the report states: "According to Metzger and others, sources of recharge to the Palo Verde Mesa Groundwater Basin are the

Colorado River, precipitation, and underflow from adjacent areas, including the Rice and Chuckwalla Valleys. More recent information by the DWR, suggest that recharge of the basin is chiefly from percolation of runoff from the surrounding mountains, with percolation of precipitation to the valley floor and subsurface inflow as contributing (albeit minor) additional sources of recharge. Natural recharge in the basin is estimated at about 800 afy (and recharge by underflow from the up-gradient Chuckwalla Valley is estimated to be 400 afy. In total the recharge from sources other than the Colorado River are about 1,200 afy. Recharge from applied irrigation water diverted from the Colorado River through the Palo Verde Irrigation District is unknown, though could be significant given that 375,000 afy were provided in 2007."

Staff believes that a more comprehensive discussion of basin recharge/discharge is required along with a basin budget to understand what overall impact the project will have on the existing groundwater basin.

DATA REQUEST

179. Please conduct a more thorough analysis of the groundwater recharge/discharge that is likely occurring in the Palo Verde Mesa Groundwater basin. Please provide a table with estimates either by reference or by actual calculations of the estimated amount of recharge/discharge that is occurring. Anticipated recharge can be calculated using a procedure described in Hely & Peck (1964). The analysis should use isohyetal maps of average annual precipitation overlaid on the basin boundaries. Several factors (2, 5, & 10%) should be applied to the calculated volume to give a range of anticipated recharge.

BACKGROUND - Table 5.17-8 Summary of Aquifer Characteristics

Staff is concerned that the information presented in Section 5.17.2.7 may be inaccurate and/or misleading. The applicant did not try and develop estimates of transmissivity from specific capacity testing from various well logs located in vicinity of the site. Moreover, the AFC stated in section 5.17.2.7 "As part of the current Project water resources field investigation, a pumping test will be performed in a new well to be installed to better develop an understanding of site hydrogeologic conditions and aquifer properties. Two observation wells will be installed in support of the proposed pumping test program. Data from the pumping will be used to improve the site conceptual mode and refinement of the groundwater model that was employed to assess the radius of influence from the proposed project pumping." The AFC also stated: "The data will be analyzed both by hand and using AQTESOLVTM to determine well efficiency, yield, aquifer characteristics, and the influence on adjacent pumping wells."

Staff believes that the applicant should use site specific information for development of aquifer characteristics.

DATA REQUEST

180. Please provide a conservative estimate of aquifer characteristics for the alluvium and any other hydrogeologic units that may be present beneath the site that may have an influence on the overall groundwater system i.e. if uncertain of the parameters or there is a wide range in parameters, use the parameter that will produce the maximum impact. The site specific conditions from the aquifer test study should be the value used. In the absence of site specific data, regional data can be used to approximate aquifer parameters. If aquifer parameters vary spatially by more than an order of magnitude, then aquifer parameters need to be characterized spatially.

181. Please include an evaluation of the interconnectivity of the shallower water-bearing zone with the deeper groundwater zones (if present) including what, if any, impedance in the vertical groundwater flow occurs at the site.

BACKGROUND – Reverse Osmosis Reject Water

The applicant proposes to utilize Reverse Osmosis (RO) to treat the groundwater produced for water needs. The RO system will generate reject water or concentrate with a concentration of approximately 12,000 mg/L of total dissolved solids. The amount of reject water generated on a daily basis was not provided. The RO reject water is directed to a 0.3 million gallon tank storage that is used for dust suppression across the site. Documentation of the potential impacts from discharge of the reject water to the ground surface for dust control was evaluated in the AFC Supplement Vol.3. Staff is concerned that insufficient information has been supplied to evaluate the use of reject water for dust control and the submission of draft WDR. Using the RO reject water for dust suppression may constitute a waste discharge.

In addition, the applicant provided an analysis of potential water quality impacts associated with use of the RO reject water in the AFC Supplement Volume 3 submittal. Staff is concerned that the applicant did not:

- Conduct an analysis of the longest period that could occur where salts would accumulate on site;
- address all potential constituents that may be present and could be detrimental to flora and fauna; and
- Identify alternatives for disposal of the RO reject water.

DATA REQUEST

182. Please conduct a statistical analysis of the longest period that could occur with no runoff (i.e. the highest salt loading to soils on the site) based on historic rainfall data and estimate of the threshold precipitation rate where runoff (offsite) would occur.

183. Please provide a discussion of potential salt loading using the longest period salt loading factor developed from the previous request. The discussion must include the impacts associated with other parameters including pH, boron, metals, radionuclides and any other constituents that may be present in the runoff water and are detrimental to flora and fauna on and adjacent to the project site.

184. Please identify alternatives for disposal of the RO reject water including offsite disposal.

185. Please identify whether, except for the exclusive permitting authority of the Energy Commission, the applicant would need a permit from the Regional Water Quality Control Board (RWQCB) for the discharge of high saline groundwater to land.

186. Please provide all information necessary to file a Report of Waste Discharge with the RWQCB.

187. Please provide all information necessary to file a Report of Waste Discharge to the RWQCB and include the appropriate application fee.

BACKGROUND – Water Supply

In section 2.5.5.2 of the AFC, the report states: "The Project's limited water uses include solar mirror washing, feedwater makeup, fire water supply, onsite domestic use, cooling water for auxiliary equipment, heat rejection, and dust control. The average total annual water usage for all four units combined is estimated to be about 600 acre-feet per year (afy), which corresponds to an average flow rate of about 388 gallons per minute (gpm). Usage rates will vary during the year and will be higher in the summer months when the peak maximum flow rate could be as much as about 50 percent higher (about 568 gpm)."

The report goes on to state: "The Project water needs will be met by use of groundwater pumped from one of two wells on the plant site. Water for domestic uses by Project employees will also be provided by onsite groundwater treated to potable water standards. As discussed in Section 5.17, Water Resources, a well testing program is underway, using a newly installed water supply well, to allow determination of the optimum groundwater pumping program to provide the needed volumes of water with minimum impact to other groundwater users and the groundwater basin. The results of this well testing program will be made available to regulatory agencies and other stakeholders when the testing program is completed.

It is expected that two new water supply wells in the power blocks of the Project site will adequately serve the entire Project. A second well will provide redundancy and backup water supply in the event of outages or maintenance of the first well."

The AFC did not provide information on specific depths the wells would be completed and if they would draw water from the alluvium or deeper groundwater production zones. In addition, the AFC did not report the relationship of the Proposed Colorado River Accounting surface with groundwater levels at the site.

DATA REQUEST

188. Please provide details on the depth of the proposed wells and the aquifer(s) the wells would be targeting for production and the relationship to the proposed Colorado River Accounting Surface.

BACKGROUND – Numerical Groundwater Modeling

In section 5.17.3 of the AFC, the report states: "

An existing numerical groundwater model was selected to provide an evaluation of Project impacts. A regional model was selected for the Project that was developed by the USGS in cooperation with the USBR for evaluation of the potential for depletion of the Colorado River from pumping in sub-adjacent groundwater basins. The regional model is a two-dimensional superposition model developed using MODFLOW code for the Parker-Palo Verde-Cibola area, which includes the Palo Verde Mesa Groundwater Basin. The model is a simple two-dimensional model, employing a simple vertical geometry and a large grid spacing to evaluate the impacts from groundwater pumping on recharge to the Colorado River. The model uses a constant value for the storage coefficient (0.20) and varies transmissivity developed from a statistical analysis of published aquifer test data. The transmissivity values are varied from a low value of 6,300 ft2/d to an average value of 26,200 ft2/d. The model grid uses a spacing of 1,320 feet throughout the domain which includes the Palo Verde Mesa, Chuckwalla Valley and Cibola area of Arizona."

Staff is concerned that the numerical groundwater model used aquifer characteristics that may not be representative of site conditions. Specifically,

- The estimates of transmissivity were from regional wells and not from site specific wells;
- The model assumes an initial uniform saturated thickness of 500 feet. This assumption must be verified using available borehole data to ensure the model accurately represents the vertical geometry of saturated sediments in the vicinity of project pumping wells
- Because the model was not calibrated to observed water levels and water level trends, results from the superposition model must be interpreted with caution when used to assess potential groundwater impacts.
- Multiple model runs are needed to test the sensitivity of simulated impacts to uncertainty in the magnitude and distribution of aquifer parameters as indicated by aquifer test results.

The AFC provided information concerning local information (in Palo Verde Mesa) on transmissivity and storativity. In addition, the cited well testing program will presumably provide more site specific information on transmissivity and storativity for the site. It is presumed that the groundwater modeling will be updated to reflect the local conditions determined for the site.

Actual project well locations and pumping depths have not been determined. The USGS model represents only the water table aquifer within the saturated alluvium. However, it is unclear whether water supply wells in the basin can also extract water from the underlying Bouse Formation and possibly deeper Fanglomerate (if present). The two-dimensional model is limited to simulating potential impacts due to pumping alluvial wells, and if deeper wells are utilized for the project water supply the model grid will need to be extended vertically to represent the deeper water bearing zones.

In addition, the numerical model used by the applicant assumes an initial uniform saturated thickness of 500 feet. This assumption must be assessed and verified; if possible, using available borehole data to ensure the model accurately represents the vertical geometry of saturated sediments in the vicinity of project pumping wells.

DATA REQUEST

189. Please provide a conceptual model of what was used in the numerical model that is consistent with site specific conditions.
190. Please update the numerical model with site specific aquifer characteristics as previously mentioned.
191. Please provide transient groundwater model runs (including analysis) of the proposed project from construction through operations for the life of the project. Output should include water level changes within the basin (at end of construction, mid project and project shutdown).
192. Please provide transient groundwater model runs (including analysis) of the proposed project during the life of the project. Output should include water level changes within the basin (at end of construction, mid project and project shutdown).
193. Please provide an electronic copy of the computer files for the numerical model.
194. Please provide the thresholds of significance that were used to evaluate the potential impacts associated with the significant drawdown at the springs, seeps, and playa lakes and at wells used by other groundwater pumpers in the basin.
195. Please indentify the aquifers that are targeted for production and the anticipated water quality of this aquifer.

196. Please provide a sensitivity analysis to assess what parameters had the greatest influence on the results of the modeling effort and the uncertainty associated with various key parameters.

BACKGROUND – Land Treatment Unit

The Applicant has proposed to use a Land Treatment Unit to treat HTF-impacted soils from normal operations at the project site. The two solar fields to be installed at the Project would share the same LTU to bioremediate or land farm soil contaminated from releases of HTF. The bioremediation unit will be designed in accordance with Colorado River Basin RWQCB requirements and is expected to comprise an area of about 8.3 acres. The bioremediation facility would utilize indigenous bacteria to metabolize hydrocarbons contained in non-hazardous HTF contaminated soil. A combination of nutrients, water, and aeration facilitates the bacterial activity where microbes restore contaminated soil within two to four months.

The LTU will be constructed with a clay liner at least five feet in thickness as per Title 27 requirements. Unsaturated zone monitoring and/or groundwater monitor will be used to evaluate liner integrity. Nutrients including nitrogen and phosphorus would be added to the contaminated soil to encourage consumption of the HTF by the indigenous bacteria. The soil would remain in the remediation unit until concentrations are reduced to an average concentration of less than 100 mg/kg HTF. Soil contaminated with HTF levels of between 100 and 1,000 mg/kg will be land farmed at the LTU, meaning that the soil will be aerated but no nutrients will be added.

Staff is concerned that there is insufficient information to assess the adequacy of the LTU to treat HTF-impacted soils during the life of the project. In addition, the applicant has not submitted a report of waste discharge (ROWD) to the RWQCB or staff.

DATA REQUEST

197. Please provide details on the sizing of the LTU and how HTF-impacted soils will be treated including information on the presence of indigenous bacteria to breakdown the HTF, breakdown products, time for achieving breakdown from the 10,000 mg/kg maximum to the 100 mg/kg reuse level.

198. Explain what impact the use of RO concentrate on soils for dust suppression will have on the ability of indigenous bacteria to breakdown the HTF?

199. Explain how runoff and/or leachate potentially generated from operation of the LTU will be managed?

200. Explain potential impacts from operation of the LTU on surface and groundwater quality.

201. Please provide a ROWD for discharge to a LTU. Please also provide the ROWD to the RWQCB along with the appropriate fee for their review.

BACKGROUND – Sanitary Leach field Operation

The applicant proposes to produce wastewater that will consist of sanitary wastewater production associated with domestic water use. Maximum domestic water use is expected to be less than 320,000 gallons per month (11,000 gallons per day). It is anticipated that the wastewater will be consistent with domestic sanitary wastewater and would have Biological Oxygen Demand and Total Suspended Solids in the range of 150 to 250 mg/L.

Sanitary wastes will be collected for treatment in septic tanks and disposed via leach fields located at the power block as well as at the administration and warehouse areas. Smaller septic systems will be provided for the control room buildings to receive sanitary wastes at those locations. Based on the current estimate of 11,000 gallons of sanitary wastewater production per day, a total leach field area of approximately 22,000 square feet would be required spread out among multiple locations. Additionally there is a private parcel of land located near the center of the project.

The applicant has not conducted an evaluation of the potential impacts to the groundwater quality beneath the privately owned parcel associated with operation of septic systems and associated leachfields.

DATA REQUEST

202. Please provide an evaluation of the potential impacts to surface and groundwater quality at the privately owned parcel from the operation of a septic system and leachfield that will be operated at the site.

BACKGROUND - Surface Water

A Federal Clean Water Act section 401 certification may be required. If there are potential impacts to surface waters of the State and/or Waters of the United States, such as drainages, streams, washes, ponds, pools, and wetlands, this certification will be required from the RWQCB. These impacts need to be quantified and mitigated. Please refer to:
http://www.waterboards.ca.gov/coloradoriver/water_issues/programs/401_certification/

DATA REQUEST

203. Please discuss in detail whether a 401 certification is required. If required, please discuss compliance with the RWQCB requirements discussed on the following RWQCB webpage:
http://www.waterboards.ca.gov/coloradoriver/water_issues/programs/401_certification/

204. Submit a jurisdictional delineation to the USACE, a section 401 water quality certification application to the RWQCB, and a Streambed Alteration Notification package to the CDFG. Provide copies of all these documents to the Energy Commission. This response may be prepared in conjunction with the response to related Biological Resources data requests.

BACKGROUND - Environmental Impacts

In section 5.17.3 of the AFC, the report states: "Water supply impacts would be considered significant if the Project resulted in:

- Substantial depletion of groundwater resources and interference with local wells,
- Substantial interference with groundwater recharge, or
- Use of water in a wasteful manner.

Water quality or erosion/flooding-related impacts would be considered significant if the Project resulted in:

- Degradation of groundwater quality,
- Discharge into surface waters resulting in any alteration of surface water quality, or
- Activities that cause or contribute to substantial erosion or flooding off the site."

Staff is concerned that the levels of significance are too vague and that certain thresholds were not considered.

DATA REQUEST

205. Please provide the thresholds or levels of significance that were used to evaluate the potential impacts associated with the water supply impacts. The thresholds must consider any and all regulations, management plans, agreements, court orders, and other policies that may apply to the Palos Verde Mesa groundwater basin. Specifically, the applicant must evaluate if the water level from the proposed project will go below the proposed Colorado River accounting surface.

206. Please provide an assessment equivalent to a Water Supply Assessment that would be required in accordance with Senate Bill 610/221 (2001). The assessment must include an evaluation for single dry year and multiple dry years (three consecutive dry years) drought scenarios for the life of the project

BACKGROUND - Mitigation Measures

In section 5.17.4.2 of the AFC, the report states: "**WTR-8** - The project owner proposes to provide offsets to the anticipated annual operational water usage through one of the following:

- Fallowing of agricultural land
- Establishing or supporting tamarisk removal program
- Offsetting water supply through a contract with the Colorado River Board of California for the Lower Colorado Water Supply Project."

Staff is concerned that the proposed mitigation measures have not been quantified or even determined if they are available.

DATA REQUEST

207. Please discuss the specific quantity of water that can be conserved using the proposed mitigation methods.

BACKGROUND - Cumulative Impacts

In section 5.17.4.2 of the AFC, the report states: "The BSPP would not have significant adverse impacts on water resources. To ensure that no significant adverse effects to water quality or supply are caused by the proposed Project pumping for operational supply, the following mitigation measures are proposed for construction and operation."

In addition, the applicant provided Table 5.17-10 Cumulative Impacts Assessment – Estimate of Basin-wide Water Level Change. In the table the applicant lists various projects and anticipated water use along with the expected cumulative water use and the basin wide change in groundwater levels. The change in water levels was averaged over the entire basin.

Staff is concerned that not all of the potential projects were included and that it is unclear why the numerical model was not used to estimate the overall decline in water levels in the basin.

DATA REQUEST

208. Please provide transient groundwater model runs (including analysis) of the proposed project from construction through operations for the life of the project. Output should include water level changes within the basin (at end of construction, mid project and project shutdown).

209. Please provide transient groundwater model runs (including analysis) of all of the proposed projects. Output should include water level changes within the basin (at beginning, mid overall duration and at the end of all projects).

210. Please provide an electronic copy of the computer files for the numerical model.

211. Please provide the thresholds of significance that were used to evaluate the potential impacts associated with the significant drawdown at the springs, seeps, and playa lakes and at wells used by other groundwater pumpers in the basin. In addition, the applicant needs to evaluate in the groundwater level will approach or drop below the proposed Colorado accounting surface.

212. Please indicate the aquifers the applicants intend to produce water from and the anticipated water quality of this aquifer.

213. Please provide a sensitivity analysis to assess what parameters had the greatest influence on the results of the modeling effort and the uncertainty associated with various key parameters.

BACKGROUND – Drainage Report

Section 2 of the Drainage Report provides information related to the methodology and parameters used for the existing conditions peak discharge analysis. The documentation does not provide a specific reference to the watershed soil types, hydrologic soil groups, and how the Curve Numbers used in the analysis were correlated to these soil types.

DATA REQUEST

214. Please provide a map showing the extents of soil types within each watershed as well as information correlating the specific soil types with the designated hydrologic soil groups.

BACKGROUND – Drainage Report

The proposed drainage design as discussed in the AFC and Drainage Report includes the collection and diversion of several significant drainages. This scenario offers numerous complex design challenges that must be addressed in detail for independent assessment to be made on the impacts of these drainage modifications. In addition, the Drainage Report indicates a significant shift in flows between existing watersheds as the diverted offsite flows are released downstream of the project.

DATA REQUEST

215. Please provide a detailed analysis of the existing and developed 100-year floodplain depths and extents using an industry accepted methodology such FLO2D. This analysis should utilize recent detailed topography and should accurately model the transitions from natural floodplain to constructed channel, and back to natural floodplain. The analysis should extend upstream of the project boundaries at least 500’, and farther if needed, to allow any model boundary assumptions to establish realistic

conditions at the project limits. It should extend at least 1000' downstream of the project, and farther if needed, to allow for a reasonable tie-in to the existing floodplain extents and depths.

216. Please provide the appropriate analysis, mapping and discussion to demonstrate that flows diverted through and around the project reasonably approximate existing downstream conditions with regards to peak discharge values, floodplain depth and extents, and that undisturbed areas downstream of the project will not be cutoff from future flows.

217. Provide a detailed explanation of the data and assumptions used to complete the above referenced analysis as well as all associated data including digital input and output files for all hydraulic models.

BACKGROUND – Erosion Protection

The proposed channels on the upstream side of the property will serve to intercept large flows from the upstream drainages as well as more localized flows within the watershed. Failure to properly design and provide the appropriate erosion protection along these channels where flow is intercepted and conveyed can result in severe bank erosion, headcutting, and downcutting of the channel bed.

DATA REQUEST

218. Please provide detailed design plans that show the proposed controls to prevent bank erosion and headcutting due to the interception of flows by the proposed diversion channels. Provide detailed grading plans showing the geometry of the proposed diversion channels and how they will tie into existing grade. Provide profiles for each channel that include existing and proposed grade along the finished flowline as well as right and left top of banks. These drawings should be at a scale of no smaller than 1"=50'.

219. All bank protection and erosion control measures, including grade control structures, must be traversable (3:1 slope or flatter) and not present an entrapment hazard to wildlife. More specifically, it has been determined the project site is possible Desert Tortoise habitat, and as such, bank protection measures such as dumped riprap, stacked gabions, or gabion mattresses will not be acceptable. Soil cement has been identified as the most probable alternative as it would prevent headcutting due to flow over the channel banks and would provide a traversable and quasi-natural surface. The use of bio-stabilization measures and/or geotextiles are not considered viable alternatives.

220. Please provide documentation and analysis for establishing project specific non-erosive channel velocities based on site soils, incoming sediment load, and the calculated 10-year flow.

221. Please utilize the results of the detailed floodplain analysis to ensure that channels are appropriately sized to carry the actual estimated flow within discreet reaches based on the incoming flow distribution. Please show the distribution of incoming flows on the detailed grading plans.

222. Please provide documentation and analysis that demonstrates the proposed diversion channel design will be able to convey the incoming sediment load. Also, please address any issues and impacts of potential sediment deposition at the termination of the diversion channels where flow will be allowed to spread out.

223. If required to reduce channel slope and velocity to acceptable values, provide detailed design plans for grade control structures.

224. The use of channels without bank protection around the periphery and through the project will require it be demonstrated there are not significant side flows entering the channel, and that 10-year flow velocities are within the acceptable range for site specific conditions. Please clearly delineate all channel reaches where no bank protection is proposed and provide specific and detailed data to demonstrate compliance with the previously stated criteria.

BACKGROUND – Concept Drainage Study

The Concept Drainage Study indicates the design criteria for the channels to divert offsite flows will be the 100-year, 24-hour event. From a channel hydraulics perspective this may not be the optimal design as channels designed for a large flow event can develop an incised thalweg (low-flow channel) during the more frequent events depending on channel slope and flow velocity. The formation and migration of an incised thalweg in a wide channel can threaten bank stabilization improvements.

DATA REQUEST

225. Please provide a detailed justification of why the 100-year, 24-hour design storm is critical for the facility given its projected life span.

226. Please provide documentation demonstrating that the depth to width ratios in the channels will not likely result in the incision of a low-flow thalweg within the channel given the proposed slopes and velocities. Please evaluate the possible use of a compound channel section with a pre-constructed low-flow channel to more efficiently carry flow from the more frequent events and an upper terrace area to convey larger flow events.

BACKGROUND – Drainage Report

The Drainage Report does not appear to consider what could be a significant increase in runoff potential due to compaction and possible chemical stabilization

of on-site soils. It is assumed that dust control will be a significant element of site operation that could require both mechanical and chemical soil stabilization.

DATA REQUEST

227. Please identify whether any chemical or mechanical methods will be used for soil stabilization at the site.

228. Please provide a detailed discussion of the potential for increased onsite runoff volumes due to compaction and possible soil stabilization methods to be employed at the facility.

BACKGROUND – Estimated Surface Flows

Significant flows will be generated within the facility and conveyed via swales to the proposed diversion channels.

DATA REQUEST

229. Please provide detailed information on the estimated discharges at each of the onsite drainage outfall locations where they discharge into the diversion channels or into natural drainages, as well as detailed plans showing the proposed design at these locations and how it will prevent erosion.

REFERENCES

Hely, A.G. and E.L. Peck, 1964. *Precipitation, Runoff and Water Loss in the Lower Colorado River-Salton Sea Area*. Geological Survey Professional Paper 486-B.

Metzger, D.G., Loeltz, O.J., and Irelan, Burdge, 1973. *Geohydrology of the Parker-Blythe-Cibola area, Arizona and California:* U.S. Geological Survey Professional Paper 486-G, 130 p.)

Rantz, S.E. and T.E. Eakin. 1971. *A Summary of Methods for the Collection and Analysis of Basic Hydrologic Data for Arid Regions.* USGS. Prepared in Cooperation with DWR.

Webb, R. H., J. W. Steiger, and E. B. Newman, 1988. *The Response of Vegetation to Disturbance in Death Valley National Monument, California*, USGS Bulletin 1793.

Whitt, Allen, and Jonker, Kevin, 1998. *Groundwater survey of the Joshua Tree and Copper Mountain subbasins, Joshua Tree, California*. Western Water Surveys
report prepared for the Joshua Basin Water District.

Technical Area: Transmission System Engineering
Authors: Laiping Ng

BACKGROUND

The California Environmental Quality Act (CEQA) requires the identification and description of the "Direct and indirect significant effects of the project on the environment." The Application for Certification requires discussion of the "energy resource impacts which may result from the construction or operation of the power plant." For the identification of impacts on the transmission system resources and the indirect or downstream transmission impacts, staff relies on the California Independent System Operator (California ISO) Phase I and Phase II Interconnection Studies for insuring the interconnecting grid meets the California ISO reliability standards. The studies analyze the effect of the proposed project on the ability of the transmission network to meet reliability standards. When the studies determine that the project will cause a violation of reliability standards, the potential mitigation or upgrades required to bring the system into compliance are identified. The mitigation measures often include the construction of downstream transmission facilities. CEQA requires the analysis of any downstream facilities for potential indirect impacts of the proposed project. Without a complete California ISO Phase I Interconnection or Phase II Interconnection Study, staff is not able to fulfill the CEQA requirement to identify the indirect effects of the proposed project.

DATA REQUEST

The Blythe Solar Power Project (BSPP) application proposed that the BSPP would generate at 18 kV and would be stepped-up to 500 kV directly using the 18/500 kV step-up transformers. However, the California ISO Phase I Interconnection Study shows that the BSPP would generate at 18 kV. The power will be stepped-up to 115 kV then to 500 kV. Two levels of step-up transformers would be used.

230. Please clarify the power plant design and the proposed equipment which will be used for the BSPP.

- If the California ISO design is the preferred option, submit a complete electrical one-line diagram (or resubmit Figure 2-9 in a larger legible scale) of the proposed BSPP switchyard showing all equipment for all new generators interconnecting with the switchyard <u>along with their respective sizes and/or ratings</u> as follows:

  i. Any bus duct connectors or overhead conductors or cables, 18 kV switchgears, buses, breakers, and disconnect switches on the low side of each generator step-up transformer (GSU).

  ii. The GSU and short overhead conductors and/or cables from the GSU to the switchyard with the configuration for the switchyard buses, breakers, disconnect switches on the 115 kV and 500 kV

side, along with the proposed tie-line, and transmission outlet from the switchyard.

- If the California ISO option is not the preferred option, please contact the California ISO with the proposed design and resubmit the required equipment data for the Phase I and Phase II Interconnection Studies.

DATA REQUEST

231. Provide the Phase I Interconnect Study Report. Based on the commercial operation year system conditions, the Study should analyze the system impacts with and without the project during summer peak, summer off-peak, and spring system conditions, which will demonstrate conformance or non-conformance with the utility reliability and planning criteria with the following provisions:

    a. Identify major assumptions in the base cases including major imports to the system, major generation and load in the area system and queue generation.

    b. Power Flow analyses for N-0, important N-1 and critical N-2 contingency conditions and provide a list of criteria violations in a table showing the loadings before and after adding the new generation.

    c. Short circuit studies.

    d. Analyze system for Transient Stability and Post-transient voltage conditions under critical N-1 and N-2 contingencies, and provide related plots, switching data and a list for voltage violations in the studies.

    e. Reactive power deficiency analysis.

    f. Provide a list of contingencies evaluated for each analysis.

    g. List mitigation measures considered and those selected for all criteria violations.

    h. Provide electronic copies of *.sav and *.drw PSLF files, if applicable.

    i. Provide legible power flow diagrams (**MW, % loading & P. U. voltage**) for base cases with and without the project. Power flow diagrams must also be provided for all N-0, N-1 and N-2 studies where overloads or voltage violations appear.

Technical Area: Visual Resources
Author: Michael Clayton

BACKGROUND

The Project site is visible from a variety of surrounding locations. Although a number of KOPs have been selected for the Project, none of them capture the visual impact that will be experienced from an elevated perspective. Attachment 1 to this Data Request presents a sequence of three photographs of an existing solar project from a slightly elevated vantage point, which illustrates the increase in project visibility that occurs from just a slight increase in KOP elevation. Surrounding KOP elevations will be even greater for the SM Blythe Project with even greater project visibility. Therefore, additional KOPs are necessary in order to be able to describe to the readers the visual impact that will be experienced from higher elevation vantage points near the Project site such as the McCoy Mountains.

DATA REQUEST

232. Please establish a new KOP in the McCoy Mountains to the west of the Project site in the vicinity of coordinates – Latitude: 33° 39' 48.29" N, Longitude: 114° 48' 52.31" W, viewing to the east-northeast and provide a new KOP analysis and visual simulation (see Attachment 2 for perspective view guidance).

233. Please establish a new KOP in the McCoy Mountains to the west of the Project site in the vicinity of coordinates – Latitude: 33° 39' 51.74" N, Longitude: 114° 49' 48.46" W, viewing to the east-northeast and provide a new KOP analysis and visual simulation (see Attachment 3 for perspective view guidance).

234. In order to present simulations that more accurately capture the actual viewing experiences from the new McCoy Mountains KOPs, please present the existing view photographs and visual simulations as 11" x 17" images at a "life-size scale" when the images are held approximately 18 inches from the eye, so that the landscape and built features in the images match the actual scale of the features in the landscape (when the paper images are viewed at a distance of approximately 18 inches from the eye).

BACKGROUND

The closest KOP to the Project site is locate approximately 2.4 miles south of the Project site (KOP 5) and many of the other KOPs are located substantially further away. However, travelers on the numerous nearby BLM access roads (connecting to the McCoy Mountains and McCoy Wash areas) will have close up, foreground views of the Project facilities similar to those illustrated in Attachment 4 (a sequence of three images) for another solar project. Therefore, the existing KOPs are not representative of the more highly effected views from BLM access roads immediately adjacent to the site and an additional KOP location is

necessary in order to be able to describe to the readers the visual impact that will be experienced by off-road recreationists in the immediate vicinity of the project.

DATA REQUEST

235. Please establish a new KOP on Black Creek Road, south of the Project site in the vicinity of coordinates – Latitude: 33° 38' 19.05" N, Longitude: 114° 45' 11.41" W, viewing to the north and provide a new KOP analysis and visual simulation (see Attachment 5 for perspective view guidance).

236. In order to present a simulation that more accurately captures the actual viewing experience from the new Black Creek Road KOP, please present the existing view photograph and visual simulation as 11" x 17" images at a "life-size scale" when the images are held approximately 18 inches from the eye, so that the landscape and built features in the images match the actual scale of the features in the landscape (when the paper images are viewed at a distance of approximately 18 inches from the eye).

BACKGROUND

The AFC states that "thirty-foot tall wind fencing, composed of A-frames and wire mesh, will be installed along the east and west sides of the solar field" (Page 2-24). Given the scale and extent of this proposed fencing, it is important to convey to the readers the extent to which this fencing will be visible from nearby public vantage points such as the numerous four-wheel drive recreation roads in the vicinity of the Project site. Therefore, an additional KOP location is necessary in order to be able to describe to the readers the visual impact that will be experienced by travelers on these nearby four-wheel drive recreation roads.

DATA REQUEST

237. Please establish a new KOP on the four-wheel drive track, south of the Project site in the vicinity of coordinates – Latitude: 33° 38' 48.37" N, Longitude: 114° 46' 23.27" W, viewing to the north and provide a new KOP analysis and visual simulation (see Attachment 6 for perspective view guidance).

238. In order to present a simulation that more accurately captures the actual viewing experience from the wind fence KOP, please present the existing view photograph and visual simulation as 11" x 17" images at a "life-size scale" when the image is held approximately 18 inches from the eye, so that the landscape and built features in the images match the actual scale of the features in the landscape (when the paper image is viewed at a distance of approximately 18 inches from the eye).

239. Please provide a detailed description and diagram of the wind fence including the fence color.

BACKGROUND

Given the large scale of the project components, it is important to have a clear understanding of their situation/location on the site so as to better understand which components will be most prominent in the various available views.

DATA REQUEST

240. Please provide a site plan at a scale that clearly identifies the location of the various project components including the wind fences.

BACKGROUND

Page 5.15-13 of the AFC states, "Project equipment other than the solar arrays will have non-reflective surfaces and neutral colors to minimize their visual impacts.

DATA REQUEST

241. Please identify which project components listed in Table 5.15-3 will have non-reflective surface treatments and neutral colors and please specify what those treatments and colors will be.
242. Please provide a color pallet of the anticipated colors.
243. In all new simulations requested above, please be sure to show facilities with the proposed surface treatments including appropriate color and texture.

BACKGROUND

Table 5.15-3 lists equipment dimensions but does not include the length of the transmission line or the cumulative length of the 30-foot tall wind fences.

DATA REQUEST

244. Although the precise route of the transmission line is not yet known, please add the anticipated linear length of the transmission line, as presently shown, to Table 5.15-3.
245. Please add the anticipated linear length of the 30-foot tall wind fence to Table 5.15-3.

BACKGROUND

The discussion under significance criterion 4 on Page 5.15-19 addresses the control measures that would be employed to minimize the amount of time that lights would be on.

DATA REQUEST

246. Please identify the amount of time that lights are expected to be on at the plant site.

BACKGROUND

To independently evaluate visual and glare effects of the solar collector arrays (SCAs), staff requires a better understanding of the physical components.

DATA REQUEST

247. Please provide close-up photographs of SCAs of the type proposed for the SM Palen Project. Please include photographs showing fronts, backs and mounting structures for the SCAs. If SCAs in the photographs differ in detail from those proposed under the SM Palen Project, please describe the differences.

BACKGROUND

Staff is concerned about potential spread reflection visible to viewers on Interstate 10. Attachment 4B (second image within Attachment 4) illustrates glare from parabolic reflectors.

DATA REQUEST

248. Please characterize the maximum potential brightness (luminance) of diffuse and spread reflection from mirrors in candela per square meter.

249. Please describe the hours in which the mirror surface of a trough could be visible to an off-site viewer on the ground, and the proportion of surface visible in the course of the day.

250. Please provide any available anecdotal information on glare effects of the Kramer Junction and existing SEGS projects, including photographs of off-site diffuse or spread glare, and images of the heated HCEs, as seen from public roads/viewpoints.

BACKGROUND

Staff is concerned about the potential for heated Heat Collection Elements (HCEs or annulus/receivers) to be visible to off-site viewers, and to represent a potential source of glare. Staff is also concerned with the potential for direct reflection of the sun from the mirrors by-passing the HCEs due to imperfections in the reflective surfaces (divergence).

DATA REQUEST

251. Please describe whether any portion of the HCEs would be visible to viewers on the ground, either on- or off-site. Please characterize the maximum potential brightness (luminance) of heated HCEs in candela per square meter.

252. Please explain whether any portion of the directly reflected solar radiation could pass by the HCEs (the steel tube annulus) due to the total divergence factor of the reflectors. If so, how much? Is this amount sufficient to cause any potential retinal damage or flash blindness? Are there measures that would prevent such inadvertent off-site reflection (such as shielding of the HCEs, etc.)?

Technical Area: Waste Management
Author: James Thurber, P.G.

BACKGROUND

Although AFC Section 5.16 does not discuss the presence of unexploded ordnance (UXO) on the subject site, the Phase I Environmental Site Assessment clearly states that UXO was identified during the site reconnaissance and acknowledges that historic military training occurred in the area. The Phase I ESA concludes that the presence of UXO probably has not resulted in environmental contamination of the soil at the site and is not a recognized environmental concern (REC). However, the Phase I ESA also concludes that geophysical surveys should be completed to search for additional UXO and proper disposal.

DATA REQUEST

253. Please provide documentation of additional research of historic military use in the area (including Blythe Army Air Field), agency contacts and permit requirements.
254. Please describe the timing and methodology for completing the geophysical surveys.
255. Please provide the expertise of those conducting the geophysical surveys.
256. Please provide results of the geophysical survey.
257. Please identify the qualification requirements for the UXO technicians to complete the surveys as well as ordnance removal and disposal, if necessary.
258. Please provide an outline of the UXO recognition training that may be required for site workers.

Technical Area: Worker Safety and Fire Protection
Author: Dr. Alvin Greenberg

BACKGROUND

The proposed project site is located in an area that, during World War II, was part of General George S. Patton's Desert Training Center (DTC), the largest military facility in the world. The area was used as a simulated theater of operations, with heavy use by tanks and other military vehicles. The presence of unexploded ordnance was identified in the Phase I Environmental Site Assessment conducted on the site. Some of this ordnance was identified as "live" when detonated by the Riverside County Sheriff's Department.

The Worker Safety section recommends: "precautions should be taken by construction crews while on the Project site. It is recommended that a geophysical survey be undertaken by qualified UXO personnel to clear sites prior to ground disturbance. Site personnel will also be trained to identify potential UXO and how to respond/who to contact if potential UXO is discovered."

DATA REQUEST

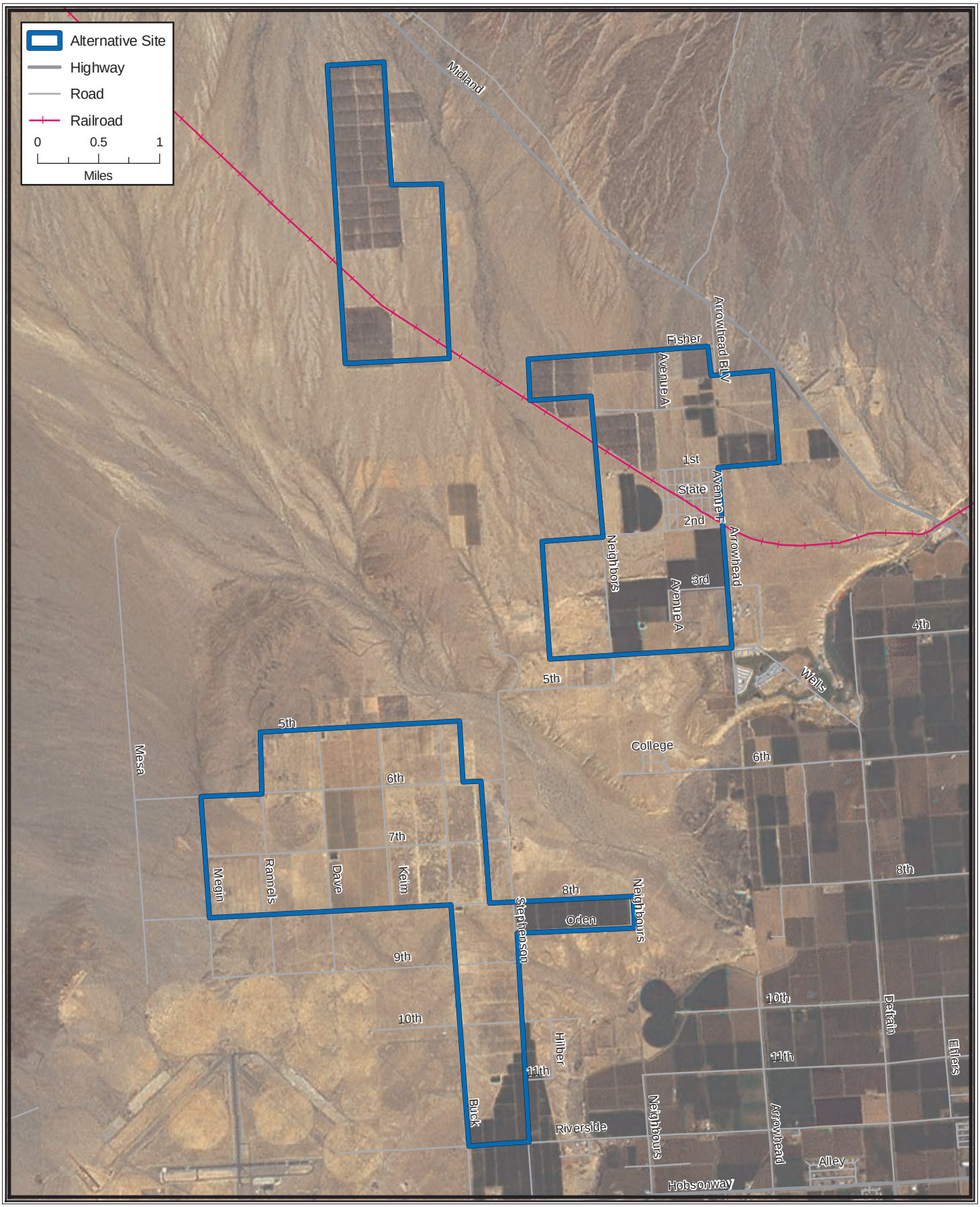
259. Please provide a Phase I ESA or a Geophysical Survey that addresses the issue of UXO.

260. If the above assessments document the presence of UXO, please provide a UXO Detection and Neutralization/Removal Plan for the site areas where UXO were found.

ALTERNATIVES ATTACHMENTS

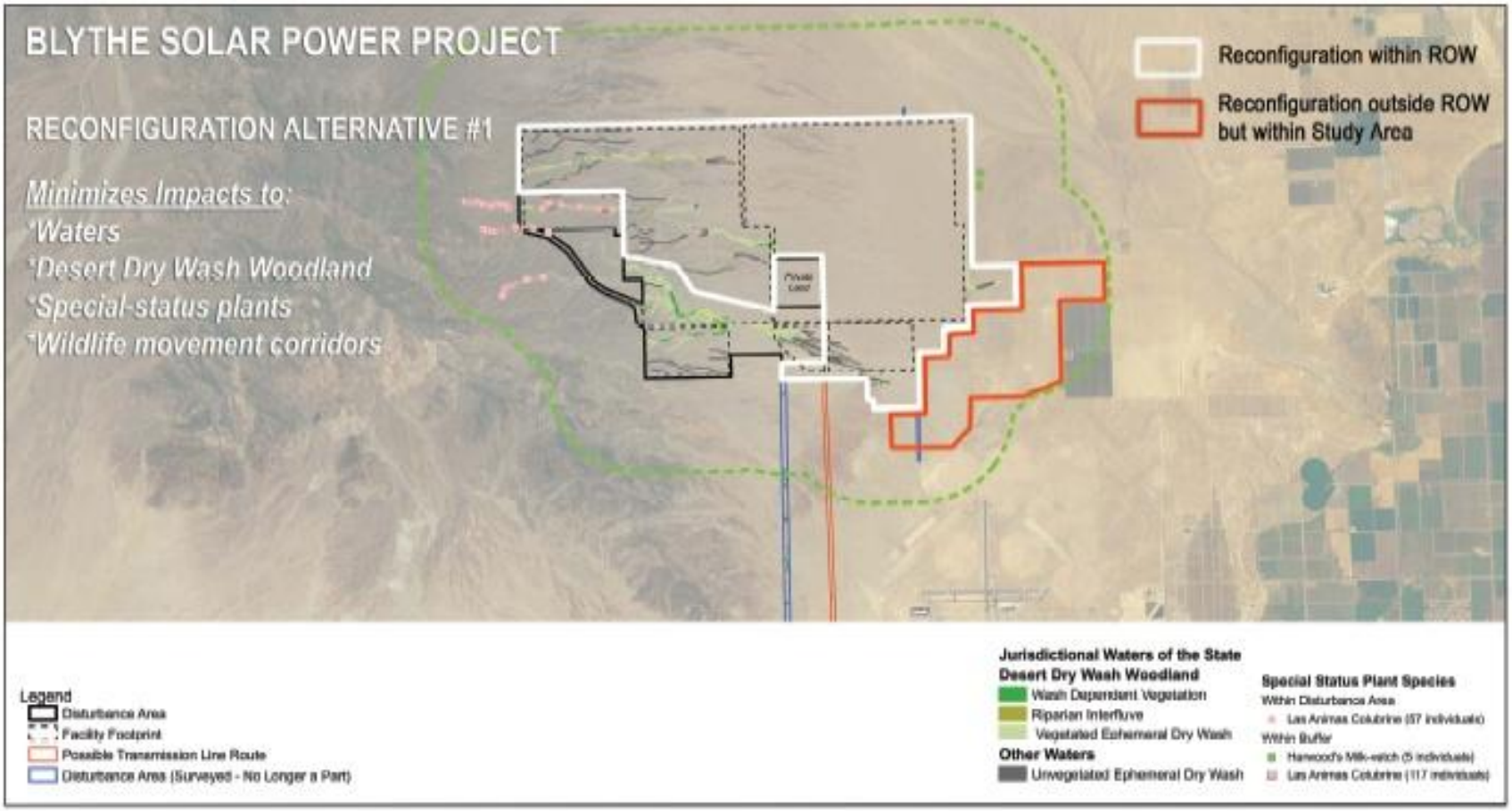
DATA REQUEST - FIGURE 1

Blythe Solar Power Project - Alternative Site



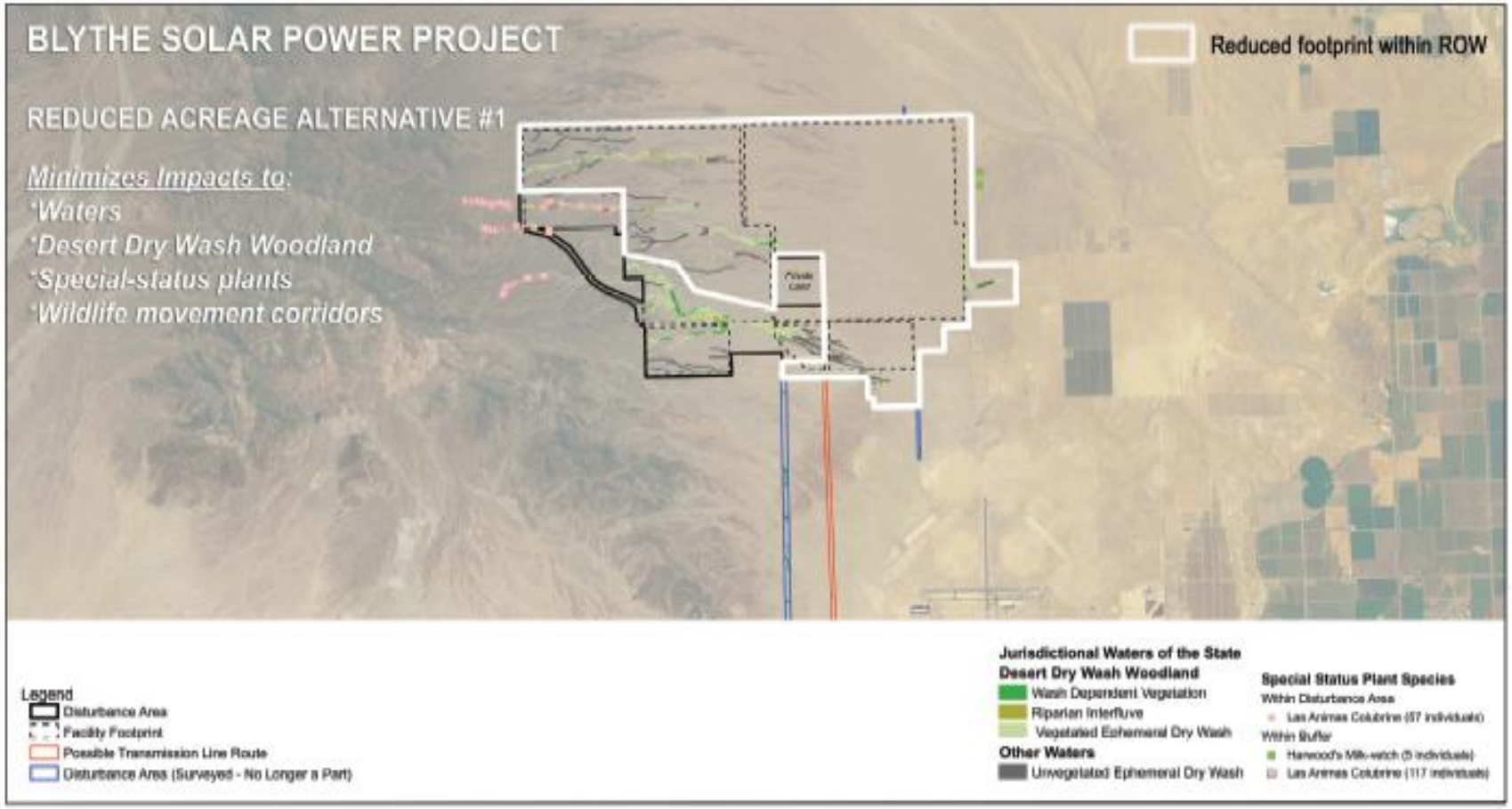
CALIFORNIA ENERGY COMMISSION - SITING, TRANSMISSION AND ENVIRONMETAL PROTECTION DIVISION, NOVEMBER 2009

SOURCE: California Energy Commissiond



Alternatives Data Request Figure 2. Reconfigured Alternative

Note: The area outline in white is located within the proposed Disturbance Area. The area outlined in red is outside of the proposed Disturbance Area but within the proposed project ROW.



Alternatives Data Request Figure 3. Reduced Acreage Alternative

Note: The alternative would be located entirely within the proposed "disturbance area" but outside of the "facility footprint".

VISUAL RESOURCES ATTACHMENTS

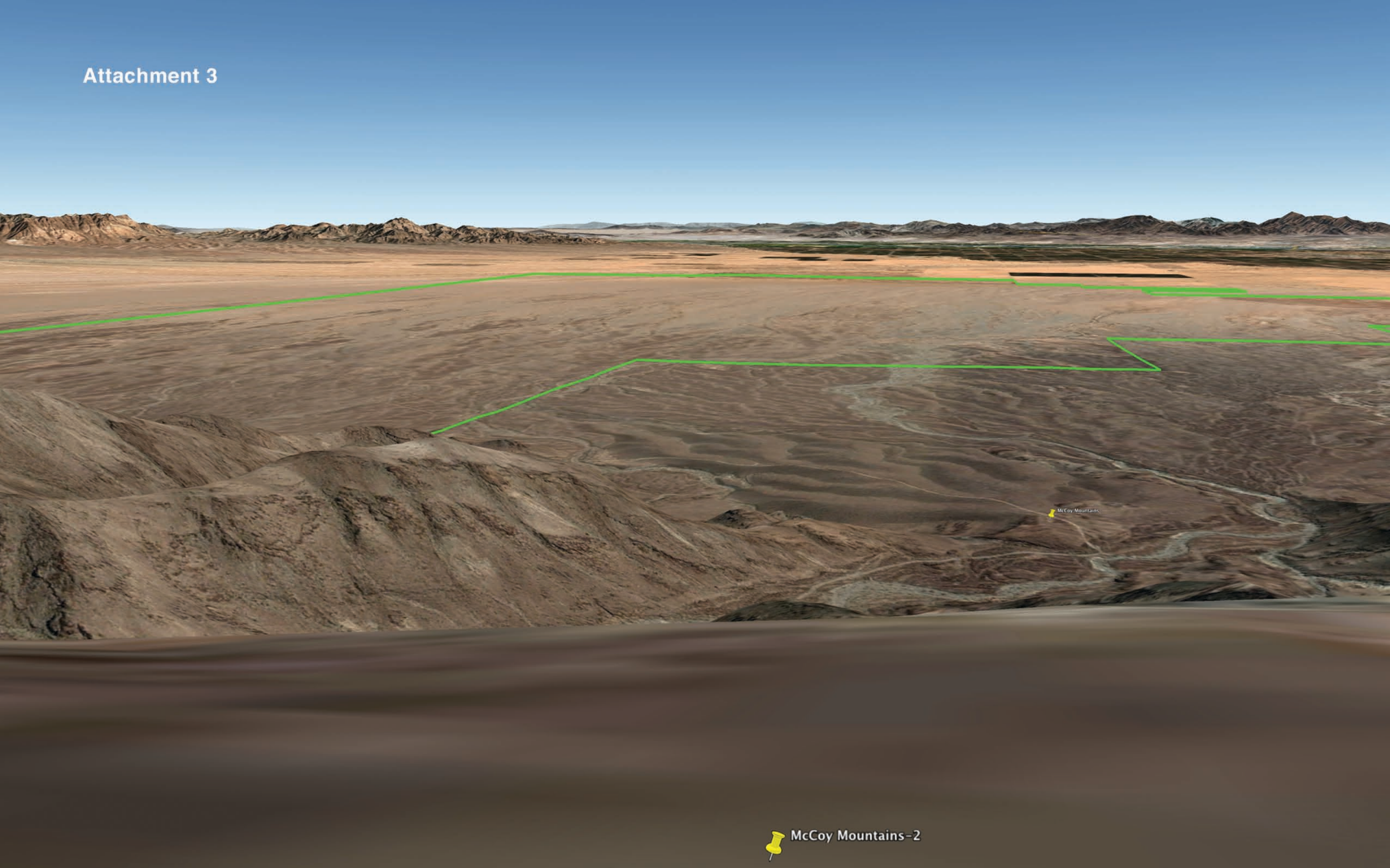
Attachment 1A

Attachment 1B

Attachment 1C

Attachment 2

Attachment 3



Attachment 4A

Attachment 4B

Attachment 4C

Attachment 5

Attachment 6

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 *BLYTHE SOLAR POWER PLANT PROJECT*

Docket No. 09-AFC-6

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(Established 11/18/09)

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DECLARATION OF SERVICE

I, Hilarie Anderson, declare that on December 7, 2009, I served and filed copies of the attached, Data Requests, Se 1 (# 1-260). The original document, filed with the Docket Unit, is accompanied by a copy of the most recent Proof of Service list, located on the web page for this project at:
[http://www.energy.ca.gov/sitingcases/solar_millennium_blythe]

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

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

FOR SERVICE TO ALL OTHER PARTIES:

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

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

AND

FOR FILING WITH THE ENERGY COMMISSION:

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

OR

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

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-6
1516 Ninth Street, MS-4
Sacramento, CA 95814-5512
docket@energy.state.ca.us

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

Original Signature in Dockets
Hilarie Anderson