CALIFORNIA ENERGY COMMISSION
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December 22, 2009

Nicole Tenenbaum, Senior Project Manager
Solar Millennium LLC
1625 Shattuck Avenue, Suite 270
Berkeley, CA 94709

RE: RIDGECREST SOLAR POWER PROJECT (09-AFC-9), DATA REQUESTS SET 1

Ms. Tenenbaum:
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 is being made in the areas of Air Quality, Alternatives, Biological Resources, Cultural Resources, Hazardous Materials, Land Use, Public Health, Reliability, Soil & Water Resources, Traffic and Transportation, Transmission System Design, Visual Resources and Waste Management. Written responses to the enclosed data requests are due to the Energy Commission staff on or before January 25, 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) 651-0966 or email me at esolorio@energy.state.ca.us.

Sincerely,

Eric K. Solorio
Project Manager

Enclosure

PROOF OF SERVICE (REVISED 11/18/09) FILED WITH
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RIDGECREST SOLAR POWER PROJECT
(09-AFC-9)
DATA REQUESTS 1

Technical Area: Air Quality
Author: Tao Jiang and William Walters

BACKGROUND: BASELINE SITE CONDITIONS

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

DATA REQUESTS

1. Please describe the types of activities that currently emit combustion and fugitive dust emissions on the site 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: FUGITIVE DUST EMISSIONS ESTIMATION – EMISSIONS FROM WIND EROSION

The Application for Certification (AFC) only provides wind erosion from temporary storage piles during construction, but does not appear to provide wind erosion fugitive dust emissions during operation. Staff believes that this emission source, if adding to background site conditions, needs to be included in the operation emissions estimate and be included in the operations dispersion modeling impact analysis.

DATA REQUEST

3. Please identify the increase or decrease in the acreage of non-stabilized disturbed land within the project site during operation and estimate the corresponding increase or decrease in wind erosion fugitive dust emissions at the site.

BACKGROUND: FUGITIVE DUST EMISSION CALCULATIONS – SILT CONTENT

The applicant's fugitive dust emission calculations use a soil silt content of 10 or 11 percent, which are default values from an emission inventory handbook from MDAQMD for mineral handling and processing facilities. However, there is site specific surface/near surface sieve data in the Geotechnical Report (AFC Appendix B) that can be used to determine a more representative silt content value for the surface soils at this project site. Staff's review of the data in the Geotechnical report suggests a higher silt content value than used in the fugitive dust calculations. Staff needs the applicant to review the site specific data and provide a defensible silt content assumption and, as necessary, revise the emission calculations appropriately.

DATA REQUESTS

4. Please provide an analysis of the available onsite surface/near surface soil sieve data that identifies a defensible site specific soil silt content value.

5. Please provide an updated fugitive dust emission calculation for both construction and operations using the defensible soil silt content value.

6. Please provide a revised PM10 and PM2.5 modeling analysis using the updated fugitive dust emission values.

BACKGROUND: CONSTRUCTION EMISSIONS CALCULATIONS

The emission calculations use assumptions and calculations that require additional information to be confirmed by staff. The electronic version of Appendix E-1 was only provided as a .pdf file. Staff needs the original spreadsheet file, with embedded calculations, to be provided to complete its review.

DATA REQUESTS

7. Please provide the spreadsheet version of the Appendix E-1 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 the spreadsheets used to create the emission factors shown in Appendix E-1.

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 the area 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 REQUEST

10. Please provide 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.

BACKGROUND: CONSTRUCTION EMISSIONS MODELING - NO2 IMPACTS

The results of the applicant's construction emissions modeling analysis, as shown in Table 5.2-32, 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 corrected version of the AERMOD program, correcting issues with the NOx_OLM source group option that is newly available. 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

11. 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: CONSTRUCTION GHG EMISSIONS CALCULATIONS

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

DATA REQUEST

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

BACKGROUND: OPERATING EMISSIONS - MAINTENANCE VEHICLE ANNUAL MILEAGE ESTIMATE

A review of the operating emissions estimate calculations provided in Appendix E.2, Table E.2-6a indicates that mirrors will be washed 18 times per year and seems to equate that to the term task, and further notes that 73 miles is needed per task for mirror washing, which would seem to indicate that the vehicle mileage for mirror

washing would be 18 times 73 or 1,314 miles per year; however, the emission estimate shows 438 miles per year or exactly one third that value. Staff needs the applicant to explain and review the mileage estimates for the maintenance vehicles and revise the emission estimates as appropriate. Additionally, page 2-15 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.2-6a 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.2-6a 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

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

14. 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.

15. Please provide the entire calculation to show how an annual mileage value of 438 miles was determined for the mirror washing vehicles.

16. Please explain how the annual mileage values were determined for the Soil Stabilizer Application and Weed Abatement trucks.

17. Please review the maintenance vehicle annual mileage estimates and revise the emission estimates and air dispersion modeling as necessary if corrections are found that increase the emission estimates.

BACKGROUND: OPERATING EMISSIONS - VEHICLE EXHAUST EMISSIONS AND MITIGATION MEASURES

Staff is concerned that the criteria pollutant air quality benefit of the proposed project's solar energy production is being partially offset by the unmitigated maintenance vehicle 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 purchased/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

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

19. 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: MODELING ANALYSIS – METEOROLOGICAL DATA

Staff is concerned that the meteorological data the applicant used for the impact analysis is not representative of the site. The meteorological data used is from the City of Mojave, which staff believes will have very different wind speeds (higher) and wind directions (more westerly) than the wind conditions at the site. Staff needs additional information from the applicant to determine if the closer and more representative Ridgecrest or Trona meteorological data monitoring sites would have data suitable for modeling.

Consistent with these data requests the applicant can at their discretion revise the fugitive dust emission calculations that currently use assumptions based on Mojave wind speed statistics to use assumptions based on Ridgecrest or Trona wind speed statistics.

DATA REQUESTS

20. Please provide quarterly wind rose data for the Mojave, Ridgecrest, and Trona monitoring sites.

21. Please provide the coordinates of the Mojave, Ridgecrest, and Trona monitoring sites in Latitude and Longitude or Universal Transverse Mercator (UTM) coordinates.

22. Please provide a data completeness comparison for the Mojave, Ridgecrest, and Trona monitoring sites for meteorological data from 2000 to 2008.

BACKGROUND: EMERGENCY GENERATOR ENGINE

One 300-hp diesel-fired emergency generator engine is proposed 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. Staff would like to confirm the size and purpose of the emergency generator engines proposed for this project.

DATA REQUEST

23. Please confirm the emergency generator engines size and describe what facilities the emergency generator 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 of heater operation 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 boiler. This information will be necessary for the GHG analysis discussion.

DATA REQUESTS

24. Please confirm that 500 hours/year of heater operation is sufficient for HTF freeze protection.

25. Please confirm that the sole purpose of the auxiliary heater is for HTF freeze protection and that it will not be used directly for power generation or for rapid start support.

26. Please confirm that the use of the auxiliary boiler is strictly for rapid start support through overnight low load (25 percent) operation and early morning full load operation and that it will not be used directly for power generation or for HTF freeze protection.

27. Please identify the equivalent MWh generated or enabled by the rapid start support use of this boiler.

BACKGROUND: INVENTORY OF SF6 USE

Sulfur hexafluoride (SF_6) is one of the most potent greenhouse gases (GHG). 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

28. 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: GASOLINE AND DIESEL STORAGE

The AFC does not show any gasoline or diesel storage for vehicle refueling, but the AFC shows that a number of dedicated site vehicles will be gasoline or diesel fueled. Staff would like to confirm that the applicant does not plan to store gasoline or diesel for vehicle refueling at this site.

DATA REQUESTS

29. Please confirm that there will be no gasoline or diesel vehicle refueling storage at the site and that either fuel/lube trucks will be used for onsite refueling or the onsite dedicated vehicles will have to drive to the nearest gasoline station, which is approximately a ten mile round trip from the site, to refuel. If gasoline or diesel storage is used at the site, provide information for any proposed onsite gasoline or diesel storage and refueling facilities including throughput information and permitting requirements.

30. Please indicate if the additional vehicle mileage required for offsite refueling of the dedicated onsite vehicles or fuel/lube truck mileage is considered in the total vehicle miles estimates and emissions estimates, or please correct the estimates accordingly.

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 Kern County Air Pollution Control District (KCAPCD 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

31. Please provide a list from the KCAPCD of large stationary source projects with permitted emissions, for projects with greater than 5 tons of permitted emissions of any single criteria pollutant, located within six miles of the project site that have been recently permitted, but did not start operation prior to 2009, or are in the process of being permitted.

32. Please provide a cumulative impacts modeling analysis in consultation with Energy Commission staff, if necessary, based on the project list provided by KCAPCD.

BACKGROUND: AIR QUALITY PERMIT APPLICATION PROCESS

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

DATA REQUEST

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

Technical Area: Alternatives
Author: Suzanne Phinney (CEC)

BACKGROUND

In Section 4.0 Alternatives of the Application for Certification (AFC), page 4-7, Section 4.2.2, Project Site Alternatives, three alternative sites are identified. The sites are described as follows:

- Alabama Hills – BLM property in general area south of Lone Pine, California
- Boron – Private property in general area approximately 20 miles south of California City near Route 58
- South of California City – Private property in general area approximately 20 miles south of California City near Route 58

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 also Data Request 6).

DATA REQUEST

34. In order to facilitate preparation of the PSA/DEIS document and allow further analysis of the project site with alternative sites, please provide the exact locations of the three alternative sites (Township/Range/Section and/or parcel numbers).

35. Please identify the size (total acreage) and dimensions of each alternative site.

36. For the BLM land alternative (Alabama Hills), please indicate if the BLM has received a right-of-way application from a developer for any portion of the alternative site.

37. For the private land alternatives (Boron, South of California City), please indicate the number of individual landowners comprising ownership of the alternative site, and the acreage of each separate parcel and landowner.

38. For each alternative site, please provide an aerial or topographic map identifying the site boundary, township ranges, property parcels, roads, transmission line to which the site could interconnect, and any other pertinent features.

BACKGROUND

In AFC Section 4.2.2, Project Site Alternatives, criteria used to compare the alternative sites with the proposed project site 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 how near or how far the site is from urban areas. The environmental suitability of a site encompasses many more attributes. The environmental community has 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 determine the appropriateness of both the proposed project site and the alternative site locations identified in Section 4.2.2.

DATA REQUEST

39. Please fill in Table 1 on the last page of this Data Request, using available data, to compare the alternative sites with the proposed project using the criteria developed by the environmental community:

BACKGROUND

In AFC Table 4-2, the three alternative sites are compared to the proposed site. Alternative #2, the Boron site, is classified "good" in 4 of the 5 criteria, including environmental sensitivity. The proposed project site is rated "medium" for environmental sensitivity, with the southern part of the site within Mojave Ground Squirrel (MGS) Conservation Area. In order to compare the attributes of the Boron Alternative with the proposed project, additional information is needed.

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. An additional private land alternative was identified. A GIS file of the Garlock Road alternative is provided along with this data request. A map in PDF format is attached (Data Request Figure 1).

DATA REQUEST

40. Please provide the results of a CNDDB search for the Boron Alternative site and the Garlock Road alternative.

41. Please provide an Information Center search (Class I) for recorded sites identified within the Boron Alternative and the Garlock Road alternative.

42. Please indicate the number of individual landowners comprising ownership of the Garlock Road alternative site, the acreage of each separate parcel and landowner, and a parcel map of the alternative.

43. Please identify where a transmission interconnection would occur for the Garlock Road alternative site; note – the Garlock Road alternative is within 10 miles of the transmission line considered for the proposed site. Provide CNDBB data for the potential interconnection route.

BACKGROUND

In AFC Table 4-2, the three alternative sites are compared to the proposed site. Alternative #2, the Boron site, is rated poor in terms of site control. Section 4.3.2.4 of

the AFC further states that the Boron site would require the purchase or lease of a number of private parcels. These same concerns may be present for the Garlock Road alternative.

DATA REQUEST

44. To determine the feasibility of obtaining site control, reference the number of different property owners (per Data Request 4) and, if less than 20 landowners, please indicate why multiple parcels of private land would result in poor probability of obtaining site control, given the Renewable Energy Transmission Initiative (RETI) Phase 2A Report 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 4.3.2.2, Environmental Sensitivity, states that although the Ridgecrest site (southern portion) is located partially inside a MGS Conservation Area, this portion of the land constitutes only 6.6 percent of the total (one percent) of the MGS Conservation Area that is allowed for development.

Data Request

45. To determine the significance of the project's use of MGS Conservation Area land, please provide a list of other projects that fall within the MGS Conservation Area.

BACKGROUND

The analysis by staff resource specialists may identify specific areas within the proposed project boundaries where concentrations of resources exist such as the El Paso Wash and the southern portion of the site within the MGS Conservation Area. In order to protect some areas of valuable resources within the site, staff will be evaluating alternatives that reduce impacts in these areas. Staff needs the following information to evaluate potential alternatives.

Data Request

46. Please provide cultural and biological impacts for the proposed northern portion of the project only. Provide this by giving us both a map illustrating distribution of resources on the land and also a tabular list of resources on the land. Please describe and map any other project changes that would occur with this alternative

47. Please describe in detail the engineering constraints, if any, to the development of revised configurations on the northern and southern portions of the site. 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.

    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 is would reduce the economic or engineering feasibility of the project?

    D. Please describe if it is possible to have more than one power block for the project and how this would increase the flexibility of the solar field arrangement. Solar Millennium has experience with 50 MW projects each with one power block, such as Andasol 1 and 2.

    E. What is the difference between the crossover pipe, HTF loops, and Heat Collection Elements and could they traverse desert washes to reach the power blocks?

48. Please identify where a transmission interconnection would occur if only the northern portion of the site was developed, including an Inyokern substation interconnection. Provide California National Diversity Data Base (CNDDB) data and an Information Center search (Class I) for recorded sites for the potential interconnection routes.

49. Staff has identified a potential alternative that avoids the El Paso Wash in both the northern and southern fields, and adds additional arrays to offset the eliminated portions of the fields. Staff will provide separately a map for consideration. Please provide a detailed description and figure showing the layout of such an alternative, including the solar field, power block, main office building and parking lot, main warehouse and laydown area, onsite access roads, tie-in switchyard and land treatment unit for bioremediation or land farming of HTF-contaminated soils. Please quantify any losses in efficiency or economics. In order for the Energy Commission and BLM to evaluate this potential alternative that avoids effects on the El Paso Wash 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 shown on map.

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

BACKGROUND

AFC Section 4.18, Freeze Protection and Auxiliary Boiler Heater Alternatives, states that although a new 7.1-mile natural gas pipeline could be built along China Lake Boulevard, construction of a new gas pipeline would require significantly greater expense than would the propane option, and would result in increased environmental disturbance. AFC Section 4.9, Water Supply Alternatives, states that a new 5-mile water supply pipeline would be built along China Lake Boulevard to the project site. It is not clear whether co-location of the two pipelines would be possible and whether this would decrease the environmental disturbance associated with a new gas pipeline.

DATA REQUEST

51. In order to determine the feasibility of a natural gas pipeline as an alternative to the propane delivery and storage option, please discuss whether the two pipelines could be co-located.

52. Please indicate the relative costs of the natural gas pipeline alternative and the propane alternative over the life of the project.

RIDGECREST SOLAR POWER PROJECT
(09-AFC-9)
DATA REQUESTS 1

Alternatives Data Request – Table 1

Environmental Criteria	Proposed Project Site	Alt #1 Alabama Hills	Alt 2 Boron	Alt 3 South of California City
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	Alt #1 Alabama Hills	Alt 2 Boron	Alt 3 South of California City
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?				
Is the site within Proposed Wilderness Area, proposed National Monuments, and Citizens' Wilderness Inventory Areas				

Environmental Criteria	Proposed Project Site	Alt #1 Alabama Hills	Alt 2 Boron	Alt 3 South of California City
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: David Hacker, Kris Vyverberg, Danielle Dillard, Brian Croft, Shelley Ellis, Larry LaPre, and Dick Anderson

BACKGROUND

Desert Tortoise. The site contains abundant desert tortoise detections and sign. The applicant and staff agree that the site is high quality desert tortoise habitat. It is estimated that 69 desert tortoises inhabit the site.

Cumulative and connectivity impacts to the local and regional population of desert tortoises from the Ridgecrest Solar Power Plant (RSPP) project and other development in the region are concerns and should be discussed more fully. Mitigation must include solutions to cumulative and connectivity impacts.

Staff also must review and approve the Applicant's desert tortoise translocation plan that will be included as part of the conditions of certification in the Staff Assessment/Final Environmental Impact Statement (SA/FEIS). The translocation plan must include the identification and justification of the translocation site(s).

DATA REQUESTS

53. Please provide maps and describe the importance of the project site to the local and regional desert tortoise populations regarding maintaining adequate connectivity for local and regional desert tortoise movement and genetic exchange.

54. Please provide a draft Desert Tortoise Translocation Plan that incorporates the most recent guidance from the Bureau of Land Management (BLM), United States Fish and Wildlife Service (USFWS), and California Department of Fish and Game (CDFG). The goals of this translocation effort should be to:

    - 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 translocated tortoises; and
    - Assess the success of the translocation effort by attaching transmitters to the translocated desert tortoises (desert tortoises in the receiving population should also be monitored to determine survival rates of translocated tortoises and what effect the translocated desert tortoises have on the receiving desert tortoise population).

Please discuss 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 USFWS.

Generally, the translocation plan should include the following information:

A. 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.

B. Surveys of resident populations at translocation sites, including health assessment sampling and attaching transmitters to individuals.

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

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

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

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

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

H. Description of post-translocation monitoring and adaptive management activities.

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

J. Description of methods used to mark existing tortoises in the receiving population and fit them with transmitters so that they can be located and identified during post-translocation monitoring.

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 public lands that are conserved in perpetuity or private lands that are managed by a CPM-approved, (in consultation with CDFG and USFWS) non-profit organization qualified pursuant to California Government Code section 65965. In the event an approved non-profit holds title, a conservation easement shall be recorded in favor of CDFG in a form approved by CDFG; in the event an approved non-profit holds a conservation easement over the translocation site, CDFG shall be named a third party beneficiary;

B. Satisfy the requirements of BLM and USFWS;

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

D. Be at least 15 kilometers away from major highways (e.g. Highway 395) to provide a safety buffer for long-distance movements that some desert tortoises are likely to make following translocation.

BACKGROUND

Raven Monitoring/Control Plan. The AFC addresses the increased risk of raven predation on juvenile desert tortoise and other native wildlife in BIO-46, which lays out a reasonable approach to manage ravens at the site, avoid attracting ravens to the site, and contribute to a regional raven management program. A detailed Raven Monitoring/Control Plan must be drafted, finalized, and approved by relevant agencies prior to the Commission Decision.

DATA REQUEST

55. Please provide a draft Raven Monitoring/Control Plan that describes methods to avoid attracting common ravens and/or providing associated facilities that may attract ravens during all phases of development and use, including construction, operation, and decommissioning. In situations where associated facilities such as power lines and structures for perching cannot be eliminated, the plan should require implementation of best management practices that reduce perching opportunities, monitor raven use of the area, and include raven nest removal. Potential attractions 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;
    - Avian carcasses from collisions with solar reflectors;
    - 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/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 anything 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;

E. establishment of quantitative success criteria for achieving the objectives of the plan;

F. documentation of the effectiveness of project design features;

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 attractions for ravens and promoting desert tortoise awareness.

BACKGROUND

Western Burrowing Owl. Figure 5.3-8 of the AFC displays the locations of western burrowing owl active burrows (i.e., those occupied by owls), and other locations where sign or potential sign were observed during surveys. One pair and four individual owls were detected on the project site and one pair in the buffer area. There was abundant sign of burrowing owls throughout the proposed project site. The applicant proposes passive relocation of burrowing owls in BIO-34. 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 will 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.

This plan must be found acceptable, approved by the relevant agencies, and included as a condition of certification in the SA/FEIS.
Cumulative impacts and connectivity impacts to the regional population of burrowing owls from the RSPP project and other development in the region is a concern and should be discussed more fully. Mitigation must be developed to address and include solutions to the projects cumulative and connectivity impacts.

DATA REQUESTS

56. Please provide a Burrowing Owl Translocation and Management Plan 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. The plan should discuss attaching transmitters to burrowing owls that are being translocated and burrowing owls in the receiving population in order to determine effectiveness of the translocation effort. 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.

57. Describe how the mitigation for this project reduces the incremental cumulative impacts of this project and all reasonably foreseeable projects in the area on the regional burrowing owl population and how it maintains adequate connectivity for the regional population.

BACKGROUND

Mohave Ground Squirrel. The project site is characterized as highly suitable and suitable for Mohave ground squirrel. The southern half of the project site (844 acres) is in a West Mojave Plan (WEMO) designated Mohave ground squirrel Conservation Area. Staff considers passive relocation techniques inadequate for a project of this size. A Mohave ground squirrel active translocation plan will be needed that describes how Mohave ground squirrels will be translocated, and why the receiving site is acceptable. This plan must be found acceptable, approved by the relevant agencies, and included as a condition of certification in the SA/FEIS.

Of specific interest for this project location is Mohave ground squirrel habitat connectivity and therefore population connectivity. The proposed project would occupy highly suitable habitat connecting the Little Dixie Wash and Coso-Olancha core populations to the rest of the Mojave ground squirrel population to the east. Leitner (2008) identified the general locations of these core populations and this habitat linkage. CEC and CDFG staff have preliminarily reviewed this linkage on the ground, on aerial photographs, and on topographical maps to identify the more specific areas that are likely to connect the populations. This review indicated that the City of Ridgecrest and development along South China Lake Boulevard to the northeast of the project, and the unsuitable rocky substrates and slopes of the El Paso Mountains to the south and west, define the boundaries of this linkage. Preliminary indications are that the project would occupy the majority of this linkage's width and thus substantially isolate Mohave ground squirrel populations. The project area may also represent an important habitat linkage for other species, including desert tortoise, which also prefer relatively low-relief habitat with non-rocky substrates.

The project site is in a vital location for connectivity with other Mohave ground squirrel populations. Cumulative impacts, habitat fragmentation, and connectivity impacts need to be discussed and measures proposed to fully mitigate these impacts.

DATA REQUESTS

58. Please provide maps and describe the importance of the project site to the local and regional Mohave ground squirrel populations regarding, habitat quality and value, habitat fragmentation, and maintaining adequate connectivity for local and regional Mohave ground squirrel movement.

59. Please provide a comprehensive and detailed Mohave ground squirrel active translocation plan. Development and implementation of this plan will reflect close coordination with CDFG. The plan should:

    - Identify the translocation site(s) and discuss why it (they) was chosen and found acceptable;
    - Describe the existing habitat suitability and if available, information regarding the population of Mohave ground squirrels on the translocation site(s);
    - Describe the protocol for trapping and transporting Mohave ground squirrels;
    - Describe the protocol for attaching transmitters to Mohave ground squirrels in order to determine effectiveness of the translocation effort; and
    - Include a monitoring and reporting plan for the transmittered Mohave ground squirrels.

BACKGROUND

Delineation of State and Federal Waters. To ensure that the delineation of desert washes are not under-represented, staff requests that the delineation of the site area be reviewed with CDFG's Streambed Alteration Agreement (SAA) staff in the field and include the use of aerial photo interpretation, topographic and watershed data, and other sources as recommended in Lichvar and McColley (2008) and Lichvar et al (2006). It is important to complete the Streambed Alteration Agreement as soon as possible, so it can be addressed in staff's analysis and the details included as a condition of certification and in the Commission Decision.

No evidence was presented in the AFC that indicates whether the U. S. Army Corp of Engineers (USACE) has made a determination of jurisdictional waters.

DATA REQUESTS

60. If during consultation with CDFG it is determined that an additional delineation is needed, please revise the delineation of ephemeral drainages as directed by the CDFG. Please provide all information requested to CDFG.

61. Please provide a copy of written communication from the USACE that states there are no jurisdictional waters of the United States that will be disturbed for the RSPP project.

BACKGROUND

Avoiding Impacts to Desert Washes, Floodplains, and other Alluvial Features. This project will destroy desert washes, floodplains, and other alluvial features. Staff considers this loss a significant impact because ephemeral washes, associated floodplains, and old stream terraces 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 connectivity areas; and support for vegetation communities that help stabilize stream banks and provide wildlife habitat (Levick et al. 2008).

The alluvial features on the project site are comprised of micro-relief features, soil types, and plant communities which make them high-quality habitat for desert tortoise, Mohave ground squirrel, burrowing owl, and multiple other species. The biological surveys found concentrated sign for desert tortoise and burrowing owl in these areas, including the El Paso Wash and its stream terraces, indicating their high habitat value.

Channel Design and Ecological Functions. Staff needs more detailed drawings and a comprehensive analysis of the engineered drainages proposed for the site to determine whether these channels could eventually replicate the functions and values of a natural desert wash. Include a discussion of how the new channel could recreate natural soil characteristics (biological soil crust, permeability), microtopography (microcatchments for moisture, seeds), hydrology, geomorphology, and vegetation and wildlife functions and values.

The plan needs to address the potential for head-cutting on the channels above the site, assess the area available for re-vegetation within the channel (extent of unarmored banks and channel bottom), whether or not grade control structures are needed, how wildlife would move throughout the channel if grade control structures were present, how sediment and flood flows will move through the re-routed channels under different storm water conditions, and whether the channel design would support natural geomorphic and hydrological processes.

When designing the re-routing of El Paso Wash and the secondary washes please consider the following criteria:

- Use the least impacting and intrusive techniques possible;
- Disturb as little habitat as possible;
- Design compound channels for El Paso Wash that includes vegetated terraces;
- Leave washes untouched if possible;
- Minimize engineering of channels where possible and use natural channels;
- Do not use any technique or structure that will trap or create a barrier for desert tortoises;
- Use an Arizona crossing where El Paso Wash crosses Browns Road to facilitate desert tortoises crossing the road;
- If concrete channels or soil cement channels are constructed, fence so that desert tortoises are excluded and use break-a-way structures at wash inlets;
- Where possible on smaller washes create a berm along the edge of the project site and let flows run outward to find natural drainage; and

- Use crushed rock under the arrays in order to reduce dust and increase water recharge.

DATA REQUESTS

62. Please provide a detailed discussion, with supporting analysis, for the implementation of a low impact development approach to managing stormwater flows. This should include completed engineering plans with re-vegetated channels and features that enhance use of the channel as wildlife movement corridors such as vegetated terraces and wide partially vegetated channels. FEMA floodplains and other non-State Waters alluvial features should remain intact and connected to the re-routed channels to the maximum extent practicable to retain the hydrologic and ecological functions of those features. A monitoring plan should accompany the re-routed channel plan that includes re-vegetation goals and a monitoring program to reach and maintain those goals (success criteria)(see number 13 below) .

63. Please provide a detailed discussion, with supporting analysis, of the downstream effects of redirecting water away from the unnamed washes at the southwest side of the project, of directing those waters into the El Paso wash upstream of the existing confluence, and of re-routing the El Paso Wash. Specifically, discuss the effects to ecological functions and values and the extent of those effects downstream of the redirected flows. In other words, to what degree and how far downstream would the project affect the hydrology and sediment transport such that it impacts wildlife habitat features off of the project site.

64. Please provide a detailed discussion, with supporting analysis, of the potential for erosion and wildlife habitat impacts at the outlet of the proposed engineered channel on the northeast side of the project. The proposed channel would concentrate sheetflow and the flows from multiple small channels and redirect it to a single point in upland habitat.

65. Channel Maintenance Program: Please provide a draft Channel Maintenance Program 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 habitat connectivity, and maintain groundwater recharge).

    ii. *Guidelines for Maintenance*: Define standards for acceptable conditions and action triggers for: sediment removal, vegetation 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 applicant would need to implement

instream repairs 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 the mitigation vegetation, habitat, or species of concern. Include a discussion of routine channel maintenance - trash removal and associated debris to maintain channel design capacity; repair and installation of fences, 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 RSPP 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 Energy Commission Compliance Program Manager (CPM).

66. Re-vegetation Plan for Re-Routed El Paso Wash: Please provide a draft Re-vegetation Plan for the re-routed El Paso Wash that include at least the following elements:

- *Overall Goals*: Explicitly state the overarching goal of the re-vegetation plan, which should include at least replicating the hydrological and biological functions and values of the impacted desert washes.
- *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, rare species, habitat elements).
- *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).
- *Proposed Mitigation Design:* Describe the mitigation goals and target functions/values (hydrologic, geomorphic, water quality, habitat function/value) of the re-vegetation plan and a rationale for these goals and targets.
- *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.

- *Monitoring Methods:* Describe proposed methodology for measuring progress toward success criteria and a rationale as to why each method has been chosen to evaluate progress in relation to each success criterion. Describe sampling methods used and include size of sample units and number of samples.
- *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 duration 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.
- *Implementation Plan:* Describe equipment, procedures, access paths, and any measures used to avoid sensitive areas outside of the grading plan during re-vegetation. Of particular importance 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 re-vegetation in the channel bottom would integrate with the channel slope protection and erosion control and any opportunities for bioengineering.
- *Weed Control:* Describe method(s) to be used to remove noxious plants from the mitigation site during the course of re-vegetation and monitoring, and specific triggers for when weed control is required.
- *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
- *Irrigation:* Most mitigation projects should become hydrologically self-sustaining. The function of irrigation in the early years of a project is to give new vegetation a head start at becoming established. Describe any proposed irrigation methods, including estimated frequency, and indicate month(s) in which it is to occur. Also indicate water source(s) for irrigation.
- *Implementation Schedule:* Provide a schedule showing intended timing (by month) of site preparation, any seed/topsoil storage, seed/topsoil application, and plantings.
- *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.

- *Monitoring Reports:* Monitoring reports to the CPM are typically due January 31st of each year. Describe the overall content and purpose of the annual reports.
- *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.
- *Long-Term Management:* Integrate long-term management (weed/vegetation management, preventing wildlife entrapment hazards) with the Channel Maintenance Program described above.

67. Please include an assessment of the feasibility of reconfiguring the project footprint to retain some or all of the project area ephemeral drainages with setbacks from the banks of the drainages to accommodate a buffer for protection of water quality and to provide wildlife habitat connectivity.

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 finds no discussion of creosote rings in the AFC or appendices, and needs to know if surveys were conducted for these features or at least an analysis made from high resolution aerial photography.

DATA REQUEST

68. Please discuss whether surveys were conducted, remote imagery analysis (of high resolution aerials) was used, or other types of review for possible creosote bush rings in the project survey area were undertaken, and if so, the results of the surveys including a map depicting the locations of creosote rings. If no such analysis was made, please provide a recent analysis and maps of creosote bush rings on the project site.

BACKGROUND

Weed Management. Weed management is briefly addressed in the impact and mitigation section of the AFC, on page 5.3-55, in BIO-13. Staff needs more detail

regarding the weed management plan. Construction and operation of the project will require a 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

69. Please prepare a 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 an approximate distribution map showing concentrations of the noxious weeds and other invasive non-native plants in the project buffer. The complete project site will be denuded so this information is not needed for the site.

    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; 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 monthly 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); methods for evaluation of success in achieving weed control goals.

BACKGROUND

American Badger. During the project surveys American badger sign was detected in the buffer area of the proposed project site. It is likely that American badgers use the site and could have established dens on the proposed project site since the surveys. The AFC describes passive relocation of American badger prior to construction

activities on the project site. For a project of this size, passive relocation is not acceptable and active translocation should be conducted. This would include trapping and moving individual American badgers from the project site before construction but following fencing of the site so the animals cannot return. Artificial dens and other enhancement measures may be needed on the receiving site. The completed translocation plan and the translocation site must be approved by the relevant agencies so it can be included in the conditions of certification for the SA/FEIS.

DATA REQUEST

70. Please provide a translocation plan for American badger. The plan should include a description of the protocols to be used for capture, transport, and release of American badgers and a discussion of the potential receiving site and why it is determined to be acceptable. This plan should reflect close coordination with the relevant agencies.

BACKGROUND

Compensatory Mitigation. Several of the mitigation measures described in Section 5.3.4 include conceptual recommendations for compensatory mitigation such as mitigation bank credits, approved in-lieu fee programs, conservation easement(s), and acquisition and enhancement of in-kind habitat. Staff needs sufficient information about the proposed offsite purchase of in-kind habitat and funding for acquisition/management to determine if it is feasible to accomplish this mitigation, and if it is adequate to fully offset the anticipated impacts to special-status wildlife species. Final acreages for compensation lands have not yet been worked out with the USFWS, BLM, CDFG, and Energy Commission staff, but potential mitigation sites can nevertheless be identified, and a general discussion of enhancement and endowment costs and long-term monitoring provided. Compensation for Mohave ground squirrel habitat on site should be sufficient to fully mitigate the habitat values identified in the habitat evaluation prepared by Phil Leitner for this project, and the Mohave ground squirrel habitat connectivity function of this site. Desert tortoise mitigation should likewise fully mitigate (replace) the lost carrying capacity and habitat connectivity for desert tortoise. Sufficient funds are needed to purchase and provide long-term maintenance and management of the compensation site. The costs of long-term maintenance and management should be calculated using Property Analysis Record (PAR) or a PAR-like estimator. The PAR analysis is a commonly used and accepted software tool developed by the Center for Natural Lands Management (2008).

The compensation site(s) must be surveyed (protocol desert tortoise surveys and Mohave ground squirrel habitat quality analysis) to determine acceptability of the site(s) as a compensation site(s) for the listed species. A justification for why the site(s) is acceptable for other Species of Special Concern should be included if the same compensation site(s) is being proposed for several species. The compensation lands need to be identified, approved by the relevant agencies, purchased, a land manager selected (such as the Desert Tortoise Preserve Committee), and a long-term maintenance and management plan completed and approved by the relevant agencies prior to the start of site mobilization (earth moving activities). The compensation lands

shall satisfy both state and federal laws and agency policies. CDFG's requirements include the following: The project owner shall transfer fee title or a conservation easement on the compensation lands to CDFG under terms approved by CDFG. Alternatively, a CPM-approved (in consultation with CDFG and USFWS), non-profit organization qualified pursuant to California Government Code section 65965 may hold fee title or a conservation easement over the compensation lands. In the event an approved non-profit holds title, a conservation easement shall be recorded in favor of CDFG in a form approved by CDFG; in the event an approved non-profit holds a conservation easement over the compensation lands, CDFG shall be named a third party beneficiary.

DATA REQUESTS

71. Please provide information on the location and characteristics of the lands proposed for compensatory mitigation for Species of Special Concern, the associated enhancement and endowment costs, and the long-term monitoring plan for these compensation lands. The discussion of off-site compensation habitat should reflect close coordination with the relevant agencies (Energy Commission staff, CDFG, USFWS, and BLM).

72. Please provide a compensatory desert tortoise habitat mitigation proposal that fully mitigates the proposed impacts of the taking, as described in California Code of Regulations §783.4.

    - For compensation lands intended to satisfy California Endangered Species Act (CESA) Incidental Take Permit requirements, the project owner shall transfer fee title or a conservation easement on compensation lands to California Department of Fish and Game (CDFG) under terms approved by CDFG. Alternatively, a Compliance Project Manager-approved, in consultation with CDFG and United States Fish and Wildlife Service (USFWS), non-profit organization qualified pursuant to California Government Code section 65965 may hold fee title or a conservation easement over the compensation lands. In the event an approved non-profit holds title, a conservation easement shall be recorded in favor of CDFG in a form approved by CDFG; in the event an approved non-profit holds a conservation easement over the compensation lands, CDFG shall be named a third party beneficiary.
    - The project owner will be required to provide initial enhancement funding and a non-wasting endowment to manage the compensation lands in perpetuity.
    - Coordinate with BLM in order to satisfy their requirements in the compensatory mitigation proposal.

73. Please provide a Mohave ground squirrel compensatory habitat mitigation proposal that fully mitigates the proposed impacts of the taking, as described in California Code of Regulations §783.4.

    - For compensation lands intended to satisfy CESA Incidental Take Permit requirements, the project owner shall transfer fee title or a conservation

easement on compensation lands to CDFG under terms approved by CDFG. Alternatively, a CPM-approved, in consultation with CDFG and USFWS, non-profit organization qualified pursuant to California Government Code section 65965 may hold fee title or a conservation easement over the compensation lands. In the event an approved non-profit holds title, a conservation easement shall be recorded in favor of CDFG in a form approved by CDFG; in the event an approved non-profit holds a conservation easement over the compensation lands, CDFG shall be named a third party beneficiary.

- The project owner will be required to provide initial enhancement funding and a non-wasting endowment to manage the compensation lands in perpetuity.

BACKGROUND

Federal and State permits. The desert tortoise is a federal and state-listed Threatened species. The Mohave ground squirrel is a California Threatened species. The proposed RSPP project must comply with state and federal laws that address state and federally listed species, as well as other sensitive species and habitats, and must secure the appropriate permits to satisfy these laws. The Energy Commission has a one-stop permitting process for all thermal power plants rated 50 MW or more under the Warren-Alquist Act (Pub. Resources Code § 25500). Under the Act, the Energy Commission's certificate is "in lieu of" other state, local, and regional permits (*ibid)* but not federal permits. The Commission's streamlined permitting process accomplishes a primary objective of the Renewable Energy Action Team, as identified in the Governor's Executive Order S-14-08 — to create a "one stop" process for permitting renewable energy generation facilities under California law. Accordingly, Energy Commission staff will coordinate joint environmental review with the CDFG, as well as the USFWS, and BLM. Staff will incorporate all terms and conditions that would otherwise be included in other state permits into the Energy Commission's certification process and final Commission decision.

Additional information is needed from the applicant for CDFG to complete the Incidental Take Permit (ITP) and SAA mitigation measures and conditions, so that staff can include them in the RSPP conditions of certification. A complete Biological Assessment from the applicant is needed in order for the USFWS to produce a Biological Opinion. Staff will work closely and cooperatively with CDFG, USFWS, BLM, and the applicant to develop this information and to establish conditions of certification that would, if implemented, reduce impacts of the RSPP project to less-than-significant levels.

At this time, the applicant has not submitted:

- A complete Incidental Take Permit Application to CDFG (CDFG 2009b),
- A complete Streambed Alteration Agreement Application to CDFG (CDFG 2009c), nor
- A complete Biological Assessment in order for the USFWS to provide a Biological Opinion.

Until this information is provided and found to be complete by the CDFG and USFWS, staff cannot finalize its assessment or the proposed Conditions of Certification.

DATA REQUESTS

74. Please provide a copy of completed applications for the California 2081 (Incidental Take Permit) permit and the SAA.

75. Please provide a Biological Assessment to BLM and USFWS to facilitate completion of the Biological Opinion (Take Authorization) by the USFWS.

BACKGROUND

Monitoring Bird Injuries. There is a potential for birds to collide with facility features such as mirrors, and to be injured or killed by heat or blinded by concentrated sun light. Little is known about these impacts, so it is difficult to determine if they will be significant.

This project includes an array of reflective mirror-like surfaces that are likely to cause collision fatalities and injuries to birds. The effects of this type of solar collector on birds are currently unknown. Bird fatalities have been reported at prototype Solar One, a central receiver solar power plant that was located near Daggett, California in the Mojave Desert. Solar One consisted of a site of approximately 80 acres covered with 1818 mirrors, or heliostats, each of which was approximately 74-square-feet in area. These heliostats focused the sun on a centrally located, tower-mounted boiler. When not directed at the tower, the heliostats were focused at standby points, which were four small (16 feet in diameter) points at a height of 260 feet. These points glowed white when viewed from the ground. The temperatures at the standby points varied with the number of heliostats and amount of sunshine, but were high enough to burn feathers and incinerate insects. Though some birds were incinerated, most of the avian fatalities at the Solar One site were from collisions with structures (McCrary, et al. 1986).

Whether or not there is a similar potential for incinerating and/or blinding of birds at the Ridgecrest Solar Power Plant (RSPP) site is unknown. The Solar One facility is a similar technology but equipment layout is significantly different. The temperatures reached at the RSPP project (750 °F) are lower than at Solar One but still adequate to boil water for electrical power production. Additionally, the question of whether the sunlight concentration can blind birds has never been answered. This could cause either outright blindness or temporary blindness resulting in collisions with structures.

There is also concern for collisions with the mirrors that may appear to a bird as a no-hazard flight area. Birds may fly directly into the mirrors not expecting to encounter a hard surface thereby suffering an injury or death.

Staff recommends that the facility be monitored to determine whether these potential impacts are occurring and to what extent. Staff recommends an adaptive management approach that requires two years of monitoring with a decision being made after the first year whether to continue monitoring for the second year. If there is an unacceptable

level of impacts, mitigation or further monitoring may be needed. The facility should be searched weekly for two years, and bird (all wildlife) carcasses should be collected, documented, and frozen for future determination of species and cause of death.

DATA REQUEST

76. Please provide a monitoring plan to investigate whether birds are being killed and/or injured from facility operation. The monitoring should last two years unless it can be justified to monitor a shorter or longer period. Carcass removal and searcher efficiency studies should be included as part of the overall monitoring study to identify any biases that need correction. The plan should reflect coordination with the relevant agencies.

BACKGROUND

Desert Kit Fox. 14 CCR § 460 stipulates that desert kit fox may not be taken at any time. Protection provided by kit fox dens for use as shelter, escape, cover, and reproduction is vital to the survival of the species. Desert kit fox sign was abundant on the proposed project site during the biological resource surveys. No estimate was made as to the number of desert kit foxes inhabiting the RSPP project site. The AFC describes passive relocation of desert kit fox prior to construction activities on the project site. For a project of this size, passive relocation will take some time. The process of excluding desert kit fox from the project site will include monitoring dens and when a den is vacant, a careful excavating and collapsing of the den should take place. Artificial dens and other enhancement measures may be needed on the receiving site. The completed relocation plan and the relocation area must be approved by the relevant agencies so it can be included in the conditions of certification for the SA/FEIS.

DATA REQUESTS

77. Please provide a relocation plan for desert kit fox. The plan should include a description of the process of closing down dens and a description and discussion of the receiving area and why it is determined to be acceptable. This plan should reflect close coordination with CDFG. The value to kit foxes of potential, known, and natal/pupping dens differ and therefore, each den type needs a different level of protection. When preparing the plan, include the following standard recommendations:

    A. **Natal/pupping dens**: Natal or pupping dens which are occupied will not be destroyed until the pups and adults have vacated. Therefore, project activities at some den sites may have to be postponed.

    B. **Known Dens**: Known dens occurring within the footprint of the activity must be monitored for three days with tracking medium or an infra-red beam camera to determine the current use. If no kit fox activity is observed during this period, the den should be destroyed immediately to preclude subsequent use. If kit fox activity is observed at the den during this period, the den should be monitored for at least five consecutive days from the time of the observation to allow any resident animal to move to another den during its normal activity. Use of the den

can be discouraged during this period by partially plugging its entrances(s) with soil in such a manner that any resident animal can escape easily. Only when the den is determined to be unoccupied may the den be excavated under the direction of the designated biologist. If the animal is still present after five or more consecutive days of plugging and monitoring, the den may have to be excavated when, in the judgment of the Designated Biologist, it is temporarily vacant, for example during the animal's normal foraging activities. Hand excavation is encouraged, but it is realized that soil conditions may necessitate the use of excavating equipment. However, extreme caution must be exercised.

Destruction of the den should be accomplished by careful excavation until it is certain that no kit foxes are inside. The den should be fully excavated, filled with dirt and compacted to ensure that kit foxes cannot re-enter or use the den during the construction period. If at any point during excavation a kit fox is discovered inside the den, the excavation activity shall cease immediately and monitoring of the den as described above should be resumed. Destruction of the den may be completed when in the judgment of the Designated Biologist the animal has escaped from the partially destroyed den.

C. **Potential Dens**: Potential dens should be monitored as if they were known dens.

78. Please provide a detailed enhancement plan for desert kit fox receiving area and discuss why these measures will increase the likelihood of a successful desert kit fox relocation effort.

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RIDGECREST SOLAR POWER PROJECT
(09-AFC-9)
DATA REQUESTS 1

Technical Area: Cultural Resources
Authors: Beverly E. Bastian (California Energy Commission), Glenn J. Farris (California Energy Commission), and Donald J. Storm (Bureau of Land Management, Ridgecrest Field Office)

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 Eric Solorio, 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 # 27. (For approaches 2 and 3, go to the end of the cultural resources data requests.)

Data Requests from Beverly E. Bastian, Cultural Resources Specialist, and Glenn J. Farris, Archaeologist

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 that various project structures might have on the integrity of setting of any nearby historic built-environment resources.

DATA REQUESTS

79. 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.

80. 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.

81. In a table, please list all buildings and structures the project would erect and provide the height of each.

BACKGROUND

The AFC does not make clear the extent of grading entailed in the creation of the solar fields. To assess the proposed project's potential impact on both surficial and buried archaeological resources, staff needs information, for both solar fields, on the highest and lowest pre-construction elevation and the finished grade.

DATA REQUESTS

82. Please provide, for both solar fields, the maximum elevation range and the finished grade elevation.

83. Please provide, for both solar fields, a description of any terracing required for the installation of the collectors, including any necessary stormwater drainage system.

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

84. 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.

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

    A. on-site transmission lines

    B. off-site transmission lines, new and re-routed

    C. on-site fiber optic system, overhead and/or underground, on- and off-site

    D. on-site steam lines

    E. on-site and off-site water pipelines

    F. on-site firewater system pipelines

    G. septic tanks and leach fields

    H. drainage diversion channels

    I. all project-constructed roads, on- and off-site

    J. culverts

    K. land treatment unit

BACKGROUND

The AFC discusses re-routing the Southern California Edison 115-kV distribution and 230-kV (Inyokern-Kramer) transmission lines that cross the upper part of the southern

solar field. The Inyokern-Kramer 230-kV transmission line may be part of the Southern Sierras Power Company's original line, constructed 1911–1913. AFC figure 2-4 shows what appears to be the proposed re-routing, but the text provides few details, either on the removal process, the cultural resources survey of the area to which the lines would be re-located, or on the potential eligibility of the Inyokern-Kramer 230-kV transmission line for the National Register of Historical Place (NRHP) or the California Register of Historical Resources (CRHR). To assess the proposed project's potential impact on known or buried cultural resources, staff needs information on the extent of archaeological survey coverage of the re-location area and on the extent of ground disturbance associated with the removal of the supports for the two lines. To determine whether this portion of the Inyokern-Kramer 230-kV transmission line is potentially eligible for the NRHP or the CRHR, staff needs more information on the history and technology of the line.

DATA REQUESTS

86. Please provide a discussion of the dimensions and depth of ground disturbance that would result from removal of the supports for the two lines.

87. If the Inyokern-Kramer 230-kV transmission line is older than 45 years:

    A. Please have a qualified architectural historian provide a discussion, supported by documentation, of the line's potential eligibility for the NRHP and the CRHR.

    B. Please have the qualified architectural historian provide a discussion, supported by documentation, on all seven aspects of integrity for the Inyokern-Kramer 230-kV transmission line.

    C. Please have the architectural historian complete for submission to staff the DPR 523b (Building, Structure, and Object) and DPR 523e (Linear Structure) forms for the Inyokern-Kramer 230-kV transmission line.

88. If the area into which the two SCE lines would be re-located has not previously been surveyed for cultural resources:

    A. 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

    B. 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

State Mining Bureau records for Kern County (ca. 1904) describe the presence of three mines in section 35, T27S R39E, the location of the proposed project's southern solar field. One of the mines (Gold Hill #1) is recorded as having a 300-foot tunnel with a 185 foot drift. Gold Hill #2 was said to have a 75-foot tunnel and maximum depth of 15 feet,

while Jumbo was described as having three inclines of 10–15 feet and a shaft of 30–50 feet. The owner of these mines was recorded as Frank A. Huntington. Huntington was a renowned California inventor, especially of mining-related machinery. The applicant provided no information on these potentially significant cultural resources. To compile the basic inventory of cultural resources present in the proposed project's area of potential effects (APE), staff needs information on these additional possible cultural resources.

Also, tunneling activity for mining purposes provides an alternative interpretation of a number of the historic-period archaeological sites found as a result of the applicant's pedestrian archaeological survey, particularly those 12 (minimally) where the refuse deposits included black powder cans and/or dated to the early twentieth century. The applicant interpreted these sites as possibly associated with the construction of the railroad (ca. 1908), but the sites could have been associated, instead, with the three mines. Further information on these mines, therefore is necessary for staff's evaluation of the significance and potential eligibility of the nearby historic-period archaeological sites tentatively dated by the applicant to the early twentieth century.

An additional consideration for the proposed project as a whole is whether, when abandoned, these mines were fully filled in or whether there are still open shafts and tunnels existing under a section of the RSPP where the southern solar field is currently proposed.

DATA REQUESTS

89. Please submit for staff review and approval a research plan to locate and identify the configuration of the Gold Hill #1, Gold Hill #2, and Jumbo mines in section 35, T27S R39E (or, alternatively, in section 35, T27S R40E), and to recommend whether nearby historic-period archaeological sites are associated with these mines (and, if so, which ones), and whether the sites together possibly constitute an archaeological district. The research plan should include:

    A. Having a qualified historian search for and copy records of the mines in the Kern County Recorder's and Assessor's Offices. The name of the mine owner was Frank A. Huntington of 21 Fremont Street, San Francisco, California. Staff will provide notes on the mines and a copy of the relevant portion of the 1904 "Bureau of Mines Map and Register of Mines and Minerals of Kern County." Gold Hill #1 is shown in the NE ¼ of section 35, Gold Hill #2 in the SE ¼ and Jumbo is depicted slightly west of the midpoint of the section;

    B. Conducting a field verification of the mines, if located, recording and mapping them on Department of Parks and Recreation (DPR) 523 forms, and using geophysical methods, such as Ground Penetrating Radar, to identify and map unfilled subsurface tunnels, shafts, and drifts, etc.;

    C. Having a qualified historical archaeologist review the collected information on early twentieth-century historic-period archaeological sites in section 35, discuss all pertinent data supporting or discounting the presence of an archaeological

district based on a mining theme, and make a recommendation on the eligibility of such a district for the NRHP and/or the CRHR. In addition to the mines themselves and any roads or trails in section 35, the following sites, at a minimum, should be considered as potential contributors to the district—

i. Sites having blasting powder cans (RS-162/163, RS-728/731, RS-739, and RS-7520);

ii. Sites dating to the early twentieth century (RS-325, RS-607, RS-614, RS-726, RS -742, RS-746, RS-750, and RS-757).

90. Please submit to staff a research report including the results of the archival research and the geophysical testing, the discussion and eligibility recommendation regarding an archaeological district in section 35, copies of all county records, and DPR 523 forms for the three mines.

BACKGROUND

The applicant sought concerns or comments from the interested Native American individuals and groups associated by the Native American Heritage Commission with the area in and near the proposed project. As of the time of the submission of the AFC in August, 2009, no comments were reported.

DATA REQUEST

91. Please provide to staff any information on Native American concerns about the proposed project received by the applicant since August, 2009.

BACKGROUND

The AFC describes a proposed Land Treatment Unit (LTU) as about 8 acres in total size and having a 3-foot-thick clay liner (p. 2-17). The LTU would be a basin filled with soil into which heat-transfer-fluid-contaminated soil would be mixed to undergo bacterial remediation. This suggests considerable ground disturbance in the construction of the LTU. 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 Unit.

DATA REQUESTS

92. Please provide the dimensions and depth into the ground of the hole excavated for the Land Treatment Unit.

93. Please provide a description of the process of constructing the Land Treatment Unit.

BACKGROUND

The proposed 8-acre LTU would be filled with soil into which heat-transfer-fluid-contaminated soil would be mixed for bacterial remediation. This suggests the need for

considerable dirt to fill the LTU. The AFC also states that although the balancing of cutting and filling is planned, the project may require additional fill material (p. 2-23). 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 REQUESTS

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

95. 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

96. 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 describes the re-routing around and through the proposed plant site of the off-site surface water run-off (pp. 2-21–2-22) and the collection, conveyance, and detention of the on-site surface water run-off in swales and a detention pond, but does not provide the dimensions of these drainage features. 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

97. Please provide the length, width, and depth of each off-site surface water diversion channel, of the on-site detention pond, and of each on-site swale.

98. Please provide a map, or series of maps, at a scale of 1"=500' showing all of the off- and on-site drainage features, labeled for easy reference to the above dimension data.

BACKGROUND

The AFC indicates that a report of the geotechnical investigations will be provided when it is completed (p. 2-4). To assess the proposed project's potential impacts on buried archaeological resources, staff needs a copy of the geotechnical report.

DATA REQUEST

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

BACKGROUND

The applicant did not provide 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

100. 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.

101. 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. 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;

    B. Data on the geomorphology, sedimentology, pedology, hydrology, and stratigraphy of the APE, and the near vicinity; and

    C. The relationship of landform development to the potential in the APE for buried archaeological deposits.

102. 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.

103. 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:

A. Use any natural exposures that reveal aspects of the stratigraphy of the portions of the landforms in the project APE;

B. A subsurface sampling strategy to document the landform stratigraphy not revealed in natural exposures;

C. 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 ¼- inch mesh 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

D. 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.

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

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 tanks, leach fields, and detention pond), for the Land Treatment Unit, and for each of the linear facilities, including the on- and off-site stormwater diversion and detention system, and any alternative facility corridors and alternative site locations. Staff suggests the following steps as the simplest way to accomplish this:

A. Use the footprint to provide the preliminary horizontal dimensions;

B. 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.

C. 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

105. 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

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

106. 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.

107. 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.

108. 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.

BACKGROUND

AFC fig. 2-3b shows a three-dimensional view of the proposed power plant, as simulated in a satellite image of the plant site's surrounding landscape. Staff has concerns about a sacred area identified by the Native American Heritage Commission that may encompass parts or all of the El Paso Mountains, southwest of the proposed project location. If, for a viewer looking northeast from the El Paso Mountains sacred area, the proposed plant would occupy a large space in the viewshed, this could constitute a significant impact on the integrity of setting of the sacred area. Having a simulated view of the proposed project from the perspective of the El Paso Mountains would assist staff in evaluating this potential impact to a Native American sacred area.

DATA REQUEST

109. Please provide a simulation (three-dimensional view) of the proposed power plant in the surrounding landscape, as seen from the following UTM locations in the El Paso Mountains:

Note: the locations below are not known locations of features sacred to Native Americans, but were chosen by staff as possible vantage points from which the plant site would be visible from the mountains.

A. Zone 11 E430160/N3933940

B. Zone 11 E430714/N3934268

C. Zone 11 E428660/N3931024

D. Zone 11 E427744/N3931690

E. Zone 11 E428488/N3930238

F. Zone 11 E430083/N3926845

BACKGROUND

The applicant did not survey for cultural resources the entire area within the Bureau of Land Management (BLM)-authorized Right-of-Way (ROW) (see the Field Authorization maps in "Confidential Attachments 5, 6 & 7") and also did not make recommendations of eligibility for those cultural resources identified during survey in the 200-foot buffer zone around the proposed project footprint. Because several of the project Alternatives that staff will analyze are reconfigurations of the proposed project's components within

the BLM-authorized ROW north of Brown Road, staff needs survey data and resource evaluations for the cultural resources located within the entire ROW north of Brown Road.

DATA REQUESTS

110. Please conduct a Bureau of Land Management (BLM) class III pedestrian archaeological survey and a built-environment survey of the entire BLM-authorized ROW north of Brown Road.

111. Please complete DPR 523 forms for additional identified sites and make a recommendation on the NRHP and CRHR eligibility of each additional site.

112. Please provide to staff a survey report for the additionally surveyed area and copies of the additional DPR 523 forms.

BACKGROUND

Energy Commission and BLM cultural resources staff must conduct a California Environmental Quality Act (CEQA) analysis of the proposed project. The latter requires an analysis of a range of alternative project sites, component configurations, or generating technologies.

Cultural resources data on alternatives was not included in the AFC or AFC Data Adequacy Supplement. Staff needs these data to conduct the required alternatives analysis comparing the proposed project's impacts to cultural resources with those of a range of alternatives.

DATA REQUESTS

113. For any alternative site locations not on BLM lands (to be identified at a later date by staff), please provide to staff, under confidential cover, the following:

    A. Copies of county records of any mines located on the alternative site locations;

    B. Copies of DPR 523 site forms for all previously known cultural resources from California Historical Resources Information System (CHRIS) record searches, for the alternative locations, out to 1.0 mile beyond the sites' and associated linear facility corridors' boundaries;

    C. Copies of CHRIS reports of previous archaeological excavations and architectural surveys conducted within the boundaries of the alternative sites and their linear facility corridors;

    D. A copy of the results of the Native American Heritage Commission's (NAHC) sacred lands database search for each alternative location;

    E. Copies of all letters sent to and received from Native Americans identified by the NAHC as interested in development at each alternative location;

F. A consultation with local historical societies and museums to establish the background history of the alternative project site locations;

G. 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;

H. A map at a scale of 1:24,000 depicting the locations of all previously known and map-identified cultural resources for each alternative location; and

I. A discussion of the comparative advantages and disadvantages of the proposed project and each alternative location, with respect to cultural resources.

114. 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's review of AFC Cultural Resources section 5.4, of the Cultural Resources Technical Report (Class III Report), and of the Supplemental Cultural Resources Class III Report #1 for the Ridgecrest Solar Power Project, Riverside County, California, 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. Discussion seems to equate the surface APE with the entire area surveyed, but that equivalence is not explicitly stated. The built-environment APE for all project components and the archaeological surface APE for the proposed water pipeline 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

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

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

Data Requests From Donald J. Storm

BACKGROUND

The applicant's pedestrian archaeological survey of the proposed project site identified nine prehistoric sites that have been recommended as potentially eligible for listing in the NRHP and/or the CRHR. Three of these sites are characterized as flake scatters (debris from stone toolmaking), while the remaining six sites contained groundstone

objects in addition to flakes. To make determinations of eligibility for these nine sites, staff needs additional information obtained through archaeological testing.

DATA REQUESTS

117. Please conduct archaeological testing on the nine subject sites according to the following procedures:

    A. Use an excavation unit 50 centimeters (cm) square, excavated using hand tools (trowels or shovel) in 10-cm arbitrary levels, unless natural stratigraphy becomes evident, to a depth of 50 cm, unless minimal or no cultural material is encountered below 30 cm, with screening of excavated material through ⅛" mesh and all objects remaining in the screen visually inspected before discarding.

    B. Standard professional archaeological excavation techniques and data recordation parameters must be observed, including an adequate digital photographic record of all excavations. CARIDAP (California Archaeological Resource Identification and Data Acquisition Program: Sparse Lithic Scatter Guidelines, February, 1988) methods and standards can be used as a base protocol for the three flake scatter sites. If problems arise during testing, then the consultant and BLM and Energy Commission cultural resources specialists will consult to resolve them and reach a consensus on how to proceed.

    C. Number and placement of test excavation units are as follows:

        i. Site RS-19c is a single basalt metate with a white silicate flake located about 11 meters (m) from the milling stone. Four units will be excavated. One unit will be placed at the location of the metate, another unit will be centered on the flake, and a third unit will be subjectively placed within 5 m of the flake's location after that unit has been completed, thus using that result to guide the placement of the third unit. The fourth unit will be arbitrarily placed within a 5-m radius of the metate.

        ii. Site RS-154 is a low-density flake scatter of approximately 22 silicate flakes in a 26-m-by-18-m area. Five units will be excavated over the breadth of the site's area, with one unit placed in the center of the site and the other four in each of the cardinal directions.

        iii. Site RS-407 consists of two adjacent rock cairns that are not attributed to either prehistoric or historic-period origins. One excavation unit will be placed at each cairn, and only one quarter of the unit will be excavated, leaving three-quarters of the cairn undisturbed. To facilitate excavation, those rocks within the quarter being excavated will be moved out of the unit in the course of the excavation. A third unit will be randomly placed within a 5-m radius of the two cairns. If any unit should contain archaeological evidence, then two additional units will be subjectively placed within the 5-m radius.

iv. Site RS-409 consists of two metates, a metate fragment, and one obsidian flake located about 30 m from the other artifacts. Four units will be excavated. One unit will be placed at the location of the obsidian flake and another will be subjectively placed within a 5-m radius of it. A third unit will be placed within a 3-m radius of the two metates, with the fourth placed subjectively within a 5-m radius.

v. Site RS-410 is a low-density flake scatter of approximately seven flakes of mixed materials (obsidian, silicates, and fine-grained metavolcanics) within a 45-m-by-20-m area. Five units will be excavated over the breadth of the site's area, with one unit placed in the center of the site and the other four in each of the cardinal directions.

vi. Site RS-604 consists of a single metate with two adjacent metate fragments. Three units will be excavated. One unit will be placed within one meter of the metate, and another unit within one meter of the two fragments. The third unit will be subjectively placed within a ten meter radius of the metate. No site map has been prepared for this site, so one will be generated in the course of the work on this site.

vii. Site RS-720 was recorded as a groundstone scatter consisting of two manos and four metate fragments within a 16-m-by-12-m area. A field inspection of this site on November 4, 2009, identified a possible rock cairn and two metate fragments not previously noted by the applicant lying about 30 m southeast of the main concentration. The DPR 523 form for this site, including the site map, will be updated to include these additional features. A minimum of five units will be excavated. One will be placed within 1 m of the metate fragment cluster nearest the applicant's datum. A second unit will be within 1 m of the two metates recorded in the northeast sector of the site. The third unit will encompass a portion of the newly noted rock cairn. The fourth unit will be placed within a 3-m radius of the two newly discovered metate fragments, and a fifth unit will be placed subjectively based upon results of the previous units.

viii. Site RS-850 is a sparse flake scatter of four flakes within a 25-m-by-22-m area. Five units will be excavated over the breadth of the site's area, with one unit placed in the center of the site and the other four in each of the cardinal directions.

ix. Site RS-870 consists of groundstone artifacts with an associated flake scatter in a 14-m-by-8-m area. Four units will be excavated. One unit will be placed on the metate location, the second over the location of the silicate scraper, and the third will be placed adjacent to the recorded mano. Based on results obtained from the first three units, a fourth unit will be subjectively placed within a 5-m radius of the site center.

D. Collect and catalogue all archaeological artifacts and retain representative samples for future analysis, as appropriate, of cultural deposits such as soil, ash, charcoal, and floral and faunal remains. The resulting collection, along with a legible photocopy of any notes generated and updated DPR 523 forms, will be delivered to the Maturango Museum for permanent curation.

118. After the completion of the testing and analyses, please provide to BLM and Energy Commission cultural resources specialists for review and approval a summary report of results and eligibility recommendations, with the updated DPR 523 forms included in an appendix.

APPROACH 2

If the applicant chooses cultural resources review approach 2, all of the above data requests would need to be answered except for # 27.

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:

- # 11,
- #s 16–18, and
- #s 21–38.

RIDGECREST SOLAR POWER PROJECT
(09-AFC-9)
DATA REQUESTS 1

Technical Area: Hazardous Materials Management
Author: Alvin Greenberg, Ph.D.

BACKGROUND

The AFC clearly shows and states that this project will be bisected by Brown Road, a county maintained road, and that the north solar field will be disconnected by this road from the power block and the control room that will be located on the south parcel. This will require pipes carrying heat transfer fluid (HTF), all command and control systems, and the fire water loop to cross Brown Road either above or beneath the road. The applicant has stated that it has not yet made a decision on this matter.

Upon review of this matter, staff believes that the presence of a pipe carrying HTF at a temperature of approximately 750 F crossing above Brown Road would present a danger to the public using Brown Road should a leak occur, as well as present a danger to on-site workers. Furthermore, the placement of command and control systems (wires for valve closures, fire sensors, communications, etc.) and a fire water pipe above a frequently used road would render those systems vulnerable to mischievous sabotage. Staff therefore believes that all pipes and systems should be placed under Brown Road.

However, if the applicant is considering an above-ground placement of these pipes and systems across Brown Road, staff needs to know what reasons, if any, the applicant might have for pursuing this approach

DATA REQUESTS

119. If the applicant is considering an above-ground placement of these pipes and systems across Brown Road from the north solar field to the south power block, please provide documentation to support this alternative that includes at a minimum the following:

    A. A hazard and operability analysis (HAZOP).

    B. A risk assessment addressing the probability of an HTF pipe failure and the resultant consequences.

    C. A security Threat Assessment, Criticality Assessment, and site Vulnerability Assessment.

120. If the applicant is proposing to place these pipes and systems beneath Brown Road, please provide a description of how the undergrounding will be accomplished, that is, if it will be a filled-in trench or a tunnel large enough to service the pipes and systems by a person.

RIDGECREST SOLAR POWER PROJECT
(09-AFC-9)
DATA REQUESTS 1

Technical Area: Land Use and Planning
Author: Mark R. Hamblin

BACKGROUND

The proposed Ridgecrest Solar Power Project's approximate 1,440 acre site (facility footprint) is on federal land within the designated California Desert Conservation Area (CDCA) administered by the U.S. Bureau of Land Management (BLM). The CDCA is managed under a unique landscape planning framework, consisting of "zoning" land by classification for the desired use level. The 1980 CDCA Plan established four multiple-use classes. The project site is shown as Multiple-Use Class L (Limited Use) and Unclassified Lands. The proposed project requires an amendment to the 1980 CDCA Plan to change the existing land class to Multiple-Use Class M. All requests from individuals, private groups or organizations for amendments or changes to the 1980 CDCA Plan are submitted to the BLM's District Manager of the California Desert District. Staff understands that a plan amendment application has not been submitted to date.

DATA REQUEST

121. Please provide Energy Commission staff a time schedule for the submittal of a California Desert Conservation Area (CDCA) Plan amendment application (request) to the BLM.

122. Please submit a CDCA Plan amendment application to the BLM and staff.

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

123. 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

124. 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.

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

126. 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 81% of the total cancer risk estimated at the maximally exposed individual resident is due to benzene emitted from the heat transfer fluid (HTF)

expansion/ulllage tank vent. 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

127. 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.

128. 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 the dry cooling tower used for the primary steam cycle, the project will use one smaller auxiliary wet cooling tower to remove residual heat, utilizing water from Indian Wells Valley Water District via a new pipeline. Emissions of chloroform (resulting from the use of sodium hypochlorite as a biocide for cooling tower maintenance) from the auxiliary wet cooling tower are included in the health risk assessment, but the AFC does not evaluate potential toxic metal emissions due to metals present in water.

DATA REQUEST

129. Please provide water concentrations and emission rates for metals from the auxiliary wet cooling tower 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

130. 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: Shahab Khoshmashrab

BACKGROUND

For the project to operate reliably, sufficient quantities of propane must be available to the project.

DATA REQUEST

131. Please confirm that there are sufficient supplies of propane in the local area to meet the needs of the project.

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

BACKGROUND

In section 2.5.5.2 of the AFC, the report states: "The water source for the Project is groundwater provided through the IWVWD. Power cycle makeup and other water needs for the Project would be met by treating the water supply. While the proposed Project lies outside the IWVWD service area, it is within about four miles of the District boundary. The Project would be required to provide a new pipeline to bring IWVWD water from the Ridgecrest Heights storage tank to the RSPP. The Project may also be responsible for modifying pumping equipment at the IWVWD Ridgecrest Heights Booster Station to ensure adequate pressure and delivery to the Project site (modifications could include the construction of a new pump station). The Project demands will amount to about 1.6 percent of the existing IWVWD demand. Quality of water from IWVWD is given in Table 2-4. No data is available for silica. No offsite backup water source is included as part of the Project."

Staff is concerned that although the applicant has received a "will-serve" letter indicating that the Indian Wells Valley Water District (IWVWD) would supply water to the project it is unclear whether the basin has sufficient capacity to serve the project for the life of expected operations.

DATA REQUEST

132. Please provide an assessment of changes in the groundwater basin balance and water levels, and potential impacts related to project pumping by IWVWD that would occur in single dry year and multiple dry year drought scenarios for the life of the project.

133. Please provide an assessment of changes in the groundwater basin balance and water levels, and potential cumulative impacts related to groundwater pumping by IWVWD for the project and reasonably foreseeable projects. The assessment should include consideration of water supply and demand planning that may be included in Groundwater Management Plan and/or Urban Water Management Plan for the basin.

BACKGROUND – REVERSE OSMOSIS REJECT WATER

The applicant proposes to utilize Reverse Osmosis (RO) to treat the water supplied by IWVWD (originating from groundwater in the basin) for water needs. The RO system would generate reject water or concentrate with a concentration of approximately 6,000 mg/L of total dissolved solids. The amount of reject water created on a daily basis was not provided. The RO reject water is directed to a 100,000-gallon storage tank 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

134. 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.

135. Please provide a discussion of potential salt loading using the longest period salt loading factor developed from the above data 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.

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

137. 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.

138. If a ROWD permit is necessary, please provide all the permit information necessary to the RWQCB and include the appropriate application fee. Please copy the Energy Commission with the information provided to the RWQCB.

BACKGROUND – LAND TREATMENT UNIT (LTU) FOR HTF TREATMENT

The Applicant has proposed to use a LTU to treat Heat Transfer Fluid (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 would be designed in accordance with Lahontan RWQCB requirements and is expected to comprise an area of about 8 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 would be constructed with a clay liner at least five feet in thickness as per Title 27 requirements. Unsaturated zone monitoring and/or groundwater monitoring would 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 would be land farmed at the LTU, meaning that the soil would be aerated but no nutrients would 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

139. Please provide details on the sizing of the LTU and how HTF-impacted soils would 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.

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

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

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

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

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

BACKGROUND - CUT & FILL AREAS

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 7,500,000 cubic yards. The vast majority of the Project grading and excavation will occur on the Project site with only minor excavation needed for installation of a water pipeline. Known soil

types that will be affected are listed in Table 5.12-4. The runoff potential of these soils is negligible to very high, the water erosion hazard is slight to moderate, and the wind erosion hazard is moderate to high."

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

DATA REQUEST

145. Please identify how much cut and fill would occur at the site.

146. If the cut and fill quantities are not balanced, please show how the balance differences would be resolved.

147. Please provide calculations indicating 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 five 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 vegetation on the site helps 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 of sediment across and off site. At such a large scale, up to 1,760 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

148. Please provide plans and maps showing how sheet and channel flow into and across the project site, over roads, around the mirrors, and off the site would be managed through engineering controls.

149. Please provide erosion and deposition predictions on the up-slope and down-slope sides of the project.

150. Please provide information showing how soils would be maintained to prevent erosion during operation.

151. Please provide maps and plans showing how the site soils would be returned to the 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: “Dust control will be achieved by a combination of water from mirror washing and compaction of the driving surface over time. Therefore, operational controls designed to control dust will reduce the overall soil erosion in the area.” Staff is concerned that techniques described are inadequate to prevent dust control/wind erosion.

DATA REQUEST

152. 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 - IWVWD - WATER AVAILABILITY

In section 5.17.2.6 of the AFC, the report states: “The Project site lies within the IWVWD (Figure 5.17-1), which serves customers in Ridgecrest and the surrounding areas. Water from the IWVWD comes from ten wells that draw from the Indian Wells Valley aquifer. Water is pumped from the wells to ten water reservoirs with a combined storage capacity of about 16.6 million gallons. In the summer months when water demand is highest, the average monthly water use in the district is about 360 million gallons (1,105 af). During the winter months when water demand is lowest, the average monthly water use is 125 million gallons (384 af).” Staff is concerned that the boundary of the IWVWD is incorrect and that insufficient detail regarding the IWVWD and the basin have not been adequately discussed.

DATA REQUEST

153. Please provide clarification indicating whether the project is inside or outside of the district’s service boundary.

154. Please provide a copy of the agreement between the applicant and the IWVWD for construction and operation water supply.

155. If the project is outside the district’s boundaries, please provide a copy of a proposed annexation agreement to indicate the district would annex the site to provide water services.

156. Please identify whether there are any restrictions on the amount of water IWVWD can withdraw from the basin.

157. Please identify whether the groundwater basin is managed pursuant to a groundwater management plan or is adjudicated. If the basin is managed, indicate the operational parameters used for basin management.

158. If available please provide a copy of the groundwater management plan, urban water management plan or any other documents discussing management and governance of water supplies in the basin.

BACKGROUND - GROUNDWATER STORAGE CAPACITY

In section 5.17.2.6 of the AFC, the report states: "The IWV Groundwater Basin has an estimated storage capacity of about 2,200,000 af and 5,120,000 af. The calculated storage of 2,200,000 af is based on 1921 water levels as a steady state limit and 200 feet below this level as the economically feasible limit to extract groundwater." Staff is concerned that the availability of water within the basin has not been discussed. Previous statements indicate that approximately 9,000-11,000 afy is the total inflow to the basin however 25,000 afy occurs from pumping alone. This would suggest that the basin is in overdraft.

DATA REQUEST

159. Please provide a comprehensive discussion of the condition of the basin including basin balance, the amount of overdraft (if any), and any legal/management thresholds for total amount of water that can be extracted from the basin.

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 would be required from the RWQCB. These impacts need to be quantified and mitigated. Please refer to:
http://www.waterboards.ca.gov/lahontan/water_issues/programs/clean_water_act_401/index.shtml

DATA REQUEST

160. 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/lahontan/water_issues/programs/clean_water_act_401/index.shtml.

161. 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 BLM. 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

162. 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 IWV groundwater basin.

BACKGROUND - GROUNDWATER MODEL FOR IMPACT ANALYSIS

In section 5.17.3 of the AFC, the report states: “A published three-dimensional (3-D) numerical groundwater model that was developed by Brown and Caldwell (2009) for the IWVWD was selected as the mechanism to provide an evaluation of Project impacts from proposed construction and operation pumping. The groundwater model was provided by IWVWD to the Applicant and was developed as part of a program to update the conceptual model for the IWV Groundwater Basin, provide a numerical flow model for the updated interpretation and establish a digital data management system from available water level and groundwater pumping data.”

The AFC goes on to state: “The site conceptual model was built on existing data that was integrated with GIS and 3-D data visualization programs to provide a comprehensive basin-wide interpretation of hydrogeologic conditions. From this interpretation, the numerical model was developed, necessarily including simplifying assumptions of aquifer distribution and boundaries, physical characteristics, and adaptations of recharge and discharge within the numerical structure. The model domain encompasses the area of the IWV Groundwater Basin (288,000 acres) to a depth of 2,000 feet bgs and is comprised of four layers, developed from the interpretation of lithostratigraphic conditions within the IWV Groundwater Basin. Layer

thickness and distribution were developed from the 3-D geologic model and cross sections, and in part, interpolation of the geologic contacts through kriging managed in Surfer™."

Staff's understanding is that the proposed power plant site is located on the southern boundary of the IWV Model, and the majority of the power plant area is south and outside of the active model grid. Model results are usually the least reliable at their boundaries. In addition, the AFC suggests that wells at the site may supply construction water. If construction water supply wells are located north of the project site and in the existing active model domain, the model can be utilized without significant modification but test runs are necessary to assess the influence of boundary conditions on simulated water levels following the addition of wells that might be located near the existing model boundaries. If construction water supply wells are located at or south of the model boundary then a separate approach would be required. If information is available that indicates sediments beneath the project site are indeed water-bearing, and a sufficient groundwater resource exists beneath and south of the site to meet the power plant's construction demand for water, the model grid can be extended south and model cells receiving simulated mountain front recharge re-located. Data would be needed to form the basis for modifying the grid boundary to constrain model re-calibration as a result of expanding the grid into the new area (i.e., the new boundary location and thickness and saturation of water-bearing deposits beneath the model area added).

Staff is unclear whether the applicant has developed a conceptual model of the site sufficiently to address the presence of a viable construction water supply and revision of the groundwater modeling element and impact analysis to assess potential impacts.

DATA REQUEST

163. Please identify whether on site construction water supply wells would be used to supply construction water.

    A. If yes, please provide site data that indicates a viable water supply and a conceptual model of the site specific hydrogeology in sufficient detail to modify the existing Brown & Caldwell numerical model.

    B. Please modify the Brown & Caldwell numerical model based on site specific data, and calibrate and run sensitivity analysis to evaluate potential drawdown impacts.

    C. Please provide an analysis demonstrating the numerical modeling was completed consistent with the techniques/requirements set forth in:

        1) ASTM D5447 - Application of a Ground-Water Flow Model to a Site-Specific Problem

        2) ASTM D5490 - Comparing Ground-Water Flow Model Simulations to Site-Specific Information

        3) ASTM D5609 - Defining Boundary Conditions in Ground-Water Flow Modeling

4) ASTM D5610 - Defining Initial Conditions in Ground-Water Flow Modeling

5) ASTM D5611 - Conducting a Sensitivity Analysis for a Ground-Water Flow Model Application

6) ASTM D5981 - Calibrating a Ground-Water Flow Model Application

D. Please provide an impact analysis on water level declines along with any potential impacts to adjacent water users, overall basin storage, and changes in groundwater quality associated with extracting groundwater for construction purposes at the site.

164. For operational water supply, please include a discussion of the conceptual model used as part of the development of the Brown & Caldwell groundwater model along with a discussion of how effective the calibration was and of the sensitivity analysis of the Brown & Caldwell model. Please summarize the results of the Brown & Caldwell calibration and sensitivity analysis.

165. Explain what parameters were used to predict future water level declines in the basin including but not limited to: groundwater production estimates, artificial recharge estimates (if any), hydrologic regimes (wet vs. dry or average conditions) and any other estimates that were used to predict water level declines in the projected water supply well(s).

BACKGROUND - CONSTRUCTION – WATER SUPPLY

The AFC Appendix J Water and Wastewater Report states: “Construction water is expected to be provided by an onsite well that will be drilled for that purpose or alternatively by way of a potable water line connection to IWVWD. Potable water during construction will be brought onsite in trucks and held in day tanks.” In addition, no alternative water supply sources were discussed.

Staff is concerned that the source of the construction water supply has not been completely defined and the corresponding impacts associated with deriving water from site wells has not been evaluated. In addition, alternative water supply sources have not been evaluated. The AFC also indicates that water for construction (561,000 gpd) would be trucked in to the site.

DATA REQUEST

166. Please clarify what would be the source of water for construction.

167. Please describe the source of water that would be trucked to the site and what potential impacts would be related to project use.

168. Please provide a discussion of alternative water supply sources. The discussion should consider but not be limited to: recycled water, brackish water and other non-potable water that could be trucked into the site.

BACKGROUND - MITIGATION MEASURES

In section 5.17.4 of the AFC, the report states: "WTR-6 - The Project owner will record on a monthly basis the amount of groundwater pumped by the project. This information will be supplied to the CEC, Kern County, and other interested agencies including a Notice of Extraction and Diversion of Water consistent with the SWRCB requirements (Water Code Sections 4999 et seq.)." In addition, the AFC states: "WTR-7 - The project owner will measure groundwater levels on a monthly basis for the proposed water supply wells and those wells that might be affected by proposed project pumping for the first six months following the Project start up, and thereafter on a quarterly basis. These monitoring data shall be compiled and provided to the CEC on a periodic basis."

Staff's understanding is that the water would be obtained from IWVWD and not wells on the project site.

DATA REQUEST

169. Please clarify whether the project water supply would be supplied by IWVWD or another source.

BACKGROUND - MITIGATION MEASURES

In section 5.17.4 of the AFC, the report states: "The project owner proposes to provide offsets to the anticipated annual operational water usage. The following approaches are currently being explored and the selected approach may include one or more of the following:

- Fallowing of agricultural land
- Establishing or supporting tamarisk removal program
- Replacing high water use landscaping with xeriscaping
- Add new xeriscaping to community areas
- Participate in IWVWD mitigation programs."

DATA REQUEST

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

171. Please provide an assessment of whether the proposed mitigation methods and whether they can achieve the intended savings in the basin.

172. Please provide the specific measures that will be used to demonstrate the water conservation would be achieved during the life of the project.

BACKGROUND - ALTERNATIVES FOR EL PASO WASH

El Paso Wash (Channel #3) is located on the edge of both the Northern and Southern solar fields. Staff believes there may be an alternative site design that does not result in

the permanent loss of over 1.5 miles of El Paso Wash or in a significant loss of solar field area. There would appear to be sufficient area within the project boundaries adjacent to both the north and south fields to rearrange the facility in a manner that would allow El Paso Wash to pass through the project with little or no disturbance.

DATA REQUEST

173. Please provide a revised site layout that allows El Paso Wash to pass through the project with little or no disturbance, or provide a detailed justification explaining why adjustments to the existing site plan cannot be made in order to eliminate the permanent loss of over 1.5 miles of this natural watercourse.

BACKGROUND - DRAINAGE REPORT

The proposed project is located on an alluvial fan. The stability of this feature has not been discussed in the drainage report. In addition, there appears to be the potential for lateral migration of existing drainages, and in particular at bends in El Paso Wash.

DATA REQUEST

174. Please provide analysis and plans or drawings showing overall channel stability in the project area and also specifically within the context of the proposed design, such as how the potential for lateral channel migration in El Paso Wash will be mitigated to prevent impact to the facility.

BACKGROUND - DRAINAGE REPORT

Section 2 of the Drainage report provides a summary of peak discharges which are based on the methodology presented in the Kern County Hydrology manual. El Paso Wash is an existing FEMA mapped floodplain with an established 100-year peak discharge. This existing FIS value, as well as values from other available sources and reports on file with the local BLM and USGS, should be provided in the drainage report for the purpose of comparison. All available data should be considered to ensure that a reasonable value is utilized for the purpose of new floodplain mapping.

DATA REQUEST

175. Please include in the peak discharge table values taken from the effective Flood Insurance Study (FIS) for the area as well values calculated using the appropriate USGS Regional Regression Equation for the subject area. In addition, please consult the local BLM office to obtain relevant information from previous studies related to El Paso Wash and include this data in the drainage report.

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:

176. 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 DESIGN

The proposed drainage design as discussed in the AFC and Drainage Report includes the collection and diversion of two 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.

DATA REQUEST

177. Please provide a detailed analysis of the depth and extent of the existing and developed floodplain. using an industry accepted methodology such as HEC-RAS. This analysis should utilize recent detailed topography and should accurately model the transitions from natural floodplain to constructed channel and back to natural floodplain. This analysis should follow FEMA guidelines for mapping riverine type drainages and for providing an acceptable tie-to the existing mapped floodplain.

178. If the proposed design includes the diversion of El Paso Wash, please provide a detailed analysis using an industry accepted methodology such as HEC-RAS or HEC-6 that demonstrates similar sediment transport capacities within the natural and constructed channels for the 2- and 10-year flows. The model must demonstrate that significant erosion or deposition will not occur as a result of imbalanced sediment transport capacities.

179. Provide design details for the confluences of the diversion channels with the original natural channels that demonstrate how the design will achieve long term stability at these locations.

180. 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 - CLOMR APPLICATION

The proposed project may significantly alter existing drainages that have FEMA-mapped floodplains. Modifications to the existing floodplain limits would require submittal of a request for a Conditional Letter of Map Revision (CLOMR) for review and approval by FEMA.

DATA REQUEST

181. Please provide a CLOMR application, completed to FEMA standards, so the extent of modifications to the existing FEMA mapped floodplains can be reviewed.

BACKGROUND - EROSION CONTROL

The proposed channels on the upstream side of the property would serve to intercept large flows from the upstream drainages as well as more localized flows within the watershed. Failure to 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

182. Please provide design details that show the proposed channels control or prevent bank erosion and headcutting due to the interception of flows by the proposed diversion channels. All bank protection and erosion control measures, including grade control structures, must be traversable (4:1 slope or flatter) and not present an entrapment hazard to wildlife. More specifically, it has been determined the project site is Desert Tortoise habitat, and as such, bank protection measures such as dumped riprap, stacked gabions, or gabion mattresses would 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.

183. Provide detailed grading plans showing the geometry of the proposed diversion channels and how they would tie into existing grade.

184. Provide profiles for each channel that include existing and proposed grade along both the finished flowline as well as right and left top of banks. These drawings should be at a scale of no smaller than 1"= 200'. Also, please provide cross-sections through the collector/diversion channels every 100' which show existing and proposed grade and clearly demonstrate how these channels will tie into existing grade and into the proposed facility.

185. 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.

186. If required to reduce channel slope and velocity to acceptable values, provide detailed design plans for grade control structures. The use of channels without bank protection around the periphery and through the project would 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 would 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 incised thalwegs (low-flow channels) during the more frequent events depending on channel slope and flow velocity, or can tend to drop much of their sediment load resulting in a sediment deficient condition when they flow back into the natural drainage. The formation and migration of an incised thalweg in a wide channel can also threaten bank stabilization improvements.

DATA REQUEST

187. Please provide a detailed justification of why a 100-year capacity is required in the diversion channels.

188. Please provide documentation that the depth/width ratios in the channels would not likely result in the incision of a low-flow thalweg within the channel given the proposed slopes or that the potentially reduced velocities would not result in significant sediment deposition. If these are potential issues please consider the use of a compound section with a pre-constructed low-flow channel to more efficiently carry flow from the more frequent 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 would be a significant element of site operation that could require both mechanical and chemical soil stabilization.

DATA REQUEST

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

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

BACKGROUND - SURFACE FLOWS WITHIN THE FACILITY

Significant flows would be generated within the facility and conveyed to the proposed diversion channels or existing natural drainages.

DATA REQUEST

191. Please provide detailed information on the estimated discharges at each of the onsite drainage outfall locations, as well as detailed design plans to demonstrate how these points of outfall would be protected from erosion.

BACKGROUND - DRAINAGE REPORT

The construction of engineered channels to collect and convey flow through and around the site can significantly change downstream peak flows by more efficiently conveying

flows and reducing the magnitude of flood peak attenuation that occurs in natural floodplains. This increase in peak discharge may also be exacerbated by increased runoff resulting from compaction and stabilization of onsite soils. Previous discussions with BLM staff have indicated the project watershed has a documented history for contributing to flooding of downstream developed areas. Any changes in the watershed that could increase downstream flooding are of concern to the BLM.

DATA REQUEST

192. The Drainage Report and associated hydrologic modeling must specifically address the issue of potential increases to downstream peak discharges. The hydrologic modeling must accurately represent the existing and proposed condition with respect to differences in runoff potential, floodplain routing and potential peak flood attenuation. In reference to the routing reach geometry used in the existing conditions model, Section 2.5 in the Drainage Report states “These bottom widths are conservative in that the actual channels will be wider and shallower that would lead to a slower velocity.” This approach may lead to an overestimated existing peak discharge by not appropriately accounting for existing floodplain attenuation. It may also under estimate the difference between existing and developed peak discharges once the engineered channels are constructed and provide little flood peak attenuation. The analysis must demonstrate the proposed design would not increase downstream peak discharges.

Technical Area: Traffic and Transportation
Author: Robert Fiore

BACKGROUND

Table 5.13-5, page 5.13-9 presents peak hour volumes and design capacity for studied traffic routes. It is anticipated that construction workers would travel from distances of up to 2 hours to the proposed project. The Palmdale and Lancaster areas would also be possible origination points for workers. US-395 and SR-14 also carry a large number of recreational travelers during non-peak hours.

DATA REQUESTS

193. Please provide the anticipated distribution of workers traveling from the various possible employment centers within 2-hours driving distance from the project site, especially SR-14.

194. Please provide the base information for SR-14 as shown in Table 5.13-5 (and subsequent appropriate tables) for the other routes or provide an explanation as to why SR-14 is not included.

195. Please provide discussion pertaining to known traffic problems, congestion (non-peak) and accidents for these routes.

BACKGROUND

Table 5.13-6, page 5.13-9 presents peak hour level of service (LOS) for studied intersections. It is anticipated that construction workers would travel from distances of up to 2 hours to the proposed project. The Palmdale and Lancaster areas would also be possible origination points for workers.

DATA REQUEST

196. Please provide the base information for the following intersections as shown in Table 5.13-6 (and subsequent appropriate tables) for the other intersections or provide an explanation as to why these intersections were not included:

    - SR-178 and Brown Road;
    - SR-14 and SR-178; and
    - US-395 and SR-178

BACKGROUND

Section 5.13.3.2, page 5.11-13 provides descriptions of the temporary construction access for the project, however, there are no plans or specifications provided that illustrate the geometrics (turning radii, sight distance, grades, etc.) for these roadways and intersections. Also, the AFC does not provide discussion and plans for anticipated internal traffic movement and parking.

DATA REQUESTS

197. Please provide scaled plans (40-scale) for each access point into the proposed project site, the access to the laydown/ construction area for Brown Road from US 395 so that proper analysis of site access can be performed.

198. Please provide anticipated internal traffic movement and parking.

BACKGROUND

California Energy Commission Siting Regulations, Appendix B (g)(5)(C)(vi), states, "for roads serving the project site, identify any road features affecting public safety". According to the AFC, the project would generate construction traffic from up to 2 hours (120 miles) away from the project site and the transport of equipment, supplies and materials via trucks. The AFC further states that construction and truck traffic will use US Hwy. 395, SR-14 and SR-178. CEQA Guidelines also require the identification and mitigation for roadway hazards. Section 5.13.2.4, page 5.13-10 states that no roadway features have been identified as potential safety hazards in the project vicinity. Further, these sections discuss the installation of a traffic signal to improve traffic safety for the Brown/S. China Lake Blvd./US 395 intersection. According to Caltrans, there are no warrants to justify a traffic signal at this intersection.

In both phases of the project (construction and operational) additional trips would be generated by assorted vehicle types (passengers, trucks/construction vehicles). Caltrans research (year 2007) shows that the Brown/S. China Lake Blvd./US 395 intersection (post mile 15) has an overall collision rate 2.8 times higher than the State-wide average.

Caltrans recommends three potentially acceptable alternatives to access the proposed project site from US 395. If Brown Road remains the primary access from US 395, then the existing Brown Road/S. China Lake Blvd./US 395 intersection must be improved. These improvements could include realigning the left turn from US 395 onto Brown Road for improved turning radii, constructing acceleration and deceleration lanes and adding a left turn pocket on US 395. This is not the preferred alternative because Caltrans has plans to realign the Brown Road/S. China Lake Blvd./US 395 intersection to create a perpendicular section. The realignment alternative would require acquiring rights-of-way and involve significant roadway construction. Another alternative would be to provide direct access from US 395. BLM recommends that if site access is to occur directly from US 395, it should be designed as to avoid traversing known cultural resource locations. Direct access from US 395 should be located to avoid traversing known cultural resource locations and be at least 1-mile north of the existing Brown Road/S. China Lake Blvd./US 395 intersection. Such access should be available for both the construction and operational phases of the project. The design of this access would require perpendicular access from US 395, acceleration and deceleration lanes and a left turn pocket.

DATA REQUESTS

199. Please provide traffic accident statistics for US Hwy. 395, SR-14 and SR-178, including the intersection of Brown Road and US 395, and causes for accidents on those roadways identified in the AFC.

200. Please provide any other known roadway hazards, such as poor sight distances or turning radii associated with accessing the project site and on roadways identified in the AFC.

201. Please consult Caltrans and Kern County to determine an acceptable alternative to access the proposed project site from US 395. Also, please provide plans and sets to the Energy Commission and Caltrans.

BACKGROUND

Kern County has two Traffic Impact Fee Programs in place in Eastern Kern (Rosamond/Willow Springs and Tehachapi). The City of Ridgecrest also has traffic impact fees. Traffic impact fees are designed to off-set the cost of roadway improvements associated with development. The project would generate additional truck trips turning left on Brown Road from US 395, requiring additional lanes and intersection improvements. Caltrans is recommending a pro rata share for such improvements, if this remains the primary route to access the site from US 395.

DATA REQUEST

202. Please consult with Caltrans and Kern County to determine the pro rata share for improvements to the intersection and provide a letter outlining the determination of pro rata cost share attributable to the project.

BACKGROUND

The CEQA Guidelines, Appendix G, Environmental Checklist Form, for Transportation and Traffic contain questions related to identifying potentially significant impacts related to emergency access and parking.

DATA REQUEST

203. Please provide locations and designs (geometrics such as turning radii, load capacities, grades, etc.) per Kern County design standards for potential emergency access routes.

BACKGROUND

Kern County Council of Governments (COG) is the Regional Transportation Planning Agency and Metropolitan Planning Organization for Kern County.

DATA REQUEST

204. Please provide documentation identifying how the proposed project will comply with any applicable traffic or transportation LORS, programs and design standards established by the Kern County COG.

BACKGROUND

The AFC Section 5.13 contains Table 5.13-6 denoting Wilson Engineering as a contributor to the data presented.

DATA REQUEST

205. Please provide the traffic study prepared by Wilson Engineering so staff can evaluate source information and methodologies supporting the data presented.

BACKGROUND

The AFC Section 5.13 contains Table 5.13-5 which denotes [4] and [5] in the Volume column.

DATA REQUEST

206. Please provide the explanation for the references.

BACKGROUND

According to the AFC, the project would generate construction traffic from up to 2 hours (120 miles) away from the project site and the transport of equipment, supplies and materials via trucks. The AFC further indicates that construction and truck traffic will use US Hwy. 395, SR-14 and SR-178.

DATA REQUEST

207. Please provide the percentage of construction trips for vehicles and trucks for each highway route identified in the AFC.

BACKGROUND

Section 5.13.2.5 (Railroads) discusses the abandoned railroad corridors within the project's vicinity.

DATA REQUESTS

208. Please provide a discussion of the railroad corridor rights-of-way (ROW) and abandonment thereof, including setback requirements and any safety or liability concerns of the railroad owner and BLM.

209. Please provide information pertaining to Caltrans and California Public Utilities Commission's requirements for crossing the railroad corridor ROW.

BACKGROUND

The Energy Commission Siting Regulations, Appendix B (g) (5) (C) require the applicant to submit a map at a scale of 1:24,000 showing airports, bus, school bus routes and bicycle routes.

DATA REQUEST

210. Please provide a map at a scale of 1:24,000 showing airports (the precise distance from InyoKern Airport), public transportation, school bus routes and bicycle routes.

BACKGROUND

BLM staff has expressed concerns regarding the proposed water pipeline and trenching for the water pipeline under US 395. The staging area for the water pipeline installation may block private and public access ways along China Lake Blvd. In addition, BLM ROW permits would be required for trenching, or preferably boring, the water pipeline under US 395.

DATA REQUEST

211. Please provide a discussion and a schedule pertaining to applying and obtaining the necessary BLM right-of-way (ROW) permits for the water pipeline route.

212. Please address how much area (length and width) is needed for the water pipeline ROW.

213. Please identify alternate entry routes for the nine (9) private and public driveways or roadways the water pipeline will affect during installation.

RIDGECREST SOLAR POWER PROJECT
(09-AFC-9)
DATA REQUESTS 1

Technical Area: Transmission System Engineering
Author: Ajoy Guha, P. E. and Mark Hesters

INTRODUCTION

Staff needs to determine the system reliability impacts of the project interconnection and to identify the interconnection facilities including downstream facilities needed to support the reliable interconnection of the proposed Ridgecrest Solar Power Project (RSPP). The interconnection must comply with the Utility Reliability and Planning Criteria, North American Electric Reliability Council (NERC) Planning Standards, NERC/Western Electricity Coordinating Council (WECC) Planning Standards, and California Independent System Operator (California ISO) Planning Standards. In addition the California Environmental Quality Act (CEQA) requires the identification and description of the "Direct and indirect significant effects of the project on the environment." For the compliance with planning and reliability standards and the identification of indirect or downstream transmission impacts, according to the previous guidelines staff so far relied on the System Impact Study (SIS) and Facilities Study (FS) as well as review of these studies by the agencies responsible for insuring the adjacent interconnecting grid meets reliability standards, in this case, the Southern California Edison Co. (SCE) and/or California ISO. However, the California ISO's generator Interconnection study process under the new Large Generator Interconnection Procedures (LGIP) Tariff is in transition from a queue or serial SIS to a cluster window process for the Phase 1 and Phase 2 Interconnection studies. The Phase 1 Interconnection study is almost same as the SIS except it is now performed with several queue projects in a group in the same area of an utility. The Phase 2 Interconnection study (same as the FS and Operational study, but with all the queue projects in a group as included in the Phase 1 Interconnection study) would be performed at a later date. The Interconnection studies would 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 the transmission to violate reliability requirements the potential mitigation or upgrades required to bring the system into compliance are identified. The mitigation measures often include modification (such as reconductoring of an existing transmission line or extension or remodeling of an existing substation) and construction of downstream transmission facilities. The CEQA requires environmental analysis of any downstream facilities for potential indirect impacts of the proposed project.

BACKGROUND

The July 28, 2009 California Independent System Operator (California ISO) Phase I Interconnection study for the Ridgecrest Solar Power Project (RSPP) with a 750 MW net generation instead of a 250 MW net generation plant (as shown in the AFC) and without appendices is found incomplete. The complete Phase 1 Interconnection Study is required for staff to determine the potential need for downstream transmission facilities. If the study shows that the RSPP would cause significant transmission line overloads which might trigger the need for new transmission facilities, transmission line reconductoring or other significant downstream upgrades, a general environmental

analysis sufficient to meet the California Environmental Quality Act (CEQA) requirements for indirect project impacts will be required for these downstream upgrades.

DATA REQUESTS

214. Submit a revised and complete Transition Cluster Phase 1 Interconnection study report performed by California ISO in coordination with SCE for the interconnection of the 250 MW net RSPP generation output to the SCE system based on 2013 summer peak and off-peak system base cases. The study must include a power flow, transient stability and short circuit analyses with a mitigation plan for all identified downstream facilities where reliability criteria violations would occur. The study report must include all appendices.

Technical Area: Visual Resources
Author: Michael Clayton

BACKGROUND

In order to accurately characterize the visibility of the Project, staff requires a better depiction of the regional visibility of the Project. Based on a brief digital terrain review of the Project site, it is clear that Figure 5.15-1 does not appear to present a complete depiction of the Project's regional visibility. In particular, the Project will have greater visibility to the west and northwest from Owens Peak Wilderness and Sacatar Wilderness, to the northeast from the Argus Range Wilderness and the Great Falls Basin and Argus Range ACEC, to the east from the Spangler Hills (limited), to the south from the El Paso Mountains and El Paso Wilderness and from a considerably greater extent of Indian Wells Valley. It is important to remember that a project of this scale can be seen from great distances especially from elevated viewing perspectives. This is particularly true if the project causes considerable glint and glare.

DATA REQUEST

215. For the benefit of the analysis and readers, please review the visibility analysis presented in the AFC and revise Figure 5.15-1 to show a more accurate depiction of the Project's regional visibility. Map coverage can be expanded up to 25 miles distant from the Project site due to the availability of distant, elevated viewing opportunities. Also, if the assumed viewing height is different than 5.5 feet relative to ground level, please identify what the viewing height is.

BACKGROUND

Page 5.15-8 of the AFC states that Figure 5.15-2 shows the location of the transmission line route and substation that will be the Project's point of interconnection with the regional system. However, the transmission line and substation are not shown on Figure 5.15-2, either in the map area or in the legend.

DATA REQUEST

216. Please show the location of the transmission line route and substation in both the map area and legend of Figure 5.15-2.

BACKGROUND

As discussed in the Background statement for Data Request 1 above, the Project site is visible from a variety of surrounding elevated 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 Ridgecrest Project with even greater project visibility. Therefore, an additional KOP location is necessary in order to be able to describe to the readers the visual impact that will be experienced from higher elevation vantage points.

DATA REQUEST

217. Please establish a new KOP from the hilltop immediately adjacent and to the southwest of the Project site in the vicinity of coordinates – Latitude: 35° 33' 7.14" N, Longitude: 117° 46' 14.36" W, viewing to the east-northeast and provide a new KOP analysis and visual simulation (see Attachment 2 for perspective view guidance).

218. In order to present a simulation that more accurately captures the actual viewing experience from the new Hilltop 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).

BACKGROUND

KOP 3 was established on Brown Road but is located approximately 0.9 mile west of the Project site and approximately 1.4 miles west of the power block. However, Brown Road passes through the middle of the site and travelers on Brown Road will have close up, foreground views of the Project facilities similar to those illustrated in Attachment 3 (a sequence of three images) for another solar project. Therefore, the view from KOP 3 is not representative of the more highly effected views from Brown Road within the site and additional KOP locations are necessary in order to be able to describe to the readers the visual impact that will be experienced by travelers on Brown Road.

DATA REQUEST

219. Please establish a new key viewpoint from westbound Brown Road within the Project site in the vicinity of coordinates – Latitude: 35° 33' 21.47" N, Longitude: 117° 44' 41.82" W, viewing to the west to capture a foreground view of the power block facilities and provide a new KOP analysis and visual simulation (see Attachments 3 and 4 for foreground and perspective view guidance).

220. In order to present a simulation that more accurately captures the actual viewing experience from the new Brown Road West 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).

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 each solar field" (Page 2-21). 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

Brown Road or US 395. 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 nearby roads.

DATA REQUEST

221. Please establish a new key viewpoint from eastbound Brown Road within the Project site in the vicinity of coordinates – Latitude: 35° 33' 28.85" N, Longitude: 117° 45' 16.88" W, viewing to the north-northeast to capture a foreground view of the north solar field west wind fence and provide a new KOP analysis and visual simulation.

222. In order to present a simulation that more accurately captures the actual viewing experience from the new Brown Road North-Northeast 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).

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

BACKGROUND

KOPs 8 and 9 were established on the Railroad Bed Bike Trail approximately 1.2 miles south and 1.5 miles southeast of the Project site, respectively, and approximately 2.4 and 2.5 miles distant from the power block. At a distance of 1.2 to 1.5 miles from the site, these viewpoints are not representative of the more highly effected portions of the Bike Trail that are located considerably closer to the Project. Given that the Bike Trail receives moderate use by bicyclists, hikers, and motorists (AFC Page 5.15-11), a more appropriate KOP location is necessary in order to be able to describe to the readers the visual impact that will be experienced on the Bike Trail.

DATA REQUEST

224. Please establish a new key viewpoint on the Bike Trail in the immediate vicinity of coordinates – Latitude: 35° 32' 27.86" N, Longitude: 117° 45' 34.38" W, viewing to the northeast and provide a new key viewpoint analysis and visual simulation.

225. In order to present a simulation that more accurately captures the actual viewing experience from the new Bike Trail key viewpoint, 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).

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

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

BACKGROUND

Most of the visual simulations (KOP-2, KOP-3, KOP-4, KOP-5, KOP-6, KOP-7, KOP-8, KOP-9, and KOP-10) illustrate the Project facilities (except for the solar troughs) in a tan, earth-tone color and in many cases, show what appears to be a tan, linear, horizontal feature around the edge of the Project, which looks like a wall or berm in some simulations (e.g. KOPs 3, 4, 5, 6, 7, 9 and 10).

DATA REQUEST

227. Please clarify what the horizontal, linear tan feature is that borders most of the simulations (KOPs 2-10). Include a description of its size, composition and purpose. Attachment 3 shows a similar facility without such a feature.

228. Please describe in detail the tan surface treatments of other project components that are illustrated in the simulations including color name and manufacturer and texture.

229. Please be sure to illustrate these surface treatments in the new simulations requested in Data Requests 3 through 11 above.

230. Please identify the color surface treatment for each project component listed in Table 5.13-3 including the transmission line.

231. If any of the simulations require revisions as a result of these data requests, please provide revised/updated simulations as necessary.

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

232. Please provide close-up photographs of SCAs of the type proposed for the SM Ridgecrest 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 Ridgecrest Project, please describe the differences.

BACKGROUND

Staff is concerned about potential spread reflection visible to viewers on Highway 395 and Brown Road. Attachment 3B (second image within Attachment 3) illustrates glare from parabolic reflectors.

DATA REQUEST

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

234. 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.

235. 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

236. 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.

237. 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.)?

BACKGROUND

Page 5.15-19 appears to be a page from the SM Blythe Solar Power Project AFC.

DATA REQUEST

238. Please clarify what information is supposed to be presented on page 5.15-19 and whether or not any information has been inadvertently omitted.

Technical Area: Waste Management
Author: Suzanne Phinney

BACKGROUND

AFC Section 5.16.3.2 and Table 5.16-6 describe waste management methods for preliminary classifications of soil contaminated with heat transfer fluid (HTF). Soil contaminated with greater than 10,000 mg/kg HTF would be collected and accumulated onsite prior to being sent to a Class I landfill or soil thermal treatment facility. Soils contaminated with 1,000 to 10,000 mg/kg HTF would be bioremediated, and concentrations between 100 and 1,000 mg/kg HTF would be land farmed. Soils with less than 100 mg/kg of HTF would be stockpiled on site and used as fill material. The bioremediation and landfarming areas constitute the land treatment unit (LTU), which would be designed in accordance with LRWQCB requirements and is expected to comprise about 8 acres (AFC, p. 2-17).

The locations of the LTU (containing the bioremediation and landfarming areas), accumulation site, and stockpile area are not clearly indicated. Furthermore, the acreages of the accumulation site and stockpile area are not given. The soil thermal treatment facility is not named. Staff requires this information to complete its Staff Assessment of potential impacts from HTF spills.

DATA REQUEST

239. Please provide a map depicting the location and acreage for the accumulation site (for soil with HTF concentrations above 10,000 mg/kg), bioremediation unit (for concentrations between 1,000 and 10,000 mg/kg), land farming area (for concentrations between 100 and 1,000 mg/kg), and stockpile area, respectively.

240. Please provide the name and address of the soil thermal treatment facility where soils with HTF concentrations above 10,000 mg/kg would be sent.

241. Please provide a copy of the Report of Waste Discharge (ROWD) submitted to the Lahontan Regional Water Quality Control Board regarding the HTF land treatment units.

BACKGROUND

AFC Tables 5.16-5 and 5.16-6 list recycling as the offsite management methods for several hazardous and non-hazardous waste streams. However no information is provided identifying the recycling services and facilities, or other treatment, storage, and disposal facilities (TDSFs) that may be used by the applicant. Staff needs this information to determine whether project wastes would affect the capacity of TSDFs used by the applicant.

DATA REQUEST

242. Please provide information on the waste transport, recycling, and waste transfer facilities/services that may be used to transport, recycle or otherwise manage project wastes. The information provided should include, as appropriate, the following:

A. Facility/company name;

B. Phone number;

C. Location;

D. Class and/or type of service;

E. Materials accepted;

F. Permit or license for activity;

G. Recycling methods used;

H. Which project wastes will potentially be managed by the facility/service;

I. Permitted capacity;

J. Annual usage;

K. Remaining capacity;

L. Estimated closure date;

M. Expiration date for permit or license;

N. Approximate distance from site (in miles); and

O. Any special conditions or other comments pertinent to the facility or service.

BACKGROUND

The Phase I ESA (p. 2-3) references, but does not include historic aerial photographs (dated 1952, 1984, and 1994) and topographic maps (dated 1915, 1943, 1947/1953, and 1972/1973) supplied by EDR. Staff needs this information to verify that there are no areas that may warrant further analysis.

DATA REQUEST

243. Please provide the historic aerial photographs and topographic maps referenced above.

BACKGROUND

Although not discussed in the Waste Management Section of the AFC, the Phase I ESA (Appendix I, page ES-2) states that unexploded ordnance (UXO) were identified on the project site. Additionally, the Worker Safety Section of the AFC states that:

> "During World War II (1942-1945) and for two weeks in 1964, large areas of the Mojave Desert were utilized for large scale military training exercises. Small caliber ammunition and "practice ordnance" were used during these maneuvers. Tanks and planes were also involved in these exercises. Shells that contained spotting or marking charges were fired and dropped over a large area during these activities. A small percentage of this ordnance did not explode and some unexploded ordinance (UXO) has been discovered on the Project site during routine resource surveys. When detonated by the Kern County Sheriff's department, the UXO were found to be inert practice ordnance."

The China Lake Naval Weapons Test Center is located both northeast and southeast of the proposed project site. Several ranges associated with the Test Center have recognized environmental risks due to UXO. The EDR database report (included in the Phase I ESA) identifies the sites, but AECOM states that these "orphan" sites cannot be mapped due to insufficient/contradicting address information (Phase I ESA, p. 7-1). The location of the orphan sites is needed to ascertain the risk of UXO at the project site.

DATA REQUEST

244. Please consult with the China Lake Naval Weapons Test Center, and/or applicable regulatory agencies, to locate the "orphan" sites and provide the Energy Commission staff the locations and aerial imagery compiled as a result of the orphan site study.

245. Please identify any investigations or remedial actions underway as a result of the orphan site study.

BACKGROUND

In the Phase I ESA (page ES-2), AECOM recommends that:

> "The potential presence of unidentified ordnance (UXO) should be investigated through the use of geophysical surveys performed by a company with specific expertise in identifying UXO. Remnants of munitions or bullets identified during development of the subject property should be segregated and disposed in accordance with current regulations. Prior to development, the subject property where UXO are identified should be subjected to a thorough survey and removal in accordance with current regulations."

Staff needs this information to determine whether waste materials, in this case UXO, remain on the site. Staff also needs information to determine the adequacy of any investigations to determine whether UXO remains on the site.

DATA REQUEST

246. Please describe the timing and methodology for completing the geophysical surveys.

247. Please provide the expertise and qualifications of those conducting the geophysical surveys.

248. Please provide results of the geophysical survey.

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 *RIDGECREST SOLAR POWER PROJECT*

Docket No. 09-AFC-9

PROOF OF SERVICE
(Est. 11/18/09)

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DECLARATION OF SERVICE

I, **Mineka Foggie**, declare that on **December 22, 2009**, I served and filed copies of the attached **Ridgecrest Solar Power Project (09-AFC-9) Data Requests Set 1**, dated **December 22, 2009**. 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_ridgecrest].

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

(*Check all that Apply*)

For service to all other parties:

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

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

AND

For filing with the Energy Commission:

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

OR

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

CALIFORNIA ENERGY COMMISSION
Attn: Docket No. 09-AFC-9
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.

Originally Signed BY
Mineka Foggie