

CALIFORNIA ENERGY COMMISSION

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July 20, 2012

Hydrogen Energy California, LLC
Marisa Mascaro
Senior Environmental Project Manager
SCS Energy LLC
30 Monument Square, Suite 235
Concord, MA 01742

California Energy Commission

DOCKETED**08-AFC-8A**

TN # 66281

JUL 20 2012

Regarding: **HYDROGEN ENERGY CALIFORNIA PROJECT (08-AFC-8A), Staff's
Data Requests, A1 through A123**

Dear Ms. Mascaro,

Pursuant to Title 20, California Code of Regulations, section 1716, the California Energy Commission staff requests 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.

These data requests, numbered A1 through A123, are being made in the technical areas of Air Quality, Biological Resources, Cultural Resources, Land Use, Socioeconomics, Traffic & Transportation, Soil and Water, Public Health, Waste Management and Worker Safety & Fire Protection. Written responses to the enclosed data requests are due to the Energy Commission staff on or before August 22, 2012.

If you are unable to provide the information requested, need additional time, or object to providing the requested information, please send a written notice to the Committee and to me within 20 days of receipt of this notice. The notification must contain the reasons for the inability to provide the information or the grounds for any objections (see Title 20, California Code of Regulations, section 1716 (f)).

If you have any questions regarding the enclosed data requests, please call me at (916) 651-0966 or email me at Robert.Worl@energy.ca.gov .

Sincerely,

Robert Worl
Siting Project Manager

Enclosure (Data Request Packet)
cc: Docket (08-AFC-8A)
POS List

PROOF OF SERVICE (REVISED 6/4/12) FILED WITH
ORIGINAL MAILED FROM SACRAMENTO ON 7/20/12
DLS

HYDROGEN ENERGY CALIFORNIA
(08-AFC-8A)

Energy Commission Staff's Data Requests A1-A123

July 20, 2012

Technical Area: Air Quality/Greenhouse Gases
Author: William Walters
Nancy Fletcher

BACKGROUND: PREVIOUS DATA RESPONSES

Staff needs to determine if certain previous data responses, including those responding to questions posed during the data request/response workshop and later correspondence, such as those submitted to the Energy Commission on 11/11/09, 11/12/09, 12/11/09, 1/8/10, 2/1/10, 4/2/10, 6/10/2010, 7/27/10, 11/12/10, 12/6/10, and 12/16/10, still apply to the project and are still valid.

DATA REQUEST

- A1. Please describe any revisions, or inapplicability to the revised project, for the data responses to the previous air quality and Green House Gas (GHG) data requests in general, and particularly for the previous data requests listed below:

Data Request Set One - 1, 2, 5, 10, 20, 21, 25, 27, 28, 29, 37, 55, 56
http://www.energy.ca.gov/sitingcases/hydrogen_energy/documents/08-AFC-8/index.html

BACKGROUND: CONSTRUCTION EMISSIONS ESTIMATE

The Amended Application for Certification (AFC) does not provide a clear explanation of all of the assumptions used to derive the equipment emission factors used for the construction on-road and off-road equipment emissions calculations, such as an explanation of whether any mitigation was included in the derivation of those emissions factors. Additionally, the fugitive dust emissions estimate for scrapers appears to use a questionable emission factor basis; the miles per day basis used in the motor graders fugitive dust emissions calculation is not reasonable; and the bulldozer fugitive dust emissions calculation uses an improper adjustment factor. Staff needs to understand the mitigation assumptions used to create the construction emissions estimate and needs the applicant to provide reasonable estimates for the fugitive dust emissions.

DATA REQUESTS

- A2. Please describe whether the on-road equipment Emission FACtors 2007 (EMFAC2007) model emissions factors assume the application of any emission control measures such as the use of recent model year vehicles.
- A3. Please describe whether the off-road equipment OFFROAD2007 model emissions factors assume the application of any emission control measures, such as the use of Tier 3 or higher equipment.
- A4. Please revise the scraper fugitive dust emissions factors to use the AP-42 Section 11.9, Table 11.9-4; and Section 13.2.2 calculations/factors that are

properly related to scraper loading/unloading and travel, versus the use of grading factors from that section, which are appropriate for motor graders operating at low speeds but not appropriate for scrapers.

- A5. Please revise the daily vehicle miles traveled (VMT) numbers for the scrapers and motor graders to levels that are reasonable given their relative daily hours of use and speed while in use (motor graders at 3-5 mph, scrapers 5-30 at mph depending on operating function).
- A6. Please correct the bulldozer fugitive dust emissions estimate by removing the engine use capacity factor, which is an engine emissions adjustment factor and not a fugitive dust emission adjustment factor.
- A7. Please correct the construction particulate matter (PM) PM10 and PM2.5 modeling analysis if the fugitive dust emissions corrections noted above create a new worst case 24-hour or annual emissions period.

BACKGROUND: GASIFIER FEEDSTOCK MIX EFFECTS

Staff understands that in the Amended AFC the gasifier feedstock mix is assumed to be a blend of 75 percent coal and 25 percent petroleum coke; however, the Amended AFC in its discussion of feedstock flexibility (Amended AFC Section 2.1.11.4) does not provide information on the potential flexibility in the feedstock mix. Staff needs to understand the applicant's intent for the short-term and long-term flexibility of the feedstock mix and how that could impact air quality emissions estimates.

DATA REQUESTS

- A8. It is unclear if the feedstock mix of 75 percent coal and 25 percent petroleum coke is both a short-term and long-term assumption, and if this assumption would be stipulated to by the applicant or if there could be a wide range of variability in the short-term and long-term feedstock mix. Please provide any short-term or long-term stipulations on the range of the feedstock mix, and given such stipulation(s) please identify the potential short-term (i.e. instantaneous/hourly/daily feedstock mix range) and long-term (i.e. annual average) range of feedstock blends that could be used in the gasifier.
- A9. Please provide stationary source emissions estimates, where they exceed the current stationary source emissions estimates, for the potential range of gasifier feedstock fuel blends. If the stationary emissions estimates from other potential gasifier feedstock blends would not increase the emissions from those currently estimated, then please describe why that is the case.
- A10. Please discuss the feedstock transportation trip, and other associated transportation trip (gasifier solids, sulfur, etc.) effects and the related transportation air quality emission effects over the desired flexibility for the range of the gasifier feedstock mix.

BACKGROUND: COMBINED CYCLE GAS TURBINE/HRSG OPERATING PROFILE

Staff understands that the combined cycle gas turbine/heat recovery steam generator (HRSG) will not be strictly operated as a base load electrical generating facility, but will vary output based on need and also operate in a manner that will allow for a certain amount of dispatchability. Staff needs more information to understand the exact expected operation of the combined cycle gas turbine/HRSG and the impacts of operating this facility in such a manner.

DATA REQUESTS

- A11. Please identify the expected normal daily operating profile for the gas turbine and duct burners, the anticipated overnight minimum load operating condition, and associated daily net Megawatt hour (MWh) production.
- A12. Please identify the expected criteria and Green House Gas (GHG) emissions profile for the combined cycle gas turbine/HRSG (lbs/hr per load condition and lbs/day) for the expected normal daily operating profile.
- A13. Please identify if the intended partial dispatchability of the combined cycle gas turbine/HRSG would increase the potential for upsets leading to increased flaring and Carbon Dioxide (CO₂) venting events, or lead to upsets that could increase other wastes, such as off-spec fertilizer products.

BACKGROUND: GASIFICATION AND FERTILIZER MANUFACTURE PROCESS ENERGY AND MASS BALANCE AND OPERATIONS DESCRIPTION

The Amended AFC does not provide the detailed energy and mass balances that are necessary for staff to fully understand the gasification technology and its emission sources. Staff needs this information to understand any changes to the gasification process and the new processes to complete both its criteria pollutant impact analysis and its GHG impact analysis. A mass and energy balance was requested and provided for the original project design. The response and the level of information provided by the applicant in that data response can be viewed in the following document, dated 08/10/2010, Data Response number 11, beginning at page 8: (http://www.energy.ca.gov/sitingcases/hydrogen_energy/documents/08-AFC-8/index.html). Staff is requesting this level of information for the new and revised processes.

DATA REQUESTS

- A14. Please provide energy and mass balance data for the gasification process for both petroleum coke and coal, including the new coal dryer. The mass balance data should clearly show carbon (and carbon compounds), water, sulfur, volatile organic compounds (VOC), toxic air contaminants (TACs), and total solids contents throughout the process. The energy balance should identify each stream's phase (gas/liquid/solid) and include the temperature at the various steps through the processes.

- A15. Please provide energy and mass balance data for the various fertilizer manufacturing processes, including the nitric acid plant. The mass balance data should clearly show, as applicable, carbon (and carbon compounds), water, sulfur, volatile organic compounds (VOC), nitrogen oxides (NO_x), toxic air contaminants (TACs), and total solids contents throughout the process. The energy balance should identify each stream's phase (gas/liquid/solid) and include the temperature at the various steps through the processes.

BACKGROUND: FUGITIVE EMISSIONS FROM FERTILIZER MANUFACTURE

The fugitive emissions estimates from the various system piping components include the emissions from valve and flanges but seem to be missing the pumps and compressors, where staff's review shows pumps, and perhaps compressors, in service with high concentration ammonia and nitric acid streams, as well as in service for high percentage Carbon Dioxide or Hydrogen Sulfide (CO₂ or H₂S) gas streams.

DATA REQUEST

- A16. Please review the piping component list again and amend the piping component fugitive emissions estimate in Appendix E and Appendix M to include the appropriate pumps and compressors.

BACKGROUND: TRAIN EMISSIONS ASSUMPTIONS

The Amended AFC has train emissions assumptions that are not supported and that staff considers questionable. The onsite switcher locomotive is noted to have an engine of 260 horsepower. Staff's experience indicates switcher locomotive engines are generally 3 to 8 times larger, and a review of locomotive manufacturer's websites and other internet resources did not find any switcher locomotives with engines that small. The applicant has also assumed Tier 3 engines for both the switcher and line haul locomotives; however, in staff's experience the line-haul railroads, the Union Pacific (UP) and the Burlington Northern Santa Fe (BNSF and others will not guarantee the use of specific or dedicated locomotives. Staff needs the applicant to provide additional information to support these assumptions, or provide revised emissions calculations.

DATA REQUESTS

- A17. Please provide the manufacturer data, including engine tier information, for the assumed 260 horsepower switcher locomotive or if the engine size is changed after further review as suggested above, for the revised horsepower size.
- A18. Please provide guarantees from the line-haul railroad that they will use specific locomotives for this project and revise emissions to that specific guarantee, or use fleet average emissions factors from U.S. Environmental Protection Agency (U.S. EPA), as provided in EPA-420-F-09-025

(<http://www.epa.gov/otaq/regs/nonroad/locomotv/420f09025.pdf>), to revise the line-haul locomotive emissions estimates.

- A19. On page 3 of 18 of Appendix E-12 there are non-zero values presented for the urea trains “Miles traveled per Train (mile/engine) - One Way” column, where there should be zero values as trains are not assumed to be used for product transportation in Alternative 2. Please confirm that these erroneous values did not impact the train emissions estimate.

BACKGROUND: COMPLIANCE WITH GHG REGULATIONS

The Amended AFC is not complete in terms of compliance with California Green House Gas (GHG) regulations, specifically Carbon Dioxide (CO₂) Cap and Trade and the Mandatory Reporting Regulation.

DATA REQUESTS

- A20. Please describe all of the separate entities that would be covered under the California Air Resources Board’s (ARB’s) Cap and Trade Program (electric generation, CO₂ supplier, etc.) and the compliance steps for each.
- A21. Please describe all of the separate entities that would be covered under ARB’s Mandatory Reporting Regulation (electric generation, CO₂ supplier, nitric acid plant, etc.) and the compliance steps for each, including noting which would require third party emissions verification.

BACKGROUND: AIR QUALITY PERMIT APPLICATION PROCESS

A Determination of Compliance (DOC) analysis from the San Joaquin Valley Air Pollution Control District (SJVAPCD) will be needed for staff’s analysis. Staff will need to coordinate with the applicant and SJVAPCD to keep apprised of any air quality issues determined by the district during their permit review.

DATA REQUEST

- A22. Please provide copies of any official submittals and correspondence to or from the SJVAPCD within 5 days of their submittal to or their receipt from the SJVAPCD, and any previously submitted documents of relevance to obtaining air quality permits.

BACKGROUND: PREVENTION OF SERIOUS DETERIORATION (PSD) PERMIT PROGRESS

Currently U.S. EPA is in the processes of “localizing” Prevention of Significant Deterioration (PSD) permitting authority with the SJVAPCD. We understand that the U.S. EPA published on June 1, 2012 in the Federal Register their intent to accept a State Implementation Plan update that would transfer PSD authority from U.S. EPA to the SJVAPCD. However, the exact timing of the final transfer of this authority is unknown, so there is some uncertainty regarding which of these agencies will

complete the permit for this facility. Additionally, staff is aware that the applicant is providing PSD permit application materials to both agencies as is prudent in this circumstance. Therefore, for staff to keep current on the PSD permitting for this proposed project, we need the applicant to provide updates on the PSD permit application status and we need to be copied on substantive communication with U.S. EPA.

DATA REQUESTS

- A23. Please provide copies of any official air quality/GHG related submittals and correspondence to or from the U.S. EPA within 5 days of their submittal to or their receipt from the U.S. EPA, and any previously submitted documents of relevance to obtaining this PSD permit.
- A24. Please provide the Federal Lands Manager's (FLM) official acceptance of the PSD Class 1 air quality impacts analysis.

BACKGROUND: GENERAL CONFORMITY

The project will require approval from the U.S. Department of Energy (DOE), which would trigger General Conformity regulations. Staff needs additional information regarding the applicant's proposal to show a positive General Conformity finding.

DATA REQUEST

- A25. Please provide a proposed methodology for the General Conformity determination (offsets, etc.) for the pollutants found to exceed the General Conformity applicability thresholds for construction and operation.

DATA REQUESTS FOR THE ENHANCED OIL RECOVERY (EOR) AND CARBON CAPTURE AND SEQUESTRATION (CCS) PROJECT

BACKGROUND: EMISSIONS CALCULATIONS

The emission calculations in Appendix A appear to have several errors, particularly errors in the off-road equipment emissions factors. Specifically, it can be seen by review of the emissions factors that the Carbon Dioxide (CO₂) and Sulfur Dioxide (SO₂) emissions factors, which should be very similar on a gram per horsepower basis for all of the diesel fueled equipment, varies by over three orders of magnitude and those errors translate into the other pollutant emissions estimates. Additionally, not all of the assumptions associated with the emissions calculation are clear. Staff needs information to understand all of the emissions calculation assumptions, and needs the apparent errors in the emissions estimates to be corrected.

DATA REQUESTS

- A26. Please correct the off-road equipment emissions factors and associated emissions estimates for project construction.

- A27. Please explain proposed emissions controls or mitigation measures, if any, for the construction off-road and on-road equipment.
- A28. Please explain proposed emissions controls or mitigation measures, if any, for the operation off-road and on-road equipment.
- A29. Please confirm that all of the on-site roads that will be used during project construction and operation are paved, and please identify if any street sweeping activities are proposed.
- A30. Please provide the source or assumption used for the emergency engine emissions factors.
- A31. Please explain the basis, or provide the source(s), for the differing Nitrogen Oxide (NO_x), Volatile Organic Compounds (VOC's) and Carbon Monoxide (CO) emissions factors for the various boilers and heaters.
- A32. Please confirm that the natural gas proposed for use in the boilers and heaters will be pipeline quality natural gas from the local natural gas utility or from the Elk Hills Gas Plant and not unrefined produced gas, and please provide the specifications, range and average, of the Elk Hills Gas Plant pipeline quality natural gas; including heat content, carbon content, and sulfur content. If unrefined produced gas is proposed to be used, please provide the gas specifications for that proposed fuel.
- A33. Please provide the following information regarding the proposed flare.
- Please provide the sources or explain the sources or explain the basis for the hours per year of emergency flaring events used in the emissions calculations.
 - The pilot gas and purge gas for the flare have the same assumed heat content. Please clarify the basis of this assumption.
 - The flared gas is shown to have an assumed heat content of 250 Btu/SCF. Please provide references for this assumption and references for the assumed carbon and sulfur contents.
- A34. Please confirm that there would be no potential for venting of CO₂, either recycled CO₂ or HECA delivered CO₂ at the enhanced oil recovery/carbon capture and sequestration (EOR/CCS) project site, and list the controls and measures that will be used to ensure that in the case of electrical failure or other mechanical failures of the compressors that there would be adequate backup capacity to reinject all of the recycled and HECA delivered CO₂.
- A35. Please explain why all of the piping component counts on Page 21 of 26 in the GHG emissions appendix to Appendix A are zero even though the

emissions estimate summary on Page 12 of 26 shows positive CO₂ and VOC emissions values.

BACKGROUND: PEAK CO₂ INJECTION RATE AND ANNUAL EMISSIONS

It is unclear if the emissions calculations provided in Appendix A of the Amended AFC show peak daily and annual emissions for EOR/CCS operation. Specifically, staff needs to understand the assumptions on maximum CO₂ recycle and combined injection rates and the associated maximum criteria and GHG pollutant emissions.

DATA REQUESTS

- A36. Please describe the anticipated maximum CO₂ recycle rate from CO₂ recovered during oil extraction associated with the EOR/CCS process, and the maximum CO₂ injection rate that includes the recycled CO₂ and the CO₂ being piped from the HECA project.
- A37. As part of the description of the maximum CO₂ recycle rate please identify how long the paired injection/production well site locations will be used before moving to new a location.
- A38. Please provide the maximum daily and annual criteria pollutant and GHG emissions rates associated with the maximum CO₂ injection rate, including the secondary GHG emissions from electricity consumption.

BACKGROUND: OIL AND GAS PRODUCTION

In order for staff to understand, evaluate, and describe the overall project energy efficiency of the HECA and Oxy EOR/CCS projects we need to understand the amount of oil and gas produced due to the EOR/CCS project.

DATA REQUEST

- A39. Please provide a current best estimate for the anticipated oil and gas recovery rates for the EOR/CCS project, and the baseline “business as usual” production without this EOR/CCS project.

BACKGROUND: EMISSIONS OFFSET ASSUMPTIONS

In order for staff to understand and describe the emissions offsets issue for the EOR/CCS project, staff needs additional explanation of the exempt emission sources, the CO offset assumptions, and the assumptions for the sources of the emissions reduction credits.

DATA REQUESTS

- A40. Please describe the rationale for the offset exempt status for the stationary emissions sources for which exemption is claimed.

- A41. Please describe the current NSR baseline for all pollutants requiring emissions offsets.
- A42. Please explain why CO emissions are assumed to be offset, rather than be found to be exempt from offset requirements after the completion of an emissions modeling analysis (SJVAPCD Rule 2201, 4.6.1)
- A43. Please describe whether Occidental Petroleum currently owns any emissions reduction credits created from oil field emissions reductions in the general area, or if they currently own enough emission reduction credits to meet the “ERCs Required” values shown in Table 4.3-11, or if they will have to purchase some or all of the ERCs needed for the EOR/CCS project.

Technical Area: Biological Resources
Author: Amy Golden

FIELD SURVEYS

BACKGROUND

In the Amended AFC, the applicant indicated in Table 5.2-2, Biological Resources Field Surveys, the dates, locations, and resources that surveys were performed for; however, it is not clear whether the linear routes surveyed were “old” or “new.” For example, it is not clear whether the April, July, August, September, December 2010 and March 2011 surveys covered the previously proposed or currently proposed natural gas and transmission line routes. The applicant also indicated in the Amended AFC that preconstruction surveys would be a mechanism for avoiding impacts to special-status plant and wildlife resources during construction. The specific locations of sensitive resources (eg. kit fox dens, burrowing owl burrows, rare plants, etc) must be identified before construction begins in order to perform an analysis of the project’s impacts on those resources.

In addition, the Amended AFC proposes improvements at four intersections to alleviate traffic and transportation impacts (Amended AFC, pp. 5.10-19-20). The four intersection improvements include: signalization at State Route (SR) 43 (Enos Lane)-Stockdale Highway; signalization at SR 119-Tupman Road; addition of turn lanes at Dairy Road-Stockdale Highway; and intersection reconstruction at Dairy Road-Adohr Road. These improvements represent impact areas and should be included in field surveys and impact calculations.

DATA REQUESTS

- A44. Please provide a summary table of surveys performed on the most recently proposed linear routes and the results of those surveys i.e. natural gas pipeline, carbon dioxide, transmission line, potable water pipeline, and railroad spur. Include specific dates, area surveyed including buffers, specific plant or wildlife species surveyed for, and which special-status species were

observed, if any. For plant species, include dates and locations that reference populations were checked.

If focused surveys for San Joaquin kit fox dens, blunt-nosed leopard lizard, burrowing owl, and special-status plant species were not performed on the current linear facility routes, please perform them and provide the results including a graphic showing the Global Positioning System (GPS) locations of any identified special-status plant or wildlife species.

- A45. Similar to Figure 5.2-6 in the Amended AFC, please provide three separate graphics showing all collected “URS-observation” GPS data, to date, for: 1) special-status plant species 2) burrowing owl and sign and 3) San Joaquin kit fox and sign. Also, please update Figure 5.2-6 with current blunt-nosed leopard lizard survey findings.
- A46. Bobtail barley and San Joaquin bluecurls are not addressed in the text but are listed in Table 5.2-3 as an observed plant species. Please provide the survey dates, locations, and approximate number of plants observed for these two plant species.
- A47. Please provide the Geographical Information System (GIS) shapefiles for the currently proposed linear routes (carbon dioxide, transmission line, potable water, processed water, natural gas, and railroad spur).
- A48. Please clarify whether the four-intersection improvement areas were included in plant and wildlife field surveys. Please state whether focused botanical surveys, San Joaquin kit fox den surveys, blunt-nosed leopard lizard surveys, and burrowing owl surveys were performed in these areas. If they were not, please perform these surveys and provide the results

FEDERAL WATERS OF THE U.S.

BACKGROUND

On page 5.2-6 of the Amended AFC, the applicant identifies dates that delineation surveys were performed and that the California Aqueduct, Kern River Flood Control Channel, all drainage ditches that connect to these features, and two areas of seasonally ponded claypan depressions are potentially jurisdictional waters of the U.S. and that the West Side Canal, East Side Canal, all interconnected drainages, and several retention basins are non-jurisdictional features; however, staff believes the delineation has not been verified by the U.S. Army Corps of Engineers (Corps) to date. Staff has reviewed Appendix F-2, Waters of the U.S. in the ‘Railroad and Natural Gas Linears’ confidential submittal provided by the applicant.

DATA REQUESTS

- A49. Please provide an update on the jurisdictional determination for the HECA project including the date the formal wetland delineation was submitted to the Corps for verification and any correspondence with the Corps office.

- A50. On page 5.2-32, the text indicates that less than 0.20-acre of permanent impacts to potential waters of the U.S. would occur; however, Table 5.2-9 only indicates that temporary impacts would occur to potential waters of the U.S. Please revise Table 5.2-9 to include this permanent impact and explain where the permanent impact will occur and how it was calculated.
- A51. Please provide a summary table showing total acreages of features that were delineated as non-jurisdictional, waters of the U.S., and wetland.
- A52. For the two depressional claypan areas, the text indicates that representative soil test pits and data were collected regarding vegetation, soil types, and hydrology. Please provide the wetland data sheets and a map showing the location of the soil test pits in relation to the two depressional areas. Also, please indicate why the WL-1 feature was classified differently than other depressional waters of the U.S. features.
- A53. Please identify which non-jurisdictional features represent the East Side Canal.

STATE WATERS

BACKGROUND

The California Department of Fish and Game (CDFG) regulates activities that would substantially change, divert, obstruct, or use any material from the bed, channel, or bank of, any river, stream, or lake under Section 1600 of the California Fish and Game Codes. The applicant has indicated that the identified waters may be regulated by the Central Valley Regional Water Quality Control Board (CVRWQCB) but has not provided any data regarding the occurrence of state waters potentially regulated under California Fish and Game Code 1600. CDFG has indicated to staff previously that horizontal directional drilling (HDD) activities beneath canals would require a Lake or Streambed Alteration Agreement and a frac-out Plan. Because the Energy Commission is the lead state permitting authority over the project's impacts to state waters, staff needs additional information on the occurrence of state waters in the project area.

DATA REQUEST

- A54. Please provide a map showing the location of delineated state waters. Please also provide the estimated acreage of state jurisdictional waters, project description, estimated impacts, measures to protect fish and wildlife resources for activities occurring in state waters and any other information that would normally be included in a Notification of a Lake or Streambed Alteration to CDFG.

GOLDEN EAGLE

BACKGROUND

Due to changes in the U.S. Fish and Wildlife Service's (FWS) survey protocols and management of golden eagle nests (Pagel et al 2010), staff needs additional information on the occurrence of golden eagle nests within the project area. Resource agencies have indicated previously that golden eagles have been observed in the Lokern area and Dustin Acres area. Page 5.2-16 of the Amended AFC indicates that no golden eagles were observed during field surveys and no nests are documented within 40 miles of the site but does not include a reference for this conclusion. Golden eagle nests are rarely reported in the CNDDDB due to the sensitivity of nest locations; therefore, relying solely on the lack of CNDDDB records is not enough information to conclude eagle nests do not occur in the project area. Staff will be consulting with the FWS Migratory Bird Office on impacts to golden eagles and other migratory birds in preparation of the staff assessment.

DATA REQUEST

- A55. Please review and provide all existing recent and historical data available on golden eagles within 4 to 10 miles (according to the FWS golden eagle survey protocols noted above in Background information) from the project area including nesting habitat, winter roosts, natal dispersal, migration corridors, and foraging habitat. Please also check local bird inventory and raptor groups (like HawkWatch, California Condor Recovery Team of Ventura Fish and Wildlife Office, or local Audubon Chapter) for golden eagle observations and nest territories in the project area.

HABITAT IMPACTS

BACKGROUND

Staff needs to accurately calculate habitat impacts in order to determine species habitat loss and appropriate mitigation acreage. Since the applicant has indicated that the majority of the project's impacts would be temporary and subject to revegetation activities, staff must understand how impact acreages were determined. As mentioned previously, the directional drilling associated with the CO₂ pipeline under the levee, two water canals (West Side Outlet Canal, California Aqueduct), four intersection improvement areas that are impact areas associated with the project and must be included in impact calculations.

DATA REQUESTS

- A56. Please explain how permanent and temporary impacts were calculated in Table 5.2-6 and whether calculations in this table represent existing acreage or impacted acreage. If this table provides impact calculations, please explain why these calculations differ from the calculations in Table 2-1, Project Description.

- A57. Please confirm whether the three HDD pits in the Controlled Area were factored into the construction staging area impact in Table 5.2-6. If they were not, please revise this table.
- A58. Please provide a description of the construction activities to be performed at the intersection improvement areas including type of work, equipment, and approximate work area dimensions. Please clarify whether the work areas were included in habitat impact calculations. If they were not, please revise Table 5.2-6 to include this impact under a separate column.

CARBON DIOXIDE PIPELINE ROUTE AND OEHI PROJECT

BACKGROUND

Staff will need to assess the impacts to species and sensitive habitat associated with the Occidental of Elk Hills, Inc (OEHI) project on Elk Hills since it is a connected action with the HECA project. Appendix A, OEHI Environmental Documents, identifies 13 satellites as broad Enhanced Oil Recovery (EOR) development areas; however, Appendix A does not address specific impacts of the carbon dioxide route or results from 2010 or 2011 botanical surveys, as the Amended AFC indicates. Staff needs to be able to determine the project's impacts to special-status plants and wildlife that occur on Elk Hills in the region of the carbon dioxide route and all EOR activities.

DATA REQUESTS

- A59. Table 5.2-6 of the applicant's Amended AFC does not include habitat impact acreages for the carbon dioxide pipeline route and refers the reader to Appendix A; however, Appendix A also does not include an impact acreage for this linear facility. Please provide the habitat impact acreage for the currently proposed carbon dioxide route and explain how it was calculated.

Please confirm that the portion of the carbon dioxide (CO₂) pipeline that occurs on the Elk Hills Oil Field (EHOF) is not proposed for lands that are covered under an existing conservation easement or proposed for conservation under the draft Occidental of Elk Hills Habitat Conservation Plan.

- A60. Please provide an aerial exhibit(s) at an appropriate scale (e.g. 1 inch: 7,000 feet) showing plant and wildlife species GPS data collected during previous monitoring years. On the exhibit, please also show a conceptual drawing overlay (such as AutoCAD) of the 13 satellites shown in Appendix A.
- A61. Page 5.2-13 indicates that cottony buckwheat, Hoover's eriastrum, and oil nest straw were observed in areas surveyed for the previously proposed carbon dioxide route but not the current pipeline route and details are addressed in Appendix A. Appendix A gives a general overview of occurrences of these plant species on the Elk Hills Oil Field by referring to the Draft Habitat Conservation Plan for the Elk Hills Oil Field but does not include survey results specifically for the currently proposed carbon dioxide route.

Please provide the results of the botanical surveys performed on the carbon dioxide pipeline study area. Provide a figure showing the location of these plant populations in relation to the current carbon dioxide pipeline route, approximate number of plants found during surveys, and dates that surveys were performed. Please also describe the potential for direct and indirect impacts to this species during construction and operation.

A62. Please provide copies of (per Section 4.4 of Appendix A, Amended AFC):

- a. Any available wildlife and botanical monitoring reports from Elk Hills history as NPR-1 and NPR-2;
- b. Occidental of Elk Hills, Inc. (OEHI) Habitat Conservation Plan, 2006. First Public Draft. Kern County Planning Department;
- c. CESA Incidental Take Permit application for draft HCP (OEHI 2009);
- d. Memorandum of Understanding and CESA Take Authorization, CDFG and OEHI, 1997;
- e. Memorandum of Understanding and CESA Take Authorization, CDFG and OEHI, 1999 MOU amendment;
- f. Memorandum of Understanding and CESA Take Authorization, CDFG and OEHI, 2010 second amendment; and
- g. USFWS 1995, Biological Opinion.

SAN JOAQUIN KIT FOX

BACKGROUND

Page 5.2-22 of the Amended AFC states "... [kit fox] dens, scat, and burrows indicate that the Elk Hills area south of the California Aqueduct is the most intensively used area in the Biological Resources Survey Area." This information on Page 5.2-22 conflicts with information on page 5.2-36 stating that the carbon dioxide pipeline, in an area located south of the California Aqueduct, would disturb habitats that are already degraded by existing activities (i.e., dirt roads, active agriculture, and canals) and are not likely to provide habitat for breeding or denning kit foxes. Staff believes the project could affect San Joaquin kit fox both in terms of habitat loss and regional movement.

DATA REQUESTS

- A63. Please provide a figure showing the product truck delivery routes, the 27-mile truck route from the Wasco coal transloading facility to the project site, and the construction traffic routes.
- A64. Page 5.2-37 states "...most project-related traffic would be on the roads during daylight hours when kit fox are less likely to be present." Please provide an estimate of project traffic that would occur during day light hours

and those at night (i.e. after dusk or before dawn). Consider construction traffic (construction workers, materials, equipment) and operation traffic (product deliveries, alternative 2 for coal delivery, employees, etc). Please identify operational traffic that could operate on a 24-hour schedule, if any.

- A65. In Table 5.2-12, explain how the values under 'baseline take (fox/yr/mi)' were determined from *Urban Roads and the Endangered San Joaquin Kit Fox* (Bjurlin *et al.*, 2005). Also, please explain how the roadway segment lengths were selected for analysis. Explain how values under the project take (fox/year) column were determined.

Technical Area: Cultural Resources
Author: Melissa Mourkas
Elizabeth A. Bagwell
Gabriel Roark

INTRODUCTION

All responses to these Data Requests containing references to specific archaeological site location or information should be submitted under a request for confidentiality.

BACKGROUND

The California Environmental Quality Act (CEQA) and State CEQA Guidelines direct lead agencies to identify historical resources and unique archaeological resources that may be affected by proposed projects, and assess their impacts on those resources (Public Resources Code [PRC] 21083.2[a]; 14 California Code of Regulations (CCR) 15064.5[b] and [c]). Lead agencies (in this case, the Energy Commission) "shall determine whether a significant effect on the environment based on substantial evidence in light of the whole record" (PRC 21082.2), as defined at 14 CCR 15384. CEQA practice recognizes the value of incorporating historic records in efforts to identify historical and unique archaeological resources (see Governor's Office of Planning and Research 1999, p. 360).

The Amended AFC (pp. 5.3-56–57) and *Confidential Archaeological Reconnaissance, Hydrogen Energy California Study Area, Kern County, California* list the historic maps and aerial photographs examined by Hydrogen Energy California's (HECA's) archaeological consultant (Amended AFC App. G-3, May 2012, Tables 1 and 2). An attempt was made in the Amended AFC and Appendix G-3 to provide the requisite level of information needed by staff to evaluate project impacts on historical and unique archaeological resources. The presentation of the consultant's review of historic maps and aerial photographs, however, is inadequate for staff's analysis for three reasons:

First, the archaeological consultant (URS) did not consult historic maps dating to the 1870s, 1880s, 1900s, or 1920s (Amended AFC, pp. 5.3-56–57; Amended AFC App. G-3, pp. 26–27). Historic maps are a critical source of information for the identification of historic archaeological and historic built environment resources. For example, maps spanning the date ranges stated earlier in this paragraph could narrow down the date of

construction of the historic residence at HECA-2010-2, which the applicant's consultant states "was in place prior to World War II, likely being constructed during the 1920s or 1930s" (Amended AFC App. G-3, p. 41). The age of building and structural remnants on historic archaeological resources inform on the likelihood of encountering refuse pits or artifact-filled privy pits (outhouse pits). Features such as refuse and privy pits frequently contain sufficient archaeological information to qualify archaeological resources for listing on the California Register of Historical Resources (CRHR). The number and range of archaeological and historic built environment resources is likely to be underrepresented in cultural resource studies that do not include a comprehensive review of available historic maps. In turn, the quality of cultural resources impact assessments may suffer.

Second, the archaeological consultant (URS) does not discuss where they conducted the historic map research nor does the consultant provide full bibliographic citations for the historic maps and aerial photographs listed in Tables 1 and 2 (Amended AFC, p. 5.3-19–20; Amended AFC App. G-3, pp. 25–27). Without information concerning the repositories visited to obtain historic maps and aerial photographs and full bibliographic data on the examined documents, it is impractical for staff to determine whether the consultant made an adequate review of these data sources. For instance, if the requested data were already presented in Amended AFC Appendix G-3, staff would be able to determine whether maps and historic photographs dating to the 1870s, 1880s, 1900s, and 1920s are simply unavailable or the consultant conducted insufficient research in this matter.

Third, the archaeological consultant's (URS) report (Amended AFC App. G-3) does not state whether, and in what manner, their review of historic maps and aerial photographs informed their archaeological field methods, especially with respect to the identification of historic archaeological resources (Amended AFC App. G-3, pp. 33, 37–38). The archaeological consultant (URS) did, however, use the sources consulted to infer the age of historic archaeological site HECA-2010-2 (Amended AFC, p. 5.3-29; Amended AFC App. G-3, p. 41).

DATA REQUESTS

- A66. The applicant's historic built environment consultant, JRP Historical Consulting (JRP), cites historic maps and aerial photographs from the 1870s, 1880s, and 1900s (Amended AFC, App. G-4, p. 36). In conducting the archaeological inventory, the archaeological consultant (URS) did not consult these maps and aerial photographs (Amended AFC, pp. 5.3-56–57; Amended AFC App. G-3, pp. 26–27). Please provide copies of these maps.
- A67. Please review historic maps or aerial photographs of the HECA project area that date to the 1920s and provide documentation of any evidence of historic features in the project area, especially in the vicinity of HECA-2010-2. Please identify:
 - a. The dates when historic map and aerial photograph research was conducted.

- b. The sources consulted at each repository.
- c. Whether and in what way(s) the historic map review informed efforts to identify historical and unique archaeological resources.
- d. Whether the archaeological consultant's review of maps described in paragraphs 1 and 2 above resulted in the identification of historic features in the project area, whether any such features have been recorded, and whether they are still extant in the project area.
- e. Full bibliographic citations for the maps and aerial photographs examined. Bibliographic information for maps and aerial photographs should include the dates that aerial photographs were actually taken (the year is sufficient), the dates that culture features were mapped onto U.S. Geological Survey topographic quadrangles, including the dates of field verification (if applicable), and the dates of survey for General Land Office survey plats.

BACKGROUND

The Amended AFC and Appendix G-3 identify HECA-2010-2¹ as the foundation and remnant of a “recently demolished farmhouse”. The resource is situated within the archaeological resources study area for the proposed railroad spur and natural gas pipeline. HECA-2010-2 consists of a house foundation, clay and cast-iron drainage pipes, polyvinylchloride (PVC) plumbing, and a debris scatter. The archaeological consultant states that the building appears to have been altered more than once during its period of occupancy. To support this statement, the Amended AFC and Appendix G-3 cite the presence of cinderblocks and the clay, cast-iron, and PVC piping at the site. The Amended AFC and Appendix G-3 state that the clay and cast-iron drainage pipes are part of the original construction of the house. They further state that since “the structure had internal plumbing, as evidenced by sewer pipes (likely connected to a leach field), it is unlikely that an undiscovered ‘privy pit’ occurs buried in the [archaeological resources study area]”. The debris scatter consisted of “sanitary cans, milk cans, ceramic and glass fragments, and various structural debris associated with the building’s demolition.” (Amended AFC, p. 5.3-29–30, Appendix G-3, pp. 41–42.) Appendix G-4 (Department of Parks and Recreation [DPR] 523 form for MR 5) describes a Quonset hut on the same property as HECA-2010-2 and surmises that this structure was built as a miscellaneous farm structure by the residents of HECA-2010-2. Between the time of HECA-2010-2’s recordation on July 29, 2010 and a site update on February 29, 2012, the property on which HECA-2010-2 is situated was graded, resulting in the removal of all surface evidence of the site (Amended AFC, pp. 5.3-30, App. G-3, DPR 523 forms for HECA-2010-2). The Quonset hut was not demolished.

¹ The historic architecture technical report for the proposed project identifies a historic-era structure related to HECA-2010-2 on the property (Amended AFC, App. G-4). This document references the resource as Map Reference No. 5, or MR 5. Throughout this data request document, Energy Commission staff treats HECA-2010-2 and MR 5 as a single resource because of their historical relationship.

The information provided in the Amended AFC and its appendices concerning HECA-2010-2 does not provide an adequate basis for staff to assess the significance of HECA-2010-2 or potential impacts to the site. As a former rural residence built in the first third of the twentieth century, there is potential for HECA-2010-2 to contain privy and/or refuse pits. Such features, especially a privy pit, would likely be located along the east side of the property so that the prevailing westerly and northwesterly winds would blow unwanted odors away from the residence. Therefore, the proposed natural gas pipeline has the potential to intersect any privy pits that might be present. As stated in the Background to Data Requests 1–2 above, privy and refuse pits frequently contain archaeological materials that qualify archaeological resources for listing in the CRHR. Assessing whether HECA-2010-2 had an associated outhouse requires knowledge of the property's occupational history as well as physical evidence of the sanitation system used at the site. The chronological evidence of occupation must be compared carefully with any technological clues as to sanitation at the site since different sanitation technologies may have been used at different times during occupation of the residence. The documentation of HECA-2010-2 is inadequate for the following reasons:

- Additional documentation of HECA-2010-2 is required to determine whether undiscovered privy and/or refuse pits are located on-site in the project area.
- cursory field methods were used during recordation of HECA-2010-2 relative to the site's potential to contain buried historic archaeological materials.

The Amended AFC and DPR 523 forms contained in Appendix G-3 appear to support the notion that the residence was always on a septic system. However, none of the documentation provided to staff demonstrates that the clay and iron pipes represent the residence's sanitation system and were part of the home's original construction. The documentation does not indicate whether the clay and iron pipes were anchored to the concrete foundation at HECA-2010-2 or were fragments scattered on the site surface. Additionally, the DPR 523 forms for HECA-2010-2 do not include a sketch map (DPR 523K) depicting the location of the clay and iron pipes, among other important features of the site. A sketch map of HECA-2010-2 is an exhibit of first importance in identifying changes to the residence over time, especially given the lack of documentary sources to substantiate the hypothesized alterations to the residence (reference the Background above for discussion of alterations).

The DPR 523 forms and site descriptions contained in the Amended AFC and Appendix G-3 do not quantify the artifacts present at HECA-2010-2, describing the artifacts' location in only the most general sense, and do not estimate the age of artifacts (other than to note the presence of recent specimens as well as historic ones) with reference to standard sources of artifact identification and dating. Such information is essential to the documentation of any historic archaeological site that is being evaluated for significance under CEQA. Chronological information on the artifacts can also supplement the map and documentary evidence of site occupation, possibly filling in the 1912–1932 gap in map coverage for the area.

Finally, the field methods employed to record HECA-2010-2 were cursory, relative to the site's potential for containing a privy pit or buried refuse pit. The archaeological

consultant conducted a surface inspection (50–65 feet between surveyors) of the site and scraped back vegetation in 8-inch-by-8-inch squares where ground surface visibility was deemed poor (Amended AFC, p. 5.3-21, 5.3-22; App. G-3, p. 33). Although such methods would identify refuse or privy pits that are visible at the ground surface, such features are frequently buried—surface inspection alone would not locate such buried archaeological features. Use of a metal detector to identify concentrations of metal artifacts and a metal probe to verify the presence of metal and other artifacts are invaluable for the identification of relatively shallow buried features and are standard professional protocol on historic archaeological sites of this kind (California Department of Transportation 2008:6:24; HARD Work Camps Team 2007:86).

DATA REQUESTS

A68. Please revise and submit the DPR 523 forms for HECA-2010-2 to include the following information.

- a. The number of artifacts observed at HECA-2010-2, any specific age assignments that can be made to individual specimens or classes of artifacts, and the distribution of artifacts at the site.
- b. A DPR 523k Sketch Map of HECA-2010-2 that depicts the site boundary, location of all site features, artifact concentrations, and the location of any plumbing present at the site.
- c. The revised DPR 523 form should represent site conditions at the time of recordation in 2010.

A69. Please prepare a succinct research design to determine whether buried privy or refuse pits are present in that portion of HECA-2010-2 within the archaeological resources study area. Staff wishes to emphasize that the purpose of the investigation is presence/absence determination. The research design should be prepared by a historical archaeologist that meets the Secretary of the Interior's professional standards for archaeologists (see *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines*, 36 Code of Federal Regulations 61). The research design must include the following.

- a. A brief statement of the problem and research goals.
- b. A statement of methods to achieve the research goal.
- c. A statement regarding how the results will be reported (memorandum or revised archaeological reconnaissance report).
- d. A figure that shows the contents of the Sketch Map on an aerial photographic base at a scale of 1 inch = 200 feet. The archaeological resources study area should be depicted on this figure.

- e. The preparer's resume and the resumes of other key staff that are expected to implement the research design.
- A70. Upon staff's approval of the research design described immediately above, please implement the archaeological investigation consistent with the approved research design.
- A71. Following completion of the archaeological investigation, please provide a memorandum or a revised archaeological reconnaissance report that identifies the methods employed and results of the investigation. The report shall contain the following.
- a. A description of the research design and the methods employed during the study.
 - b. A description of the study results.
 - c. A location map on the East Elk Hills 7.5-minute topographic quadrangle.
 - d. A Sketch map (see item 4d above) that depicts the sampling locations and the location of any newly identified archaeological features.
 - e. The revised 2010 DPR 523 forms and the 2012 update.

BACKGROUND

The applicant's historic built environment consultant, JRP, identified two historic built environment resources, MR 7 and MR 9, in the controlled area north of the proposed project site. MR 7 consists of two buildings and a structure, all built about 1930. The buildings are a dining hall and dormitory for Adohr Farms agricultural workers. The structure is a garage. MR 9 is a single-family residence that has been considerably altered since its circa-1930 construction date. A modern shed is present on the property as well. (Amended AFC, App. G-4, DPR 523 forms.) Although identified as historic-era resources by JRP, the applicant's archaeological consultant did not report on MR 7 or MR 9 (Amended AFC, App. G-3). Given the age of MR 7 and MR 9 and their rural setting in an area currently without sewer service, both resources have the potential to contain buried historic archaeological features such as privy or refuse pits. Such features would likely be situated east of the residential and cooking buildings since the prevailing winds are westerly and northwesterly; siting privies to the east of the buildings would keep unwanted odors away from residential and cooking areas.

The resources are located in the proposed control area, which may be subjected to further ground-disturbing agricultural activities during construction and operation of the proposed project. If the applicant plans or reserves the right to conduct ground-disturbing agricultural activities within the bounds of MR 7 and MR 9, it will be necessary to determine whether buried privy or refuse pits are present at either location as part of the baseline resource identification mandated by CEQA (14 CCR 15125).

DATA REQUESTS

- A72. If no ground-disturbing activities would occur within the bounds of MR 7 and/or MR 9, please provide a written statement affirming the applicant's intent to avoid agricultural or other ground-disturbing activities within the bounds mapped (see p. 2 of the DPR 523 forms for MRs 7 and 9, App. G-4 of the Amended AFC for resource boundaries). In addition, please provide a map depicting the limits of the properties on which MR 7 and MR 9 are located.
- A73. If the applicant is unable to commit to avoiding ground-disturbing activities within the bounds of MR 7 and MR 9, please prepare a succinct research design to determine whether buried privy or refuse pits exist at either of these sites. Staff wishes to emphasize that the purpose of the investigation is presence/absence determination. The research design should be prepared by a historical archaeologist that meets the Secretary of the Interior's professional standards for archaeologists (see *Archeology and Historic Preservation: Secretary of the Interior's Standards and Guidelines*, 36 Code of Federal Regulations 61) and must include the following:
- a. A brief statement of the problem and research goals.
 - b. A statement of methods to achieve the research goal.
 - c. A statement regarding how the results will be reported (memorandum or revised archaeological reconnaissance report).
 - d. A figure that shows the contents of the sketch map on an aerial photographic base at a scale of 1 inch = 200 feet. The archaeological resources study area should be depicted on this figure.
 - e. The preparer's resume and the resumes of other key staff that are expected to implement the research design.
- A74. Upon staff's approval of the research design described immediately above, please implement the archaeological investigation consistent with the approved research design.
- A75. Following completion of the archaeological investigation, please provide a memorandum or a revised archaeological reconnaissance report that identifies the methods and results of the investigation. The report shall contain the following:
- a. A description of the research design and the methods employed during the study.
 - b. A description of the study results.
 - c. A location map on the East Elk Hills 7.5-minute topographic quadrangle.

- d. Sketch maps (see item 2d above) that depict the sampling locations and the location of any newly identified archaeological features.
- e. Complete DPR 523 forms for MR 7 and MR 9.

Note that the research design, fieldwork, and reporting may be combined with the work at HECA-2010-2 described under Data Requests 69–71.

BACKGROUND

The Amended AFC proposes improvements at four intersections to alleviate traffic and transportation impacts (Amended AFC, pp. 5.10-19–20). The cultural resources section of the Amended AFC, however, does not include an analysis of the proposed intersection improvements (Amended AFC, Section 5.3; App. G-3). CEQA requires impact analysis of all phases of a proposed project, including mitigation measures (14 CCR 15126, 14 CCR 15126.4[a][d]).

The subject intersections are:

- State Route (SR) 43 (Enos Lane)–Stockdale Highway: signalization.
- SR 119–Tupman Road: signalization.
- Dairy Road–Stockdale Highway: addition of turn lanes.
- Dairy Road–Adohr Road: reconstruct intersection.

DATA REQUESTS

Please provide the following information concerning the proposed intersection improvements outlined above.

- A76. A description of the intersection improvements areas. The description shall include, if available, information concerning the types of construction activities needed to build the improvements, depth of excavation expected for ground-disturbing activities, and the approximate limits of the construction work areas.
- A77. Records search results for each intersection, including an area not less than a 0.25-mile radius around the intersection improvements.
- A78. Figures depicting previous survey coverage, identifying the author or study number and the date of survey. If study numbers are used instead of author's name, include a table that associates each study with its respective study number for ease of reference. Figures shall be on a 1:24,000-scale U.S. Geological Survey topographic quadrangle map. Previously recorded cultural

resources shall be mapped on figures set at a 1:24,000 scale on a U.S. Geological Survey topographic quadrangle map.

- A79. Copies of all technical reports whose survey coverage is wholly or partly within 0.25 mile of the intersection improvement areas.
- A80. Copies of California Department of Parks and Recreation (DPR) 523 forms for all cultural resources identified in the literature search as being 45 years or older or of exceptional importance.
- A81. Conduct pedestrian surveys of intersection improvements that have not been previously surveyed within the last 5 years.
- A82. Prepare and submit an addendum to Appendix G-3 that describes:
 - a. The methods used to identify cultural resources in the intersection improvement areas.
 - b. The results of the records search and pedestrian survey.
 - c. Descriptions of previously and newly recorded cultural resources in the proposed intersection improvement areas.
 - d. An assessment of impacts to cultural resources in the intersection improvement areas.
 - e. Proposed mitigation measures for identified impacts.

BACKGROUND

Staff finds that the applicant's documentation of archaeological fieldwork is incomplete. The Amended AFC and Appendix G-3 do not report the dates on which archaeological fieldwork was conducted (Amended AFC, pp. 5.3-21–22; App. G-3, pp. 33, 37–38). Also, although the Amended AFC (p. 5.3-21) reports that the archaeological survey crew cleared 8-inch-by-8-inch patches of vegetation "where nonagricultural vegetation obscured the ground surface" (see also App. G-3, p. 33), neither the Amended AFC nor Appendix G-3 reports how obscured the ground surface had to be before vegetation scrapes were conducted. Additionally, the Amended AFC and Appendix G-3 do not report where the vegetation was cleared and at what interval along survey transects. This missing information renders staff unable to assess whether adequate time was allotted to the field effort and whether appropriate field methods were used.

DATA REQUESTS

- A83. Please provide a memorandum or revised archaeological reconnaissance report that indicates the following:

- a. The dates on which archaeological fieldwork was conducted. Break the dates down by project element, as is done on pages 37–38 of Appendix G-3 to the Amended AFC and pages 5.3-21–22 of the Amended AFC.
 - b. How much ground surface had to be obscured to warrant scraping vegetation from the ground surface, expressed as a percentage.
 - c. The interval (in feet and meters) at which surface scrapes were conducted. Please describe the reasoning behind the selected surface-scape interval and size.
- A84. Please provide figures that identify the amount of ground surface visibility in the archaeological resources study area. The figures shall conform to the following requirements.
- a. The figures shall be based on 7.5-minute, U.S. Geological Survey topographic quadrangles at a scale of 1:24,000.
 - b. The figures shall show the project elements, archaeological resources study area boundary, any unsurveyed areas, and the ground-surface visibility throughout the archaeological resources study area.

BACKGROUND

Based on staff's examination of the Amended AFC and the supplemental environmental information provided for the Occidental Of Elk Hills, Inc. (OEHI) project site (Amended AFC, App. A); (Pursuant to CEQA Section 15378(a)(c) "Project" defined means the whole of the action...), as such the Energy Commission staff requires additional cultural resource information regarding the CO₂ EOR Processing Facility and the associated processing satellites, 150 new wells and 652 miles of pipeline. The missing information includes but is not limited to:

- A discussion of the existing site conditions; the expected direct, indirect, and cumulative impacts due to the construction, operation, and maintenance of the project; the measures proposed to mitigate adverse environmental impacts of the project; the effectiveness of the proposed measures; and any monitoring plans proposed to verify the effectiveness of the mitigation.
- A summary of the ethnology, prehistory, and history of the region with emphasis on the area within no more than a 5-mile radius of the project location. Please note that the project location includes all access roads and linears, the 13 processing satellites, 150 new wells, and 652 miles of new pipeline identified above.
- The results of a literature search to identify cultural resources within an area not less than a 1-mile radius around the project site and not less than 0.25 mile on each side of the linear facilities.

- A report presenting the results of pedestrian surveys of the OEHI Project Site.
- Copies of all technical reports whose survey coverage is wholly or partly within 0.25 mile of the area surveyed for the project.
- Copies of DPR 523 forms for all cultural resources identified in the literature search as being 45 years or older or of exceptional importance.
- Kern County adopted environmental impact reports or related documents for the Occidental Elk Hills Oil Field identifying related cultural resources and associated/required mitigations.

DATA REQUESTS

- A85. Please conduct a records search and literature review of the OEHI project site. The records search and literature review shall cover an area not less than 1 mile surrounding the OEHI project site and not less than 0.25 mile on each side of linear facilities. Provide copies of all technical reports whose survey coverage is wholly or partly within 0.25 mile of the area surveyed for the project. Also consult any Kern County general or specific plan documents for the Elk Hills for cultural resources information.
- A86. Please submit copies of DPR 523 forms for all cultural resources identified in the literature search as being 45 years or older or of exceptional importance.
- A87. Please conduct a comprehensive cultural resources inventory (archaeological resources, historic built environment, and Native American resources) of those portions of the OEHI project site that have not been surveyed by cultural resource professionals within the last 5 years.
- A88. Please provide the results of these surveys in a technical report conforming to the Archaeological Resource Management Report format (CA Office of Historic Preservation Feb 1990). The report should include the following information.
- a. A summary of the ethnology, prehistory, and history of the region with emphasis on the area within no more than a 5-mile radius of the project location. The report shall fully discuss the findings of the various cultural resource studies conducted in and around the OEHI project site since the 1990s. In particular, the report must discuss the current management status of the Naval Petroleum Reserve-1 Rural Historic Landscape and whether it is a historical resource for the purposes of CEQA.
 - b. The methods used to identify cultural resources at the OEHI project site.
 - c. The results of the records search and pedestrian survey of the OEHI project site.

- d. Descriptions of previously and newly recorded cultural resources in the proposed OEHI project site.
- e. A discussion of the existing site conditions; the expected direct, indirect, and cumulative impacts due to the construction, operation, and maintenance of the project; the measures proposed to mitigate adverse environmental impacts of the project; the effectiveness of the proposed measures; and any monitoring plans proposed to verify the effectiveness of the mitigation.
- f. DPR 523 forms for all cultural resources identified at the OEHI project site.

BACKGROUND

The Amended AFC (p. 2-14) states that activities within the controlled area will be used “for agricultural purposes during construction and operations” (of the HECA facilities). Elsewhere, the Amended AFC (p. 5.9-1) states that the controlled area will be used to “control access and future land uses”. The Amended AFC does not describe the types of agricultural activities that would take place in the controlled area, the sorts of agricultural activities presently underway in the controlled area, the types of “future land uses” mentioned on page 5.9-1 of the Amended AFC, or the depth and location of disturbance entailed in current and future activities within the controlled area. For instance, different agricultural practices result in various depths of ground disturbance. Further, the phrase “future land uses” could include several types of activities, which might involve deep excavation. Such excavations have the potential to damage archaeological resources that are not evident on the ground surface. Energy Commission staff needs this information to assess the proposed project’s impacts on cultural resources.

DATA REQUESTS

A89. Please provide the following information:

- a. The types, locations, and frequencies of agricultural activities currently undertaken in the controlled area.
- b. The depth of ground disturbances described in item a above.
- c. The types, locations, and frequencies of agricultural activities proposed during construction and operation of the proposed project.
- d. The parties responsible for implementing the activities described in item c above, insofar as they are known.
- e. The depth of ground disturbances described in item c above.
- f. Maps at 7.5-minute (1:24,000) scale on U.S. Geological Survey topographic maps or aerial photographs (scale of 1 inch = 200–600 feet)

that depict the location of current and proposed ground-disturbing activities in the controlled area.

- g. Sources of information (documents, personal communication with landowner or tenant, etc.) and the dates on which the information was acquired.

References Cited

California Department of Transportation. 2008. *Environmental Handbook, Volume 2: Cultural Resources*. October. Sacramento, CA. Electronic document, http://www.dot.ca.gov/ser/vol2/ch_6/Ch_6_Oct_08.pdf, accessed June 25, 2012.

Governor's Office of Planning and Research. 1999. CEQA and Archaeological Resources. Appendix 6 in Ronald E. Bass, Albert I. Herson, and Kenneth M. Bogdan, *CEQA Deskbook*. Point Arena, CA: Solano Books. Originally published April 1994 in *CEQA Technical Advice Series*, Governor's Office of Planning and Research, Sacramento, CA.

HARD Work Camps Group. 2007. *Work Camps: Historic Context and Archaeological Research Design*. Draft. June. Prepared for Cultural Studies Office, Division of Environmental Analysis, California Department of Transportation, Sacramento, CA. Electronic document, http://sonoma.edu/asc/publications/HARD/Work%20Camps_Research%20Design_Draft2_web.pdf, accessed June 25, 2012.

Technical Area:	Power Plant Reliability
Author:	Edward Brady Shahab Khoshmashrab

BACKGROUND

The HECA project combines the following four technologies into a first-of-its-kind industrial complex:

- Conversion of feedstock (75 percent coal and 25 percent petcoke) into syngas suitable to fuel a combustion turbine, and to waste and useful byproducts.
- Generation of electricity for the electric grid using a combined cycle power plant.
- Manufacturing of ammonia, urea and Urea Ammonium Nitrate (UAN-32), and recovery of sulfur, mercury and other coal gasification byproducts using nitrogen byproducts of the gasification.
- Recycling of Carbon Dioxide (CO₂) through the transmission to Occidental of Elk Hills Inc. (OEHI), five miles from the HECA project site, for use in the enhanced oil recovery (EOR) process and eventual sequestration.

Taken separately, these technologies are in common usage and have reached production maturation. The HECA project integrates these processes for the first time. In order to assess whether or not the HECA project can demonstrate the feasibility of the technologies proposed to be employed in the facility for the purpose of reliable operation on a sustained basis, staff needs the following information.

DATA REQUESTS

- A90. Provide the expected overall availability factor for the HECA project, especially that of the combined cycle power plant portion of the project, for the following modes of operation:
- a. Electricity production using hydrogen-rich fuel, and
 - b. Electricity production using natural gas.
- A91. Number of hours, annually, the plant would be operated in each of the following modes of operation:
- a. Electricity production using hydrogen-rich fuel, and
 - b. Electricity production using natural gas.

BACKGROUND

AFC Section 2.9.2 describes a scenario where natural gas would be used for up to two weeks per year as a backup fuel for the hydrogen-rich fuel while planned maintenance is designed to be performed during scheduled outages.

DATA REQUEST

- A92. Please explain if the applicant anticipates the potential for hydrogen-rich fuel to be unavailable for longer than two weeks per year. If yes, please explain if the project's contract with PG&E would allow the project to draw natural gas for more than two weeks per year if hydrogen-rich fuel continues to be unavailable for longer than two weeks per year. If natural gas would not be available, please explain how the applicant would ensure fuel availability if the project is expected to be available to generate electricity for the electric grid, again, assuming that hydrogen-rich fuel would continue to be unavailable beyond this two-week period.

Technical Area: Hazardous Materials Management
Author: Dr. Alvin Greenberg

BACKGROUND

The project would store up to 3.8 million gallons of anhydrous ammonia (NH₃) in two double-walled vertical steel storage tanks. The Off-site Consequence Analysis (OCA) conducted by

the applicant claims that a “worst-case” release would involve the release of the entire contents of one tank into the space between the inner and outer walls such that ammonia would be released from the Pressure Relief Valve (PRV) on the outer tank over one hour. While the analysis of this scenario is informative, it does not represent a “worst-case” release. Given the extraordinary volume of anhydrous ammonia that will be stored on site, staff believes that the catastrophic failure of the piping and/or valves through which anhydrous ammonia flows into and out of a storage tank is a much more plausible event that would result in greater impact and should be analyzed.

DATA REQUESTS

- A93. Please identify the piping and valves through which anhydrous ammonia will flow into and out of the storage tanks and conduct an OCA of at least two scenarios:
- a. a horizontal jet release from a pipe where the contents of one tank empty in one hour, and
 - b. an instantaneous “egg shell” release from a pipe where the contents of the tank empty in the shortest reasonable time given the diameter of the pipe (a matter of minutes).

BACKGROUND

The proposed facility consists of highly complex chemical processes that include many different types of reactor vessels, storage vessels, treatment units, piping, valves, and flanges as well as the following facilities which would, if considered separately, each constitute a highly complex stand-alone industrial plant.

- A coal/petcoke gasification plant.
- An Air Separation Unit producing cryogenic materials (a maximum of 1200 tons of liquid oxygen and 100 tons of liquid nitrogen stored at any one time).
- A syngas scrubber, sour shift, low-temperature gas cooling, sour water treatment facility.
- A mercury removal unit.
- An acid gas removal (Rectisol process) unit.
- An ammonia synthesis unit that produces and stores up to a maximum of 3.8 million gallons of anhydrous ammonia.
- A urea unit.
- A urea pastillation unit.
- A urea pastille handling and transfer unit.

- A urea ammonium nitrate complex that produces nitric acid, ammonium nitrate, and urea.
- A sulfur recovery unit that includes the storage of up to 1.4 million pounds (700 tons) of liquid sulfur at any one time at an unknown temperature.

In addition to these processes, several additional hazardous materials will be used and stored in very large volumes on the site to support various processes. These include sodium hydroxide (60,000 gallons of 5-50 percent concentration), sodium hypochlorite (7,000 gallons of unknown concentration), 2,000 gallons of diesel fuel, gasoline during construction (4,000 gallon), 300,000 gallons of methanol in a storage tank plus an additional 250,000 gallons within the process vessels, and about 6,000 pounds per year of activated carbon containing unknown amounts of mercury removed from the syngas downstream of the sour shift/ low-temperature gas cooling unit and stored on-site as waste for an unknown period of time until transported off-site to a Class III hazardous waste facility.

Fugitive emissions and leak detection methods were not completely or clearly described in the Amended Application for Certification for each of the processes itemized above. Also, the potential for accidental releases of hazardous materials exists and any history of accidental releases at similar gasification facilities would be helpful to staff in its analysis. Staff needs this information in order to fully and completely assess the risk of hazardous materials use to workers and the public.

DATA REQUESTS

- A94. In tabular format by process, please provide a description of all leak detection methods, both stationary and portable, the chemicals that would be detected (syngas, hydrogen gas, hydrogen sulfide, ammonia, etc.), the frequency of detection unless continuous monitoring is employed, and facility response to detected leaks (e.g., automatic valve closure, manual valve closure, secondary detection, initiating the Emergency Response Plan, etc.).
- A95. In tabular format by process, please provide a description of the type, location, detection limits, and whether they are wired to an Uninterruptable Power Supply (UPS) of all permanent hard-wired hazmat sensors and the chemicals they are able to detect.
- A96. Please provide any known hazardous materials accidental release history at similar facilities that utilize the same or similar chemical or engineering processes.

BACKGROUND

The project owner stated at the June 20, 2012 workshop that the project may ship off-site some of the 3.8 million gallons of anhydrous ammonia stored on-site in two tanks. In order to properly assess the impacts of the transfer of anhydrous ammonia to tanker trucks and/or rail cars, staff will need additional information about the transfer facility. An Off-site Consequence Analysis (OCA) conducted by the applicant is also needed.

DATA REQUEST

- A97. Please provide a schematic diagram of the anhydrous ammonia transfer facility showing the piping and valves through which anhydrous ammonia will flow out of the storage tanks, secondary containment should a spill occur during transfer operations, the location, type, and detection limits of ammonia sensors, and conduct an OCA of the worst-case accidental release during transfer to tanker trucks and rail cars.

Technical Area: Worker Safety and Fire Protection
Author: Geoff Lesh

BACKGROUND

Hydrogen Energy California (HECA) will bring a large scale industrial facility into the jurisdiction of Kern County Fire Department (KCFD). First responder and fire protection services will be required for the project and will be provided by KCFD. Construction and operation of the project will increase the assets that the fire department must protect and potentially increase call frequency for emergency first aid and medical services. Energy Commission staff must analyze the potential for the proposed project to have an adverse impact on the Fire Department's ability to provide an acceptable level of service. Staff requires assurance that after applying any proposed mitigations, the fire department's increased responsibility will not adversely affect to a significant extent its ability to continue providing service to the public.

DATA REQUESTS

- A98. Please provide a letter, email, or record of conversation with KCFD that confirms the absence of any expected impacts on the local fire district resulting from construction and operation of the proposed project, or identifies impacts and the needed mitigation to address such impacts to the satisfaction of the KCFD. Or, in the absence of such letter or communication, please provide a Fire and Emergency Services Risk Assessment and a Fire Protection and Emergency Services Needs Assessment for the construction and operation of the project that provides an objective estimate of both equipment and staffing shortfalls (if any) and the associated recommended mitigations (if any) that would be required by KCFD to maintain its current level of readiness to respond to the public.
- A99. The Fire and Emergency Services Risk Assessment and a Fire Protection and Emergency Services Needs Assessment should be considerate of the guidance provided by NFPA 1710: Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments and by NFPA 551: Guide for the Evaluation of Fire Risk Assessments;
- a. The Risk Assessment should be used to establish the risk (chances) of significant impacts occurring. The Fire Protection and Emergency

Services Needs Assessment and Risk Assessment should evaluate the following: (a) the risk of impact on the local population that could result from potential unmitigated impacts on local fire protection and emergency services (i.e. “drawdown” of emergency response resources, extended response times, etc.) and (b) recommend an amount of funding that should be provided and used to mitigate any identified impacts on local fire protection and emergency medical response services.

- b. The Fire Protection and Emergency Services Needs Assessment should address emergency fire and medical response and equipment, staffing, and location needs.

Technical Area: Land Use
Author: James Adams

BACKGROUND: WILLIAMSON ACT CONTRACT CANCELLATION

All page numbers, figures, and tables cited in this document refer to the 2012 HECA Amended Application for Certification (08-AFC-8A) (AFC), unless otherwise stated. Page 5.4-11 of the AFC states that the project would result in the conversion of the 453-acre project site from agricultural uses on land that is categorized as Prime Farmland. As shown in Table 5.4-5, the project site, including land potentially impacted by the project’s linear facilities, is currently under Williamson Act contracts.

As described on pg. 5.4-12, on June 29, 2010, the Kern County Board of Supervisors approved the tentative cancellation of the Williamson Act Contracts (WAC) on approximately 491 acres, which included 473 acres of the former project site boundaries, and 18 acres of a former fertilizer manufacturing plant. The Williamson Act restrictions over the tentatively cancelled acreage continue to remain in place until the conditions set forth in the Certificate of Tentative Cancellation are satisfied.

However, in 2012, HECA plans to submit a new petition to Kern County to cancel the Williamson Act contract restrictions over the new 453-acre project site boundaries as shown in Figure 5.4-6. This petition would supersede the 2010 petition and tentative cancellation approval. The project footprint has changed from the 473-acre site depicted in Figure 5.4-3(5) in the Revised 2009 AFC to the current 453-acre site. Most of the northern boundary has been moved south and a new parcel has been added to the south eastern corner of the site. Williamson Act contracts covering lands along the CO₂, natural gas, process water, potable water, electric transmission linears, and the railroad spur would not be cancelled because Kern County has determined that these project components are compatible uses under the Williamson Act (AFC, pg. 5.4-12).

The applicant will also own a 653-acre controlled area adjacent to the project site to the north, west, and south to control access and future land uses in this area. Approximately 80 acres of the controlled area adjacent to the northern boundary of the project site will be temporarily used as a construction laydown area. As noted on pg. 5.4-12, Kern County and the California Department of Conservation have confirmed that

the temporary use of the laydown area would not require cancellation of the Williamson Act restrictions over this parcel of land.

DATA REQUESTS

- A100. Please provide an estimate as to when the new petition will be submitted to Kern County to cancel the Williamson Act contract restrictions on the new project footprint.
- A101. Please identify how many acres of the controlled area are under Williamson Act contract restrictions and how many acres (if any) are proposed for cancellation in 2012.
- A102. Please explain how the controlled area will be used and discuss in detail any planned or anticipated activities on or uses of the area that may occur during the life of the project.

BACKGROUND: MANUFACTURING COMPLEX PRODUCTS

Kern County's June 11, 2012 letter RE: Hydrogen Energy California - Amended Application for Certification (08-AFC-8A) Response to Request for Agency Participation, states in part that in addition to the power generation facility, the AFC includes a discussion regarding uses for the site beyond those permitted in the A (Agricultural) zone. Specifically, the letter states the "Manufacturing Complex" portion of the project will produce products such as urea, urea ammonium nitrate, and anhydrous ammonia that will be used for transportation and industrial applications. Kern County staff stated that the use of urea for manufacture of any products other than fertilizer for agricultural use will require Kern County applications for a General Plan Amendment and a Zone Change for industrial land use designations. Kern County staff has requested written clarification from the applicant as to the uses proposed that would be part of the manufacturing complex, at the applicant's earliest convenience.

DATA REQUESTS

- A103. Please provide an estimate as to when written clarification about the products and use of products produced by the manufacturing complex will be submitted to Kern County.
- A104. Please provide a copy of the written clarification to Energy Commission staff.

Technical Area: Public Health
Author: Dr. Alvin Greenberg

BACKGROUND

The project will either use a combination of train and trucks or trucks alone to transport coal and petcoke to the facility. No matter what option is finally chosen by the applicant, Tables 5.1-

19 and 5.1-30 of the Amended Application For Certification (AFC) clearly indicate a significant level of truck and train trips will be generated along a specific rail and road corridor, as many as 126,978 truck deliveries each year amounting to 348 trucks per day going past any one point along the transportation route (total going to or coming from the site) or 109 coal trains per year. These trips will result in significant emissions of diesel particulate matter (DPM) from diesel-fueled trains and trucks.

The Amended AFC contains a Health Risk Assessment addressing the impacts of DPM emissions at the project site but not along the transportation route or routes. Given the heavy volume of truck traffic that the project will generate along a specific route that includes the Stockdale Highway, Morris Road, and Station Road (where at least two residences exist), an assessment of impacts due to emissions of DPM is necessary in order for staff to fully understand potential public health impacts of the proposed project.

Likewise, DPM emissions from train locomotives might have impacts along a rail line and thus these impacts must also be addressed. To limit the scope of the analysis to a reasonable first-level screening effort, this assessment of impact should be a phased approach where not more than four of the residential and/or sensitive receptors (defined as schools, hospitals, day care centers, nursing homes, and any others identified by the Office of Environmental Health Hazard Assessment) most likely to experience the greatest impact along each transportation route should be initially assessed.

DATA REQUESTS

- A105. Please identify the maximum number of diesel truck trips (coming and going) that would pass by any residences on the transportation route between I-5 and the facility in a year and conduct a health risk assessment of the DPM emissions for not more than four of the residential and/or sensitive receptors identified as having the highest potential exposure due to either the proximity to the transportation route and/or proximity to idling trucks backed-up at any location (such as a traffic signal or when entering the site).
- A106. Please identify the maximum number of diesel truck trips (coming and going) that would pass by any residences on the transportation route between the Santa Maria refineries and the facility in a year and conduct a health risk assessment of the DPM emissions for not more than four of the residential and/or sensitive receptors identified as having the highest potential exposure due to either the proximity to the transportation route and/or proximity to idling trucks backed-up at any location (such as a traffic signal or when entering the site).
- A107. Please identify the rail route that would be used to transport coal to the facility, determine in general the location of residences and sensitive receptors along the rail route that are located within the State of California, estimate the maximum number of train trips per year coming and going, and conduct a health risk assessment of the DPM emissions for not more than four of the residential and/or sensitive receptors identified as having the highest potential exposure due to either the proximity to the rail line, proximity to the rail line where engines would be at full throttle climbing a grade, and/or proximity to idling locomotives backed-up at any location (such as a rail yard, a grade crossing, or when entering the site).

Technical Area: Soil and Water Resources
Author: Marylou Taylor

BACKGROUND

The Hydrogen Energy California (HECA) project proposes to collect potentially contaminated storm water from the process plant area and drain it into lined retention basins and sumps. Storm water that comes in contact with exposed surfaces and/or materials can potentially result in contaminated runoff. Potential pollutants in the runoff could come from the feedstock and solid waste material from the gasifier process, oil, thinners, chemical reagents, solvents, and other contaminants. The applicant proposes that after runoff ponds and solids have settled, the collected water would be tested then transferred to either the water treatment plant for reuse or the wastewater treatment plant for disposal via the Zero Liquid Discharge system.

Although the retention basins and sumps are not intended to function as final disposal locations, the potentially contaminated water may be considered “designated waste” as defined by California Water Code Section 13173. Discharges of waste to land include those areas of the project where sumps collect wastewater or fluids and pads that store solid waste that could be subject to runoff carrying soluble constituents of concern. Of particular concern:

- Temporary storage of glassy vitrified gasification solids in on-site bins or containers located on a ‘gas solids pad’;
- The solids handling water collection facility;
- Collection sumps, for the gasification solids and the feedstock storage area; and,
- Lined retention basins, for the potentially contaminated runoff.

Waters of the State include both surface and groundwater. If applicable, storage of designated waste may require regulation via Waste Discharge Requirements (WDRs). If WDR’s are required they would be prepared by the Regional Water Quality Control Board and incorporated in the Energy Commission’s permit. The WDR’s would be administered in accordance with the Energy Commission’s in-lieu authority.

DATA REQUESTS

- A108. Please clarify how the daily volume of gasification solids generated would be temporarily stored at HECA. Will the solids be placed in bins or containers, or be stockpiled directly on the gas solids pad?
- A109. Please describe the design of the gas solids pad, and how precipitation would be contained and conveyed to the storm water collection system or the water treatment unit.

- A110. Please provide the location and design of the collection sump used for the gasification solids.
- A111. Please describe the operational procedures to remove and dispose of the gasification solids and water from the collection sump.
- A112. Please provide additional details about the location and design of the solids handling collection facility. Does the facility include the three storm water retention ponds with impermeable liners? Is the “collection sump” described in section 2.2.3.3 part of the solids handling collection facility?
- A113. Please provide additional information about the design of the solids drain sumps and the operations procedures to remove the solids and fluid that collect in the sumps.
- A114. Please submit information about potential chemical constituents of concern in the water discharged to the gasification solids collection sump and solids drain sumps or that could be mobilized from the solids in these sumps.

BACKGROUND

Section 5.14.1.8 of the Amended Application for Certification (AFC) indicates that although previous submittals, namely the Preliminary Hydrology Study and the Draft Drainage, Erosion, and Sedimentation Control Plan (filed November 2010 in response to Data Request 202), no longer reflect the updated project, the overall approach for the drainage system and storm water management remain the same.

DATA REQUESTS

- A115. Please submit an updated Hydrology Study that accurately reflects the Amended AFC.
- A116. Please submit an updated Draft Drainage, Erosion, and Sedimentation Control Plan that accurately reflects the Amended AFC.

Technical Area: Visual Resources
Author: Elliott Lum

BACKGROUND

According to the Amended Application for Certification (AFC) for the HECA project, both the visual impact susceptibility and visual impact severity from Key Observation Point (KOP) No. 1 have been characterized as high (see Table 5.11-1 and 5.11-4, respectively). As such, the aesthetic impact significance has been classified as significant.

To mitigate this impact to a level of less than significant, the amended AFC recommends a conceptual landscaping plan for screening purposes (see Mitigation

Measure VRMM-1). The plan will include information on the plant species proposed; their size, quantity, and spacing at planting; their expected heights at 5 years and at maturity; and their expected growth rates.

However, the visual resources section of the amended AFC does not include the above plan or visual simulations that Energy Commission staff requires to address the adequacy of the Mitigation Measure VRMM-1. Staff has concluded that additional project information is necessary before a significance conclusion can be reached for the impact at KOP 1.

DATA REQUESTS

A117. Please provide an electronic copy of a conceptual landscaping plan for review by staff. The primary purpose of the plan is to show how landscaping at the project site will contribute to screening views to the maximum extent feasible for the view from KOP 1. Consistency with applicable sections of Chapter 19.86, Landscaping, of the Kern County Zoning Ordinance is required.² To ensure that the information provided in the on-site landscaping plan will allow for a thorough assessment of this impact, the plan will need to include these elements, as well as those listed below, at a minimum:

- a. Information on the type of plant species proposed: size, quantity, and spacing at planting; expected height at 5 years and maturity; and expected growth rates. Staff requires preparation of this information by a qualified professional arborist or botanist familiar with local growing conditions.
- b. Electronic and paper copies of 11-inch by 17-inch color photographic simulations at life size scale showing the landscaping 5 years after planting and at maturity from the viewpoint for KOP 1.

Technical Area: Visual Resources – Visible Plume
Author: Joseph Hughes

BACKGROUND

The proposed manufacturing complex unit contains several exhaust stacks. Staff is assessing the need to perform a visible plume modeling analysis for the urea unit's high pressure (HP) and low pressure (LP) absorber exhausts and exhaust from the ammonium nitrate/urea ammonium nitrate (AN/UAN) unit's process condensate tank vent scrubber. Staff requires additional operating information to assess the urea unit sources and confirm that the AN/UAN exhaust is small enough that there is no need to conduct this analysis.

² See <http://www.co.kern.ca.us/planning/pdfs/KCZODec11.pdf>.

DATA REQUEST

A118. Please confirm the data provided and complete missing data from the following table that summarizes for the urea absorbers (HP scrubber exhaust and LP scrubber exhaust), and the AN/UAN vent scrubber exhaust, the stack release parameters and the exhaust conditions that affect visible vapor plume formation. Staff assumes that the exhaust parameters are stable under all ambient temperature conditions. Please correct this assumption, if incorrect, by providing data for a range of ambient temperature conditions where appropriate.

Parameter	HP Scrubber	LP Scrubber	AN/UAN Vent Scrubber
Stack Height	39.62 m (130 ft)	15.24 m (50 ft)	12.19 m (40 ft)
Stack Diameter	0.3 m (1 ft)	0.3 m (1 ft)	0.05 m (0.17 ft)
Temperature	323.15°K (125°F)	321.48°K (119°F)	310.93°K (100°F)
Flow Rate (lbs/sec)			
Moisture Content (wt%)			

Note: these parameters have been filled out by staff using available data from the air quality modeling files.

BACKGROUND

While staff is aware that the cooling tower fogging frequency curves are not currently available (Amended AFC, p. 5.11-23), staff would like to confirm the plume frequency results of the visible plume modeling analysis with cooling tower fogging frequency curves if they become available later during the licensing process.

DATA REQUEST

A119. Please provide staff copies of the fogging frequency curves for the cooling towers if they become available prior to the licensing decision.

BACKGROUND

Staff is assessing the need to perform a plume modeling analysis for the carbon dioxide (CO₂) recovery plant unit exhausts. The Amended AFC, Appendix A, "Supplemental Environmental Information for the Occidental of Elk Hills, Inc., CO₂ Enhanced Oil Recovery Project" (submitted 5/2/2012) references and states that the addendum supplements "The Preliminary Project Description for the CO₂ enhanced oil recovery (EOR) at the Elk Hills Oil Field" (dated 4/16/2010). The Preliminary Project Description (2010) describes several process systems that may have the potential to create visible plumes or strong thermal plumes, however additional information is needed to make that determination. For example, it is unclear how the heat from the propane refrigeration system and the discharge cooler are used or released.

DATA REQUEST

A120. Please describe all exhaust equipment associated with the CO₂ recovery plant unit (i.e. fractionation system, natural gas liquids (NGL) recovery system, demethanizer system, and refrigeration system) including but not limited to the propane refrigeration system and discharge cooler and related heat rejection devices (air cooled or water cooled). Please complete data from the following table that summarizes exhaust parameters and the exhaust conditions that affect visible vapor plume formation and thermal plume strength. Staff assumes that the exhaust parameters are stable under all ambient temperature conditions. Please correct this assumption, if incorrect, by providing data for a range of ambient temperature conditions where appropriate in the same manner as the cooling tower exhaust data provided in Section 5.11 of the Amended AFC.

Parameter	Refrigeration System	Discharge Cooler	Additional Equipment as needed
Stack Height			
Stack Diameter			
Temperature			
Flow Rate (lbs/sec)			
Moisture Content (wt%)			

Technical Area: Waste Management
Author: Ellen Townsend-Hough, REA

BACKGROUND

The Naval Petroleum Reserve Number 1 (NPR-1) is an oil-producing field owned by Occidental of Elk Hills, Inc. (Oxy). The facility was formerly owned by the United States Department of Energy (DOE) and Chevron Oil Company (Chevron). The NPR-1 occupies approximately 47,985 acres or 75 square miles. Petroleum has been produced on NPR-1 since 1919. Occidental of Elk Hills, Inc., is proposing to extend the life of the enhanced oil recovery (EOR) operations by utilizing carbon dioxide from the Hydrogen Energy California (HECA) project to facilitate oil production from the Elk Hills Unit operations.

DOE sold its interest in the NPR-1 to Occidental Petroleum in 1997. As a result of the land transfer to Occidental, California Department of Toxic Substances Control (DTSC) entered into an Agreement for Site Assessment (ASA) with DOE and completed a Resource Conservation and Recovery Act (RCRA) Facility Assessment (RFA) of NPR-1 in 1998. DOE agreed to head up an environmental and human health risk assessment of the entire site with remediation to address the effects of past practices at the site. The working arrangement with DTSC began with an Agreement for Site Assessment (ASA) starting in 1997. Three amendments have been made to the ASA, the last of which was

for a work plan for the assessment of 131 Areas of Concern (AOCs). The AOCs consist of both small and large areas of contamination. The work was stalled for seven years. On December 23, 2008 DOE and DTSC signed a Corrective Action Consent Agreement to complete the work. In December 2011 and early 2012, DOE representatives submitted numerous Pre-Decisional Project Approach documents. The documents include an “overview of the planned approach to achieve site closure” for each of the 131 AOCs (DTSC ENVIROSTOR Occidental of Elk Hills Inc (80001254)). To ensure that contamination is not spread and that construction workers are not exposed to hazardous materials, safety procedures should be developed and implemented for the construction of the project.

DATA REQUEST

A121. To ensure public health and safety are maintained please identify what steps or methodology the applicant and Oxy propose to avoid impacts from identified Areas of Concern and potential unidentified hazardous waste sites on the Occidental Elk Hills Oil Field project site.

BACKGROUND

The gasifier will produce a solid vitrified by-product called “gasification solids.” The solids are comprised of ash from coal and petcoke that exit the gasifier. During operation the gasifier may produce as much as 246,016 cubic yards per year of solids. The large volume of gasifier solids could negatively impact capacity of Kern County landfills. Assuming the gasifier solids are non-hazardous and that a market for the solids is not immediately available, all non-hazardous wastes would be recycled to the extent possible and non-recyclable wastes would be collected by a licensed hauler and disposed in a solid waste disposal facility, in accordance with Title 14, California Code of Regulations, section 17200 et seq. CalRecycle is California's authority on recycling, waste reduction, and product reuse. Under the authority of the California Department of Resources Recycling and Recovery (now CalRecycle formerly California Integrated Waste Management Board) jurisdictions such as Kern County are currently required to divert 50 percent of their waste from landfill disposal; this percentage is due to change in the summer 2012 under AB341. Jurisdictions select and implement the combination of waste prevention, reuse, recycling, and composting programs that best meet the needs of their community while achieving the diversion requirements. SB 1016, Wiggins (Chapter 343 Statutes of 2008), introduced a per capita disposal measurement system that measures the percentage of diversion requirement using a disposal measurement equivalent.

Another option for disposal of gasification solids would be to dispose of waste out of state. According to Title 14, California Code of Regulations (CCR) Section 18808.9, a public contract hauler who exports solid waste from California shall provide the county that the waste originated from with a report of the total volume of solid waste exported from each jurisdiction. The hauler shall identify the name of the disposal site and the state, county, or other authorized jurisdiction to which the waste was sent.

DATA REQUESTS

- A122. Please provide information showing how and where the gasifier solids would be disposed of if the waste is designated nonhazardous and a reuse market is not identified.
- A123. Please describe what if any arrangements have been made with Kern County officials for reuse, recycling or disposal of the gasification solids, and reporting of volumes recycled and disposed, and potential impacts to county facilities from recycling and disposal.



**BEFORE THE ENERGY RESOURCES CONSERVATION AND DEVELOPMENT
COMMISSION OF THE STATE OF CALIFORNIA
1516 NINTH STREET, SACRAMENTO, CA 95814
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***AMENDED APPLICATION FOR CERTIFICATION
FOR THE HYDROGEN ENERGY
CALIFORNIA PROJECT***

**Docket No. 08-AFC-08A
(Est. 6/4/2012)**

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DECLARATION OF SERVICE

I, Diane Scott, declare that on July 20, 2012, I served and filed a copy of the attached **HYDROGEN ENERGY CALIFORNIA PROJECT (08-AFC-8A) Staff's Data Requests, A1 through A123**, dated July 20, 2012. This document is accompanied by the most recent Proof of Service list, located on the web page for this project at:

http://www.energy.ca.gov/sitingcases/hydrogen_energy/index.html

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

(Check all that Apply)

For service to all other parties:

- X Served electronically to all e-mail addresses on the Proof of Service list;
- X Served by delivering on this date, either personally, or for mailing with the U.S. Postal Service with first-class postage thereon fully prepaid, to the name and address of the person served, for mailing that same day in the ordinary course of business; that the envelope was sealed and placed for collection and mailing on that date to those addresses **NOT** marked "e-mail preferred."

AND

For filing with the Docket Unit at the Energy Commission:

- X by sending one electronic copy to the e-mail address below (preferred method); **OR**
- _____ by depositing an original and 12 paper copies in the mail with the U.S. Postal Service with first class postage thereon fully prepaid, as follows:

CALIFORNIA ENERGY COMMISSION – DOCKET UNIT

Attn: Docket No. 08-AFC-08A

1516 Ninth Street, MS-4

Sacramento, CA 95814-5512

docket@energy.ca.gov

OR, if filing a Petition for Reconsideration of Decision or Order pursuant to Title 20, § 1720:

- _____ Served by delivering on this date one electronic copy by e-mail, and an original paper copy to the Chief Counsel at the following address, either personally, or for mailing with the U.S. Postal Service with first class postage thereon fully prepaid:

California Energy Commission

Michael J. Levy, Chief Counsel

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I declare under penalty of perjury under the laws of the State of California that the foregoing is true and correct, that I am employed in the county where this mailing occurred, and that I am over the age of 18 years and not a party to the proceeding.

Originally Signed

Diane Scott

Siting, Transmission and Environmental Protection Division