

**San Joaquin Valley Unified
Air Pollution Control District**

**Aera Energy Belridge Oilfield Complex
Steam Generators Project**

**Project Numbers
S-1084210, S-1084406, S-1084433, S-1084434**

**Belridge Oil Field
Kern County**

**Initial Study and Final
Mitigated Negative Declaration**

May 2011



SAN JOAQUIN VALLEY AIR POLLUTION CONTROL DISTRICT GOVERNING BOARD 2011

CHAIR: J. STEVEN WORTHLEY
Supervisor, Tulare County

VICE CHAIR: ANN JOHNSTON
Mayor, City of Stockton

MEMBERS:

TONY BARBA
Supervisor, Kings County

WILLIAM O'BRIEN
Supervisor, Stanislaus County

JUDITH G. CASE
Supervisor, Fresno County

LEROY ORNELLAS
Supervisor, San Joaquin County

RONN DOMINICI
Supervisor, Madera County

JOHN G. TELLES, M.D.
Appointed by the Governor

HENRY JAY FORMAN, PH.D
Appointed by Governor

CHRIS VIERRA
Mayor, City of Ceres

MIKE LANE
Councilmember, City of Visalia

HUB WALSH
Supervisor, Merced County

RANDY MILLER
Mayor, City of Taft

RAYMOND A. WATSON
Supervisor, Kern County

VACANT
Small City Representative, Kings County

AIR POLLUTION CONTROL OFFICER:

SEYED SADREDIN



INITIAL STUDY AND DRAFT MITIGATED NEGATIVE DECLARATION

Aera Energy Belridge Oilfield Complex Steam Generators Project

(Projects S-1084210, S-1084406, S-1084433, S-1084434)

May 2011

Lead Agency:	San Joaquin Valley Air Pollution Control District 1990 East Gettysburg Avenue Fresno CA 93726-0244
Agency CEQA Contact:	Jessica Willis, Air Quality Specialist Phone: (559) 230-6000 Fax: (559) 230-6061
Agency Permits Contact:	Delores Gough, Air Quality Engineer Phone: (661) 392-5500 Fax: (661) 392-55851
Project Sponsor and Location:	Aera Energy LLC P. O. Box 11164 Bakersfield, CA 93389-1164
Project Contact:	Brent Winn, Environmental Engineer Phone: (661) 665-4363 Fax: (661) 665-7437
Agency Document Review:	Arnaud Marjollet, Permit Services Manager Daniel Barber Ph.D., Supervising Air Quality Specialist



A. INTRODUCTION

Aera Energy LLC (Aera) is a Title V oil production company with facilities located in Kern County, California. The San Joaquin Valley Unified Air Pollution Control District (District) has received four (4) Authority to Construct (ATC) application packages from Aera to install and operate up to twenty two (22) natural gas fired steam generators in two general project areas, collectively referred to as the "Project". These project areas are located within the existing South Belridge Oilfield within Aera's Heavy Oil Western stationary source.

B. PURPOSE AND AUTHORITY

The District has discretionary approval power over the Project via its Permits Required Rule (Rule 2010) and New and Modified Stationary Source Review Rule (Rule 2201). No other Agency is known to have discretionary approval over the Project. As such, the District is the public agency having principal responsibility for approving the Project and serves as Lead Agency; California Environmental Quality Act (CEQA) Guidelines 15367.

CEQA requires each public agency to adopt objectives, criteria, and specific procedures consistent with CEQA Statutes and the CEQA Guidelines for administering its responsibilities under CEQA, including the orderly evaluation of projects and preparation of environmental documents. The District adopted its *Environmental Review Guidelines* (ERG) in 2001. The ERG was prepared to comply with this requirement and is an internal document used to comply with CEQA.

The basic purposes of CEQA are to:

- Inform governmental decision-makers and the public about the potential, significant environmental effects of proposed activities.
- Identify the ways that environmental damage can be avoided or significantly reduced.
- Prevent significant, avoidable damage to the environment by requiring changes in projects through use of alternatives or mitigation measures when the governmental agency finds the changes to be feasible.
- Disclose to the public the reasons why a governmental agency approved the project in the manner the agency chose if significant environmental effects are involved.

Under CEQA the Lead Agency is required to:

- Conduct preliminary reviews to determine if applications are subject to CEQA [CCR §15060].



- Conduct review to determine if projects are exempt from CEQA [CCR §15061].
- Prepare Initial Studies for projects that may have adverse environmental impacts [CCR §15063].
- Determine the significance of the environmental effects caused by the project [CCR §15064].
- Prepare Negative Declarations or Mitigated Negative Declarations for projects with no significant environmental impacts [CCR §15070].
- Prepare, or contract to prepare, EIRs for projects with significant environmental impacts [CCR §15081].
- Adopt reporting or monitoring programs for the changes made to projects or conditions of project approval, adopted in order to mitigate or avoid significant effects on the environment [PRC §21081.6 & CCR §15097].
- Comply with CEQA noticing and filing requirements.

C. PROJECT BACKGROUND INFORMATION

Project Description

Aera Energy LLC (Aera) is an oil production company with facilities located in Kern County, California. Aera is a major source as defined in District Rule 2201 (New and Modified Stationary Source Review Rule), section 3.23. Therefore, the installation and operation of stationary source equipment for this project is subject to District permit requirements. One major requirement is that new and modified equipment that has air contaminant emissions must satisfy the requirements of New Source Review (NSR). The main requirements of NSR are to require the installation of Best Available Control Technology (BACT) to minimize emission increases from such equipment and to mitigate emission increases over certain thresholds by providing emission reductions either by limiting the use of existing equipment or by providing emission offsets.

The District has received four (4) ATC application packages from Aera to install and operate up to twenty two (22) new 85 MMBtu/hr natural gas-fired steam generators at two (2) general project areas. These project areas are located within the existing South Belridge Oilfield within Aera's Heavy Oil Western Stationary Source.

Steam generators are an integral part of normal steamflood operations where steam is injected into the subsurface formation to aid in oil recovery. The steam generators will be installed as two separate projects. Collectively, Project 1 and Project 2 constitute the "Project". Project 1 (District project numbers S-1084210 and S-1084433) is located within the northern area, referred to as Project Area 1 (Figure 3). Project 2 (District project numbers S-1084406 and S-1084434), located within the southern project area, referred to as Project Area 2 (Figure 4). As both Project 1 and Project 2 are part of a



common business plan by Aera, they are the same “project” for Federal NSR applicability and CEQA evaluation. This CEQA review will encompass issues and impacts associated with both projects.

Nineteen (19) ATCs will be issued for each project area for a total of thirty eight (38) for the Project. Although thirty eight (38) ATCs will be issued, thirty eight (38) steam generators will not be installed: Each project area will consist of the following options (see summary chart below):

Table 1. Summary of AERA Project Proposal

Location	Project Option		Annual emissions (lb/yr)				
			NOx	CO	PM ₁₀	SOx	VOC
1	11 SG* @ 5 ppmv NOx	or	49,990	151,608	62,282	17,210	24,585
	8 SG* @ 7 ppmv NOx		46,720	108,040	44,384	12,264	46,720
	Combination of above may be installed not to exceed emissions equivalent to the 11SG* @ 5 ppmv						
2	11 SG* @ 5 ppmv NOx	or	49,990	151,608	62,282	17,210	24,585
	8 SG* @ 7 ppmv NOx		46,720	108,040	44,384	12,264	46,720
	Combination of above may be installed not to exceed emissions equivalent to the 11SG* @ 5 ppmv						
Total emissions, for both locations combined (not to exceed emissions from equivalent of 22 SG* @ 5 ppmv NOx)			99,980	303,216	124,564	34,420	49,170

*Steam generators

Option 1: Installation of eleven (11) new 85 MMBtu/hr steam generators equipped to achieve 5 ppmv NOx at 3% O₂. This option includes the installation of three (3) steam generators equipped with Selective Catalytic Reduction (SCR) system to achieve 5 ppmv NOx at 3% O₂ and eight (8) steam generators equipped with ultra-low NOx burners capable of achieving 5 ppmv NOx at 3% O₂. A total of eleven (11) ATCs will be issued for this option.

Option 2: Installation of eight (8) new 85 MMBtu/hr steam generators equipped with ultra low NOx burners to achieve 7 ppmv NOx at 3% O₂ to satisfy BACT and Rule 4320 requirements. Eight (8) ATCs will be issued for this option.



Option 3: Installation of new 85 MMBtu/hr steam generators from a combination of Options 1 and 2 such that emissions do not exceed the limits allowed by permit conditions. This option will allow Aera the flexibility to install the needed equipment and still be in compliance with applicable District requirements. An additional ATC application will be required for this option.

These options allow the applicant the flexibility to install the steam generators in various locations while also providing options for compliance with the District's requirements for BACT and Rule 4320 (Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr). The emissions limits established in the permit conditions represent the worst-case emissions scenario. Buildout of any of the three (3) options would not exceed these limits.

Aera received their Title V permit on January 31, 2003. Pursuant to Rule 2520 (Federally Mandated Operating Permits), Section 3.20, the Project can be classified as a Title V minor modification and can be processed with a Certificate of Conformity (COC). As such, prior to the issuance of the ATCs, the Project must be submitted to the US Environmental Protection Agency (US EPA) for a 45-day comment period. Aera must apply to administratively amend the Title V operating permit to include the requirements of the ATCs issued with the Project.

Project Construction

The steam generators will be installed as two separate projects. Full buildout of Project 1 is expected to occur by 2012. The status, extent, and timing of Project 2 is dependent on the success of a biomass steam generation facility proposed by Global Greensteam, which would provide steam to at least a portion of the field area that would be served by Project 2. Project 2 could potentially commence by mid- 2012 and be completed by 2013.

Project 1 is planned to be sited at an existing steam generator setting where there will be minimal "new" disturbance of soil, native vegetation, and habitat. Older steam generators will be moved aside and soil will be compacted and/or excavated and replaced with better-compacted soil to ensure adequate footing for new steam generator foundations. Approximately four (4) acres of soil is expected to be disturbed in connection with the construction. Project 2 construction sites have not yet been defined. Project 1 and Project 2 are similar in number of steam generators to be installed. Therefore, Project 2 construction activities are assumed to be the same as Project 1. All of this area will be within the existing oilfield.

Construction activities will include:

- Demolition of some existing onsite equipment
- Site prep: excavation, grading, soil compaction, etc.
- New foundation construction as needed - pour slurry, place rebar / supports



- Facility Construction/Installation: Install below ground drain system, install concrete sump, install grounding halos, place structural steel, install pre-fabricated pipe spools, erect pre-fabricated equipment frames and platforms
- Set equipment: Separators, small chemical tanks, air compressor, generator(s), pump(s)
- Insulate pipe / equipment
- Install transformer and pad
- Install septic system and control room
- Touch up paint for structural steel
- Complete grade and pave access roads

All of the surface area disturbed by construction is expected to remain as part of the plant site after construction is complete. Temporary equipment staging areas will become part of the plant site and/or be set aside for employee and visitor vehicle parking.

Project Area 1 has two (2) vehicle access points and there will still be two access points during and after construction. However, it is expected that one of the access points will be designated as "entry": and the other "exit". Project Area 2 has not yet been defined with respect to access points. Evaluation of Project related impacts assumes that Project Area 2 will include two access points during and after construction of the steam generators.

During peak construction, staffing is expected to include 35 to 45 mechanical / civil / structural workers, five (5) Aera staff, and 10 to 12 electricians. There will be few if any new permanent employees; existing Aera staff and contract workers will be reassigned to this location from other positions at Belridge or nearby projects that are ramping down.

Process Description

A steam generator is a device that uses a heat source to boil liquid water and convert it into its vapor phase, referred to as steam. The heat may be derived from the combustion of a fuel. For this project, the steam generators will be authorized to burn only PUC, FERC regulated natural gas, low-sulfur produced gas or treated produced gas from Aera's Section 32 gas plant. The steam generators will not be authorized to burn gas from Aera's thermally enhanced oil recovery (TEOR) operation casing vent gas collection systems or vapor control systems. All water used for the Project will come from the Belridge water recycling plants that process water produced from the oil reservoir.

Oilfield steam generators are designed to produce wet steam in the range of 80% quality and at pressures up to 2,500 psia for injection into heavy oil reservoirs to enhance the recovery of viscous crude oils. Steam leaves the steam generation plant



and enters the field distribution system. The distribution system transports the steam to measurement and control equipment located at each steam injector. There the steam is metered and controlled to achieve the target injection rate of between 25 and 120 barrels per day of steam per injection string.

The new steam generators will be used for steam enhanced oil production at various specified locations. Depending on the location, the steam generators will provide steam to steam enhanced wells permitted under permit numbers: S-1547-359 (1,657 wells); S-1547-638 (396 cyclic and 5,384 steam drive wells); S-1548-423 (300 wells); and S-1548-470 (26 wells). The produced fluids will continue to go to existing vapor controlled tanks at Dehy 20 and Dehy 2.

Project Location

The Project is located in Kern County, California, which is the San Joaquin Valley Air Basin (see Figure 1). The project sites are contiguous properties located within Aera's existing surface boundaries in the South Belridge Oil Field, as designated by the California Department of Oil, Gas, and Geothermal Resources (DOGGR). Aera's Belridge Producing Complex is made up of the North Belridge and South Belridge oilfields that together cover an area roughly 22 miles long and 2.5 miles wide. The Project is located within the South Belridge Oilfield, approximately 45 miles northwest of the City of Bakersfield and (see Figure 2).

Project 1 (Northern Site) is to be located at Sections 20, 28, 29, Township 28S, Range 21E (see Figure 3).

Project 2 (Southern Site) is to be located at Sections 33, 34, Township 28S, Range 21E and Sections 2, 3, Township 29S, Range 21E (See Figure 4).

The proposed location of the steam generators within each project area are identified in Figures 5 and 6.

General Plan Designation and Zoning

The project sites are currently designated in the Kern County 2009 General Plan as Mineral and Petroleum (Code 8.4) and Mineral and Petroleum Flood Plain (Code 8.4/2.5) and are currently zoned as Exclusive Agriculture (Zone A). Pursuant to Section 19.12.020(E) of the Zoning Ordinance of Kern County; steam generators (excluding coal fired), are a permitted use, by right, in Zone A.



Surrounding Land Uses and Setting

The area immediately surrounding the Project is designated as agriculture and resource uses and is zoned for agricultural uses. These uses include general agricultural operations and oil field production.

Belridge Elementary School is the nearest school to the Project and is located west of the Project site. The District has verified that the Project is not within 1,000 feet of the school's outer boundary. Therefore, the public notification requirement of California Health and Safety Code 42301.6 is not applicable to the Project.

Other Public Agencies Whose Approval Is Required

US Environmental Protection Agency (US EPA)

As the Project is classified as a Title V minor modification to be processed with a COC, it must be submitted to the US EPA for a 45-day comment period. Aera must apply to administratively amend the Title V operating permit to include the requirements of the ATCs issued with the Project.

US Fish and Wildlife Service (USFWS)

The USFWS has regulatory authority over projects that could result in the "take" of any species identified as threatened or endangered. If the Project would result in the incidental take of any federally identified species, an Incidental Take Permit and/or a Habitat Conservation Plan would be required.

California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR)

The DOGGR has the authority to order the reabandonment of a previously abandoned well. Prior to construction, Aera will provide the District with documentation demonstrating that maps identifying all wells in the vicinity of the sites have been submitted to DOGGR for review.

California Department of Fish and Game (CDFG)

The CDFG has regulatory authority over projects that could result in the "take" of any species identified by the State of California as threatened or endangered. If the Project would result in the take of any identified species, an Incidental Take Permit would be required.



California Regional Water Quality Control Board (RWQCB)

The Project will result in no waste or water discharge; hence no approvals from the RWQCB will be required. Also, no streambed or lake alterations will occur as a result of the Project.

Kern County Planning Department

The Project is within Aera's existing surface boundaries in the South Belridge Oil Field. The proposed steam generators are permitted uses under the existing county land use designations and zoning. As such, the Kern County Planning Department requires only the issuance of building permits. Currently no other specific project-related items have been identified which will require further approval by the Kern County Planning Department.

Other Agencies

The District is not aware of any other agencies with approval authority for the Project.

D. DECISION TO PREPARE A MITIGATED NEGATIVE DECLARATION

Consistent with CEQA requirements the District prepared an Initial Study that evaluated potential environmental effects of the Project. The District has determined that with mitigation the Project will have a less than significant impact on the environment. The District concludes that a Mitigated Negative Declaration would be appropriate for the Project. Project design elements and mitigation measures that reduce the Project's impact on the environment would be enforced through:

- District permit conditions and offset fees;
- Incorporation of Best Performance Standards (BPS);
- Corrective actions to be taken to reduce impacts if species known to be protected are identified within the Project site; and
- Cessation of construction activities if cultural/archaeological remains are found.



Figure 1: The San Joaquin Valley Air Basin

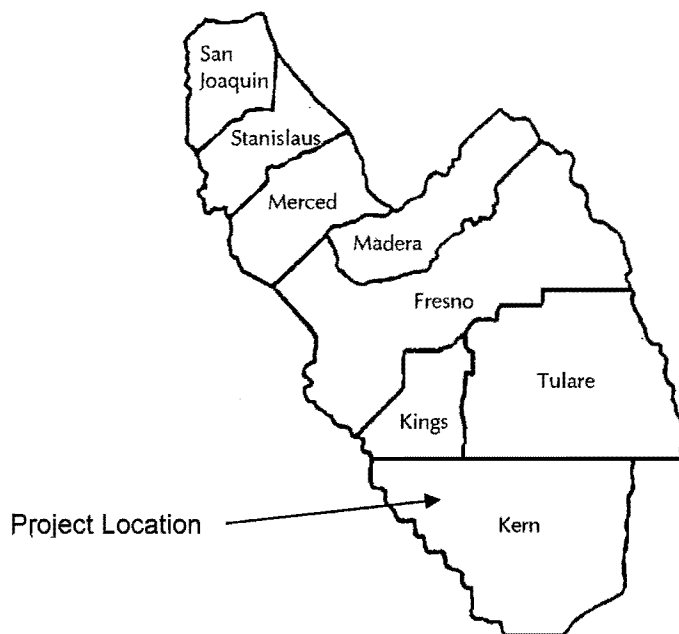
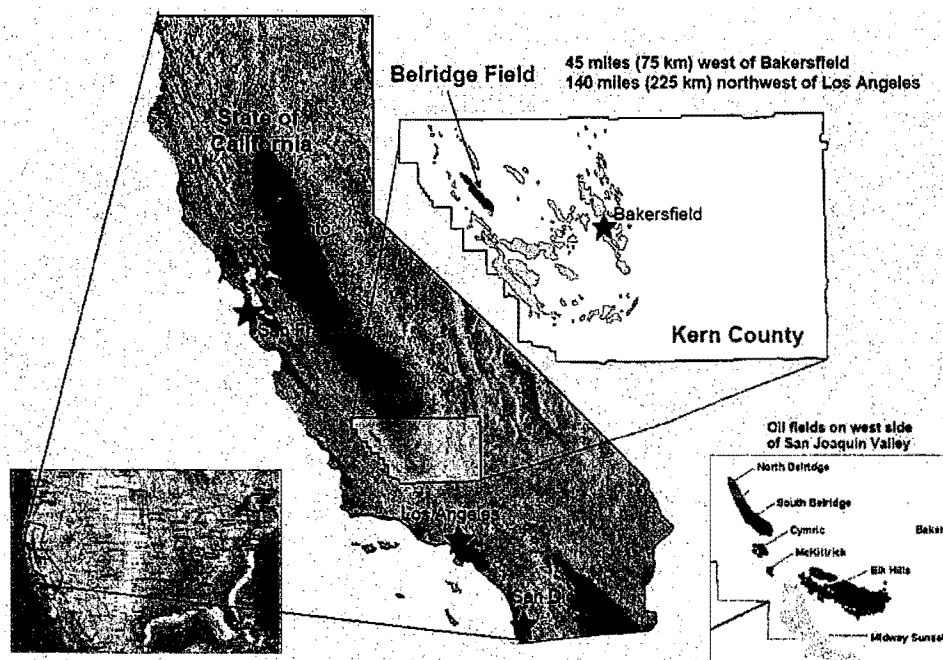


Figure 2: Belridge Oilfield *



* Map provided by Portrush Petroleum. Website: 2011. Website:
http://www.portrushpetroleum.com/projects_chico_martinez.htm



Figure 3: Project Area 1 (Northern Site)

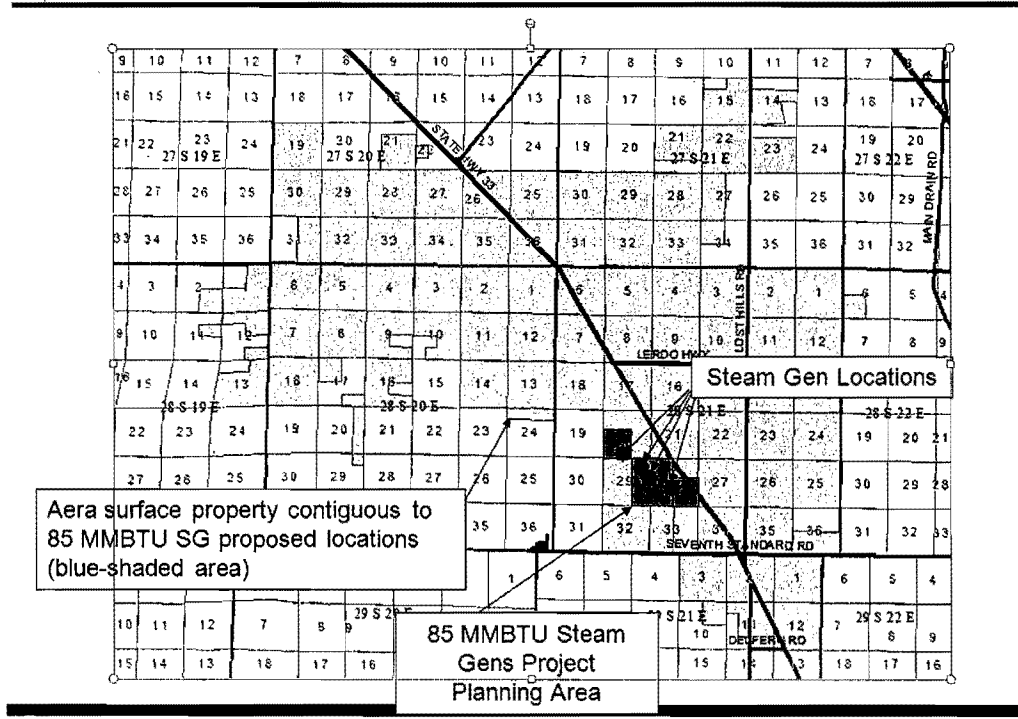


Figure 4: Project Area 2 (Southern Site)

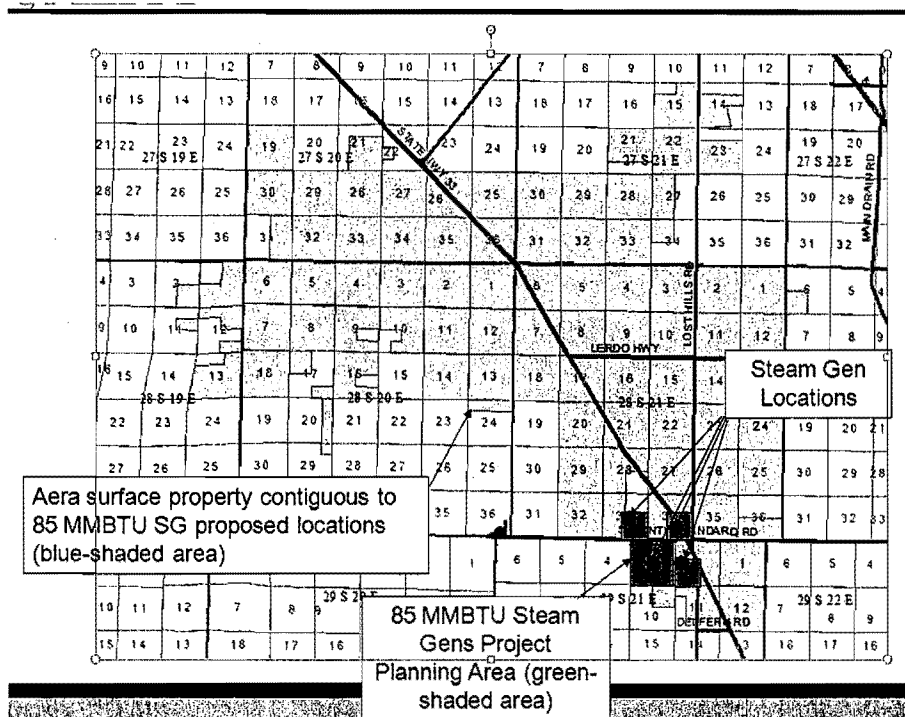




Figure 5: Project Area 1 Boundaries and Locations of Proposed Generators

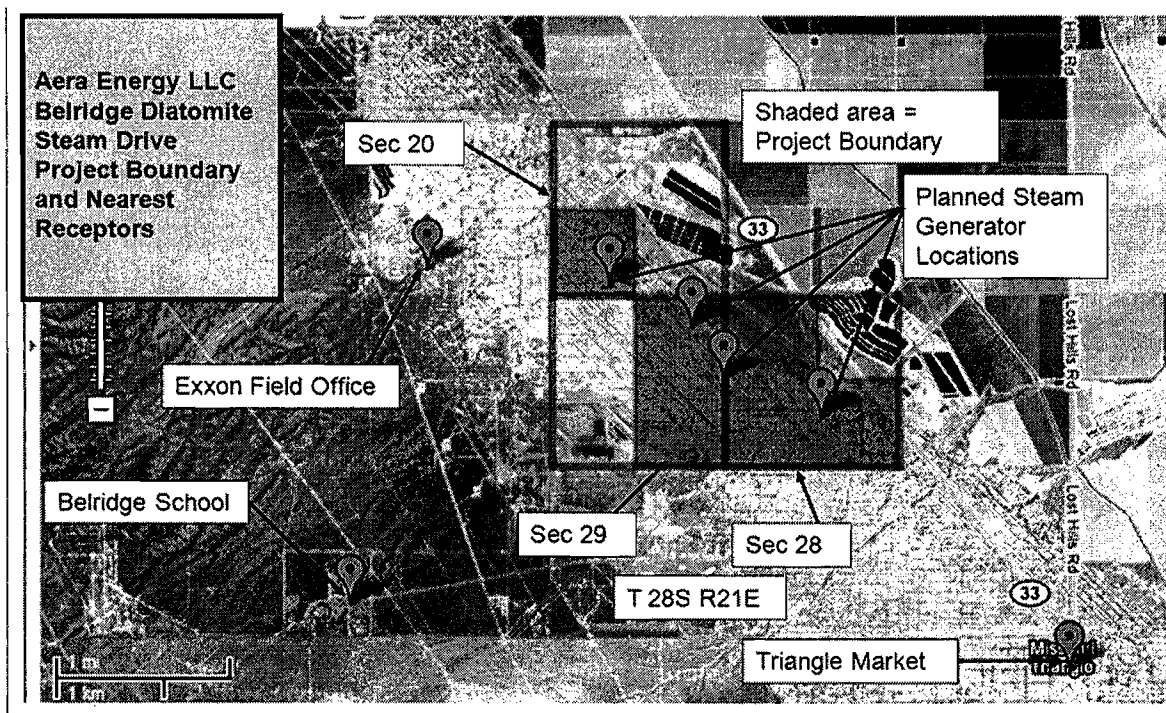
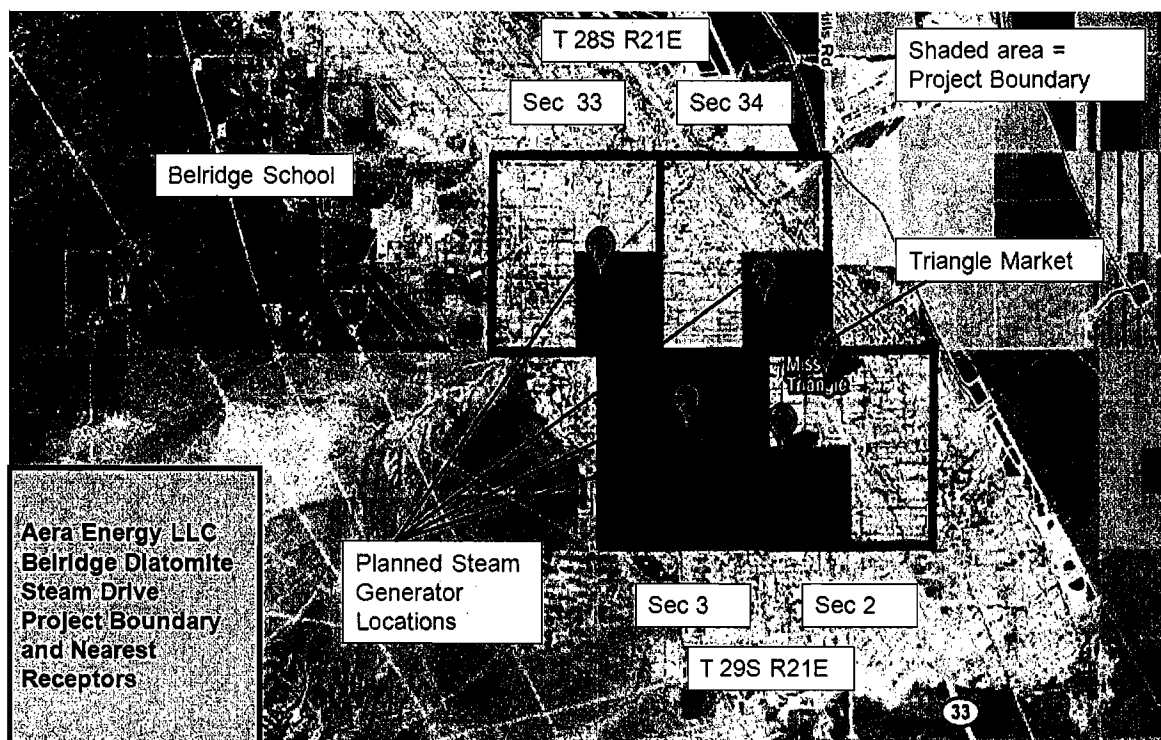


Figure 6: Project Area 2 Boundaries and Locations of Proposed Generators





E. ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED

The environmental factors checked below would be potentially affected by the proposed Project, involving at least one impact that is a "Potentially Significant Impact" or "Potentially Significant Unless Mitigated", as indicated by the checklist on the following pages.

- | | | |
|--|---|---|
| ☐ Aesthetics | ☐ Agriculture and Forestry Resources | ☒ Air Quality |
| ☒ Biological Resources | ☐ Cultural Resources | ☐ Geology / Soils |
| ☐ Greenhouse Gas Emissions | ☐ Hazards & Hazardous Materials | ☐ Hydrology / Water Quality |
| ☐ Land Use / Planning | ☐ Mineral Resources | ☐ Noise |
| ☐ Population / Housing | ☐ Public Services | ☐ Recreation |
| ☐ Transportation / Traffic | ☐ Utilities / Service Systems | ☐ Mandatory Findings of Significance |

F. DETERMINATION

I certify that the Project was independently reviewed and analyzed and that this document reflects the independent judgment of the District.

- ☐ I find that the proposed project COULD NOT have a significant effect on the environment, and a NEGATIVE DECLARATION will be prepared.
- ☒ I find that although the proposed project could have a significant effect on the environment, there will not be a significant effect in this case because revisions in the project have been made by or agreed to by the project proponent. A MITIGATED NEGATIVE DECLARATION has been prepared.
- ☐ I find that the proposed project MAY have a significant effect on the environment, and an ENVIRONMENTAL IMPACT REPORT is required.
- ☐ I find that the proposed project MAY have a "potentially significant impact" or "potentially significant unless mitigated" impact on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets. An ENVIRONMENTAL IMPACT REPORT is required, but it must analyze only the effects that remain to be addressed.
- ☐ I find that although the proposed project could have a significant effect on the environment, because all potentially significant effects (a) have been analyzed adequately in an earlier EIR or NEGATIVE DECLARATION pursuant to applicable standards, and (b) have been avoided or mitigated pursuant to that earlier EIR or NEGATIVE DECLARATION, including revisions or mitigation measures that are imposed upon the proposed project, nothing further is required.

Signature: _____

Date: 5/26/11

Printed name: David Warner

Title: Director of Permit Services



G. ENVIRONMENTAL IMPACT CHECKLIST

I. AESTHETICS				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect on a scenic vista?				X
b) Substantially damage scenic resources, including, but not limited to trees, rock, outcroppings, and historic buildings within a state scenic highway?				X
c) Substantially degrade the existing visual character or quality of the site and its surroundings?				X
d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area?				X

Scenic Vistas and Visual Character (a-d)

Conclusion: The Project will not have an impact on scenic vistas, damage scenic resources, degrade visual character in and around the sites or create new sources of light or glare.

Discussion: The Project is located within Aera's existing surface boundaries in the Belridge Oil Field which historically has been allowed for the exploration and production of oil. The Project is consistent with current and surrounding land uses. Figure 7 provides a view of one steam generator site from approximately ½ mile distance. The other steam generator sites are substantially similar.

No scenic vistas or highways exist on the project sites or on the properties adjacent to the project sites. No scenic resources such as rock outcroppings, trees, or historic buildings exist on the project sites. The absence of scenic vistas and other scenic resources on or near the project sites precludes the possibility of potential adverse impacts.

Ground preparation activities will be conducted during daylight hours only. Minimal operational lighting may be installed at the site and will be consistent with the existing operations.



Figure 7. View of Project Site



Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that construction and operation of the Project would have a detrimental impact on aesthetics.

Mitigation: None required.

References

California Department of Transportation. *California Scenic Highway Mapping System*.
Website: http://www.dot.ca.gov/hq/LandArch/scenic_highways/index.htm

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.



II. AGRICULTURAL RESOURCES	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
In determining whether impacts to agricultural resources are significant environmental effects, lead agencies may refer to the California Agricultural Land Evaluation and Site Assessment Model (1197) prepared by the California Department of Conservation as an optional model to use in assessing impacts on agricultural and farmland. In determining whether impacts to forest resources, including timberland, are significant environmental effects, lead agencies may refer to information compiled by the California Department of Forestry and Fire Protection regarding the state's inventory of forest land, including the Forest and Range Assessment Project and the Forest Legacy Assessment project; and forest carbon measurement methodology provided in Forest Protocols adopted by the California Air Resource Board. Would the Project				
a) Convert Prime Farmland, Unique Farmland, or Farmland of Statewide Importance (Farmland), as shown on the maps prepared pursuant to the Farmland Mapping and Monitoring Program of the California Resources Agency, to non-agricultural use?				X
b) Conflict with existing zoning for agricultural use, or a Williamson Act contract?				X
c) Conflict with existing zoning for, or cause rezoning of, forest land (as defined in Public Resources Code section 12220 (g)), timberland (as defined by Public Resource Code section 4526), or timberland zoned Timberland Production (as defined by Government Code section 51104 (g))?				X
d) Result in the loss of forest land or conversion of forest land to non-forest use?				X
e) Involve other changes in the existing environment which, due to their location or nature, could result in conversion of Farmland, to non-agricultural use or conversion of forest land to non-forest use?				X

Farm and Forest Lands (a-e)

Conclusion: The Project will not conflict with existing zoning and will not have an impact on agriculture and forest lands.

Discussion: The project sites are currently designated in the Kern County 2009 General Plan as Mineral and Petroleum (Code 8.4) and Mineral and Petroleum Flood Plain (Code 8.4/2.5) and are zoned as Exclusive Agriculture (Zone A). Pursuant to Section 19.12.020(E) of the Zoning Ordinance of Kern County; steam generators (excluding coal fired), are a permitted use in Zone A. The Project is within the existing South Belridge oilfield boundaries as designated by DOGGR. The exploration and



production of oil have historically been allowed on the project sites. The project sites are not designated as Prime Farmland, Unique Farmland, or of Statewide Importance. No forest lands are located on the project sites. The Project is consistent with current and surrounding land uses and will not convert farm or forest lands to non-farm or non-forest uses. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that construction and operation of the Project would have an impact on farm or forest lands.

Mitigation: None required.

References

Brauer, Jaymie, Planner. County of Kern, Planning Department. Personal Communication.

California Department of Conservation. *Farmland Mapping & Monitoring Program*. Website: <http://www.conservation.ca.gov/dlrp/fmmp/Pages/Index.aspx>

County of Kern. *2009 General Plan*. Website: <http://www.co.kern.ca.us/planning/pdfs/kcgp/KCGP.pdf>

County of Kern. *Code of Ordinances, Title 19 – Zoning*. Website: <http://www.co.kern.ca.us/planning/pdfs/KCZOMar09.pdf>

County of Kern. *Kern County Online GIS Mapping*. Website: <http://www.co.kern.ca.us/gis/>

Ellis, Jim, Planning Operations Division Chief. County of Kern, Planning Department. Electronic Communication.

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.



III. AIR QUALITY	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
Where available, the significance criteria established by the applicable air quality management or air pollution control district may be relied upon to make the following determinations. Would the Project:				
a) Conflict with or obstruct implementation of the applicable air quality plan?		X		
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?		X		
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the Project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?		X		
d) Expose sensitive receptors to substantial pollutant concentrations?			X	
e) Create objectionable odors affecting a substantial number of people?				X

Air Quality Plans and Standards (a, b, c)

Conclusion: The Project, with the incorporation of mitigation measures, will have a less than significant impact on air quality.

Discussion: The District is tasked with implementing programs and regulations by the Federal Clean Air Act and the California Clean Air Act. In that capacity, the District has prepared plans to attain federal and state ambient air quality standards. The District has established thresholds of significance for criteria pollutant emissions, which are based on federal offset requirements for stationary sources. The District's thresholds of significance for determining whether project emissions would have a significant adverse impact on air quality are: 10 tons per year (tpy) reactive organic gases (ROG), which includes emissions of volatile organic compounds (VOC); 10 tpy oxides of nitrogen (NOx), and 15 tpy particulate matter smaller than 10 micrometers (PM10).

Stationary sources in the District are subject to some of the toughest regulatory requirements in the nation. Emission reductions achieved through implementation of federal offset requirements are a major component of the District's air quality plans. Thus, projects with emissions below the thresholds of significance for criteria pollutants would be determined not to conflict or obstruct implementation of the District's air quality plans.



Project Details

Aera proposes to install and operate up to twenty two (22) new 85 MMBtu/hr natural gas-fired steam generators at two (2) general project areas within their existing Heavy Oil Western Stationary Source in the Belridge Oilfield. The steam generators will be installed as two separate projects. Collectively, Project 1 and Project 2 constitute the "Project". Project 1 is located in the northern portion of the Project site, referred to as Project Area 1. Project 2 is located in the southern portion of the Project site, referred to as Project Area 2. As both Project 1 and Project 2 are part of a common business plan by Aera, they are the same "project" for Federal NSR applicability and CEQA evaluation. The emissions analysis presented in this Initial Study encompasses issues and impacts associated with both projects.

Nineteen (19) ATCs will be issued for each project area for a total of thirty eight (38) for the Project. Although thirty eight (38) ATCs will be issued, thirty eight (38) steam generators will not be installed. Each project area will consist of the following options:

- Option 1: Installation of eleven (11) new 85 MMBtu/hr steam generators equipped to achieve 5 ppmv NO_x at 3% O₂. This option includes the installation of three (3) steam generators equipped with SCR systems to achieve 5 ppmv NO_x at 3% O₂ and eight (8) steam generators equipped with ultra-low NO_x burners capable of achieving 5 ppmv NO_x at 3% O₂. A total of eleven (11) ATCs will be issued for this option.
- Option 2: Installation of eight (8) new 85 MMBtu/hr steam generators equipped with ultra low NO_x burners to achieve 7 ppmv NO_x at 3% O₂ to satisfy BACT and Rule 4320 requirements. Eight (8) ATCs will be issued for this option.
- Option 3: Installation of new 85 MMBtu/hr steam generators from a combination of Options 1 and 2 such that emissions do not exceed the limits allowed by permit conditions. This option will allow Aera the flexibility to install the needed equipment and still be in compliance with applicable District requirements. An additional ATC application will be required for this option.

It is important to note that Aera will install only up to twenty two (22) steam generators. The thirty eight (38) ATCs are necessary to allow Aera the flexibility to install the needed equipment in various locations while also providing options for compliance with District requirements for BACT and Rule 4320 (Advanced Emission Reduction Options for Boilers, Steam Generators, and Process Heaters Greater than 5.0 MMBtu/hr). The emissions limits established in the permit conditions represent the worst-case emissions scenario. Buildout of any of the three (3) options would not exceed these limits.



Construction Emissions

Construction of Project 1 will begin in 2011 with full buildout expected by 2012. The status, extent, and timing of Project 2 is dependent on the success of a proposed biomass steam generation facility which could provide steam to at least a portion of the field area served by Project 2. Project 2 could potentially commence by mid- 2012 and be completed by 2013.

Project 1 is located at an existing steam generator site where there will be minimal “new” disturbance of soil. Older steam generators will be moved aside and soil will be compacted and/or excavated and replaced with better-compacted soil to ensure adequate footing for new steam generator foundations. Approximately four (4) acres of soil is expected to be disturbed in connection with the construction. The extent of Project 2 is unknown at this time. However, candidate sites within Project Area 2 have been identified and potential impacts are expected to be similar to those of Project 1.

Construction related activities include: demolition of on-site equipment, pad preparation, installation of equipment and touchdown facility, installation of access road, and worker commutes. As such, Table 2 below presents the annual construction emissions for the Project.

Table 2 – Construction Emissions

	VOC (tons/year)	NOx (tons/year)	PM10 (tons/year)
Construction Emissions			
2011 (Project 1 emissions)	0.5	3.2	0.3
2012 (Project 1 & Project 2 emissions)	0.8	5.0	0.5
2013 (Project 2 emissions)	0.3	1.8	0.2
Significance Threshold	10.00	10.00	15.00
Exceeds Threshold in Any Year?	No	No	No

As demonstrated in Table 2, construction related emissions do not exceed the District's thresholds of significance and, therefore, mitigation measures are not required. The District concludes that project related construction emissions will have a less than significant impact on air quality.



Operational Emissions

Mobile Source Emissions: The Project will be maintained and manned by existing Aera personnel and contractors. Therefore, the Project will not result in any new mobile source emissions.

Stationary Source Emissions: The Project consists of the installation and operation of up to twenty two (22) new steam generators. The steam generators are capable of generating NO_x, CO, VOC, PM₁₀ and SO_x emissions. The District has conducted an Engineering Evaluation (EE) for Project 1, incorporated herein by reference, which identifies project related emissions under Buildout Option 1 and Buildout Option 2.

Table 3 – Project Area 1 Operational Emissions

	VOC (tons/year)	NO _x (tons/year)	PM ₁₀ (tons/year)
Option 1 (11 generators)	12.293	24.995	31.141
Option 2 (8 generators)	8.760	23.360	22.192

The EE shows that emissions resulting from the buildout of Option 1 are greater than the emissions resulting from the buildout of Option 2. Because the Project will be developed in two (2) project areas, the District's analysis for the Project assumes that both projects will be developed in accordance with Option 1, which represents a worst-case scenario. Table 4 below presents the annual operational emissions for the Project at full buildout. As indicated, the Project would increase operational VOC emission by an estimated 24.59 tpy, NO_x emissions by 49.99 tpy, and PM₁₀ emissions by 62.28 tpy.

Table 4 – Operational Emissions at Full Buildout (22 generators)

	VOC (tons/year)	NO _x (tons/year)	PM ₁₀ (tons/year)
Stationary Source Emissions	24.59	49.99	62.28
Estimated Offset Requirements (ERCs)	24.59	70.95	93.43
Total Emissions After ERCs	0	-20.96	-31.15
Significance Threshold	10.00	15.00	10.00
Exceeds Threshold?	No	No	No



Aera is a major stationary source with a Title V permit and, therefore, required to offset, in the form of emission reduction credits (ERCs), all project related increases in stationary source emissions. VOC and PM10 offset requirements for Project 1 were calculated at an offset ratio of 1.5:1, while NOx offsets were calculated at a combined 1.5:1 and 1:1 ratio based on available ERCs. The extent and timing of Project 2 is unknown at this time; however the ERCs required for Project 2 have been quantified using an offset ratio of 1.5:1 which represents a worst-case scenario. As presented in Table 4 and assuming a worst-case emissions scenario, Aera will be required to surrender ERCs to fully offset operational emissions by an estimated 24.59 tons of VOC, 70.95 tons of NOx, and 93.43 tons of PM10.

The District concludes that through a combination of project design features and permit conditions, project related operational emissions will have a less than significant impact on air quality.

Air Quality Plans

As summarized in Tables 2 and 4, criteria pollutant emissions associated with project construction and operation will be reduced to below the District's Thresholds of Significance. As such, the project does not conflict with the implementation strategy of the San Joaquin Valley Regional Air Quality Management Plans (2008 PM 2.5 Plan; 2007 8-Hour Ozone Plan; 2007 PM10 Maintenance Plan; 2006 PM10 SIP; 2004 1-Hour Ozone SIP; 2003 PM10 SIP).

As discussed above, operational stationary source emissions of VOC, NOx, and PM10 will be reduced by surrendering ERCs. The ERCs must be surrendered to the District prior to the commencement of operation of the equipment proposed under the ATC. Therefore, no mitigation measures are required.

Air Quality Standards

Determination of whether project emissions would violate any ambient air quality standard is largely a function of air quality dispersion modeling. If project emissions would not exceed state and federal ambient air quality standards at the project's property boundaries, the project would be considered to not violate any air quality standard or contribute substantially to an existing or projected air quality violation.

The project has the potential to contribute to the possible violation of an existing air quality standard or an existing or projected air quality violation. However, given that the South Belridge Oilfield covers an approximate area of 15 square miles, it is unlikely that emissions from the proposed steam generators would exceed state and federal ambient air quality standards at the Project's property boundaries. Therefore, through a



combination of project design elements, permit conditions and surrendering ERCs, impacts on air quality are considered less than significant.

Cumulative Impacts

By its very nature, air pollution is largely a cumulative impact. The nonattainment status of regional pollutants is a result of past and present development. Future attainment of state and federal ambient air quality standards is a function of successful implementation of the District's attainment plans. Consequently, the District's application of thresholds of significance for criteria pollutants is relevant to the determination of whether a project's individual emissions would have a cumulatively significant impact on air quality. If a project's emissions is less than the thresholds of significance for criteria pollutants the project would not be expected to result in a cumulatively considerable net increase of any criteria pollutant for which the District is in non-attainment under the applicable federal or state ambient air quality standards. As discussed above, Project emissions are below the District's thresholds of significance for criteria pollutant emissions. Therefore, project related emissions would have a less than significant impact on air quality.

Mitigation: See below.

AIR-1 – Aera will surrender ERCs sufficient to fully offset operational emissions as required by District NSR requirements.

Health Risk Impacts (d)

Conclusion: The Project would not expose sensitive receptors to substantial pollutant concentrations.

Discussion: Under the Clean Air Act, toxic air contaminants (TACs) are airborne pollutants that may be expected to result in an increase in mortality or serious illness or which may pose a present or potential hazard to human health. Potential health impacts from TACs include long-term health effects such as cancer, birth defects, neurological damage, or genetic damage; or short-term affects such as eye watering, respiratory irritation, throat pain and headaches. TACs may also be referred to as hazardous air pollutants (HAPs). There are currently more than 900 substances classified by the US EPA and California Air Resources Board (ARB) as TACs. Air Quality problems occur when sources of TACs and sensitive receptors are located in proximity to one another.

TACs can be separated into carcinogens and non-carcinogens based on the nature of the physiological degradation associated with exposure to the pollutant. For regulatory purposes, carcinogens are assumed to have no safe threshold below which health



impacts would not occur. Cancer risk is expressed as excess cancer cases per one million exposed individuals.

Non-carcinogens differ in that there is generally assumed to be a safe level of exposure below which no negative health impact would occur. These levels are determined on a pollutant-by-pollutant basis. Acute and chronic exposure to non-carcinogens is expressed by using a Hazard Index, which is the ratio of expected exposure levels to acceptable health-acceptable exposure levels.

The Air Toxics "Hot Spots" Information and Assessment Act (AB 2588, 1987, Connelly) was enacted in 1987, and requires stationary sources to report the type and quantities of certain substances routinely released into the air. The goals of AB 2588 are to collect emission data, to identify facilities having localized impacts, to ascertain risks to acceptable levels. AB 2588 requires air districts to establish the prioritization score threshold at which facilities are required to prepare a health risk assessment (HRA). In establishing priorities, an air district must consider potency, toxicity, quantity, and volume of hazardous materials released from the facility, the proximity of the facility to potential receptors, and any other factors that the district determines may indicate that the facility may pose a significant risk.

In implementing its responsibilities under AB 2588, the District Governing Board adopted notification procedures, including prioritization score thresholds, for notifying the public of significant carcinogenic and non-carcinogenic health risks. The District concludes that use of the existing prioritization score thresholds to establish thresholds of significance under CCR § 15064.7 is an appropriate and effective means of promoting consistency in significance determinations within the environmental review process. The District's thresholds of significance for determining whether project emissions would expose sensitive receptors to substantial pollutant concentrations are:

Carcinogens: Probability of contracting cancer for the Maximally Exposed Individual (MEI) exceeds ten (10) in one million.

Non-Carcinogens: Ground Level concentrations of non-carcinogenic TACs would result in a Hazard Index greater than one (1) for the MEI.

An HRA is not required for a project with a prioritization score of less than one (1).

Potentially hazardous materials are not expected to be associated with the steam generator sites at this time. However, there is a possibility that there will be two (2) or three (3) steam generators that will be equipped with SCR and ammonia injection systems for NOx emission control. The District performed a Risk Management Review (RMR) analysis for each of the project sites to determine possible health impacts from the project's permitted stationary source emissions on the nearest sensitive receptors. The RMRs demonstrate that the highest prioritization score for any site is less than one



(1) and the cancer exposure risk for the facility is less than ten (10) in a million. Therefore, no further analysis is required and the project is approved without Toxic Best Available Control Technology (T-BACT). The District concludes that there is no substantial evidence of record to support a conclusion that the project would expose sensitive receptors to significant health risks.

Mitigation: None required.

Odor Impacts (e)

Conclusion: The Project would not create objectionable odor affecting a substantial number of people.

Discussion: While offensive odors rarely cause any physical harm, they can be very unpleasant, leading to considerable distress among the public and often generating citizen complaints to local governments and the District. Any project with the potential to frequently expose members of the public to objectionable odors should be deemed to have a significant impact. Due to the subjective nature of odor impacts, the number of variables that can influence the potential for an odor impact, and the variety of odor sources, there is no quantitative or formulaic methodologies to determine if potential odors would have a significant impact. Rather, projects must be assessed on a case-by-case basis.

Diesel exhaust from construction activities may generate odors. However, construction emissions are temporary in nature and, due to the distance from the nearest sensitive receptor the Project is not expected to affect a substantial number of people. There Project may include two (2) or three (3) steam generators that would be equipped with SCR and ammonia injection systems. Ammonia, which has a pungent odor, would be delivered and kept on site in portable, small-to-medium sized cylinders or pressure tanks. Ammonia used in SCR is expected to be fully used up in the process and no disposal is anticipated. Therefore, the risk of odor exposure from the transport, use, and disposal of ammonia is minimal.

The District's *Guide for Assessing and Mitigating Air Quality Impacts* (GAMAQI) defines a significant odor impact as either more than one (1) confirmed complaint per year averaged over a three year period or three (3) unconfirmed complaints per year averaged over a three year period. A review of the District's compliance complaint database revealed that there has been only one unconfirmed complaint received, in 2006, against Aera's operations in the Belridge Oilfield. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the project would create objectionable odors affecting a substantial number of people.

Mitigation: None required.



References

California Air Resources Board. *AB 2588 Air Toxics "Hot Spots" Program*. Website:
<http://www.arb.ca.gov/ab2588/ab2588.htm>

San Joaquin Valley Unified Air Pollution Control District. July 2010. *Authority to Construct: Application Review*, Applicant No. S-1547, Project No. S-1084210 and S-1084433. Available at San Joaquin Valley Air Pollution Control District. 1990 East Gettysburg Avenue, Fresno, CA 93611.

San Joaquin Valley Unified Air Pollution Control District. January 2002. *Guide for Assessing and Mitigation Air Quality Impacts*. Website:
<http://www.valleyair.org/transportation/CEQA%20Rules/GAMAQI%20Jan%202002%20Rev.pdf>

San Joaquin Valley Unified Air Pollution Control District. October 2008. *Risk Management Review* Applicant No. S-1547, Project No. S-1084210. Available at San Joaquin Valley Air Pollution Control District. 1990 East Gettysburg Avenue, Fresno, CA 93611.

San Joaquin Valley Unified Air Pollution Control District. November 2008. *Risk Management Review* Applicant No. S-1547, Project No. S-1084406. Available at San Joaquin Valley Air Pollution Control District. 1990 East Gettysburg Avenue, Fresno, CA 93611.

San Joaquin Valley Unified Air Pollution Control District. October 2008. *Risk Management Review* Applicant No. S-1547, Project No. S-1084433. Available at San Joaquin Valley Air Pollution Control District. 1990 East Gettysburg Avenue, Fresno, CA 93611.

San Joaquin Valley Unified Air Pollution Control District. November 2008. *Risk Management Review* Applicant No. S-1547, Project No. S-1084434. Available at San Joaquin Valley Air Pollution Control District. 1990 East Gettysburg Avenue, Fresno, CA 93611.



IV. BIOLOGICAL RESOURCES				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special status species in local or regional plans, policies, or regulations, or by the California Department of Fish and Game or U.S. Fish and Wildlife Service?		X		
b) Have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, and regulations, or by the California Department of Fish and Game or US Fish and Wildlife Service?				X
c) Have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?				X
d) Interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?			X	
e) Conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?				X
f) Conflict with the provisions of an adopted Habitat Conservation Plan, Natural Community Conservation Plan, or other approved local, regional, or state habitat conservation plan?				X

Candidate, Sensitive and Special Status Species (a)

Conclusion: The Project, with incorporation of mitigation measures, will have a less than significant impact on candidate, sensitive, or special status species.

Discussion: The Project is within the existing boundaries of the South Belridge Oilfield. The South Belridge Oilfield boundary consists of 9,420 acres (14.72 square miles), which historically has been allowed for the exploration and production of oil. The Project is located on property currently occupied by Aera for oil production activities



consistent with current and surrounding land uses. Aera implements an Endangered Species Program (ESP) to avoid “take” of threatened and endangered species on Aera property or due to activities undertaken by Aera. The term “take” means to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct of endangered species. “Take” includes the modification or degradation of habitat that could result in death or injury to listed species through the interference of behavioral patterns of those species.

Aera implements a biological species training program for employees as part of the ESP. The ESP applies to all Aera employees or contractors involved in activities in which there may be contact with endangered species. The program includes avoidance and minimization measures for daily operations, as well as precautionary measures for species identification prior to construction activities. Aera makes available to employees a handbook detailing the endangered plants and animals within Aera’s property and provides information on endangered species in their internal Emergency Action Plan document. The ESP requires a pre-construction survey to be performed by a trained employee to determine the presence of endangered species. If Aera’s Environmental Health and Safety (EHS) Field Advisor determines further investigation is necessary, Aera will comply with all USFWS and CDFG recommendations for assessment, analysis, and protection of biological resources.

With the implementation of the ESP, it is reasonable to conclude the Project would not result in direct impacts to threatened or endangered species. In addition to implementation of the ESP, Aera has incorporated mitigations measures to ensure that potential impacts on biological resources are fully mitigated to a level of insignificance.

Mitigation: See below.

- ❖ **BIO-1** – A qualified biologist will conduct a pre-construction survey for sensitive species within 30 days of the onset of ground disturbance. If sensitive species or their nests/dens are detected, the appropriate standardized avoidance measures will be implemented to preclude take of the species. If standardized avoidance measures cannot be achieved, Aera will consult with the CDFG and USFWS to develop alternative compliance measures.
- ❖ **BIO-2** – Impacts to endangered species habitat as identified in pre-construction surveys will be mitigated at the Coles Levee Ecological Preserve at a ratio of 1.1:1.
- ❖ **BIO-3** – Aera will conduct a sensitive species education program (tailgate briefing) for all Project personnel. Topics to be discussed during the briefing shall include: occurrence and distribution of sensitive species in the project area, take avoidance measures being implemented during the Project, reporting requirements if incidental take occurs, and applicable definitions and prohibitions under the Endangered Species Act.



- ❖ **BIO-4** – A biological monitor will be present while ground-disturbing activities are occurring based on the sensitivity of the habitat in which a project occurs.
- ❖ **BIO-5** – Pets are prohibited on the construction site.
- ❖ **BIO-6** – Firearms are prohibited on the construction site.
- ❖ **BIO-7** – All food-related trash, such as wrappers, cans, bottles, bags, and food scraps will be disposed of daily in containers with secure covers and regularly removed from project sites.
- ❖ **BIO-8** – USFWS and CDFG will be notified immediately in the event that the Project avoidance measures fail and there is a take of a threatened or endangered species.

Riparian Habitats, Sensitive Natural Communities and Wetlands (b, c)

Conclusion: The Project will have a less than significant impact on riparian habitats, sensitive natural communities or federally protected wetlands.

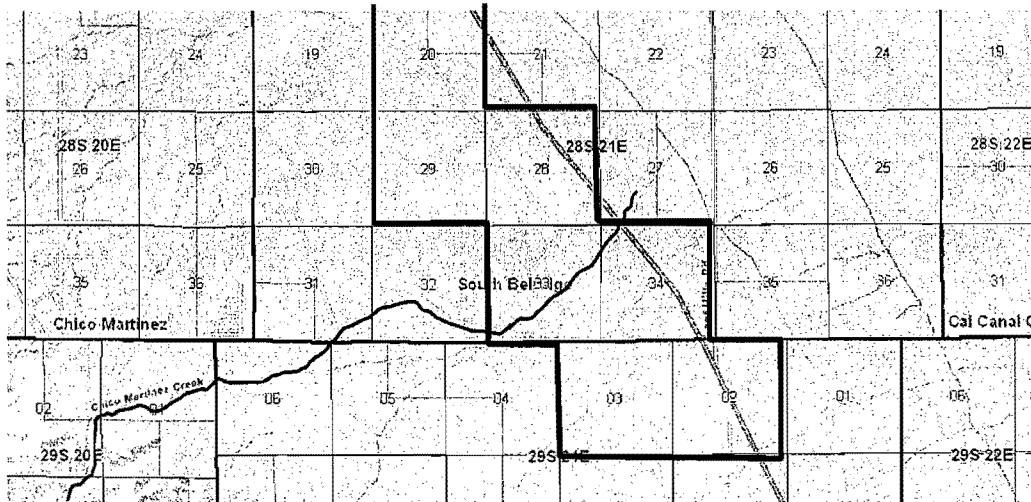
Discussion: The Project is within the existing boundaries of the South Belridge Oilfield. The Project is located on property currently occupied by Aera for oil production activities consistent with current and surrounding land uses. The project sites are located at or very near existing steam generator sites.

The project sites are not part of any riparian habitat or other sensitive natural community as identified by the USFWS or CDFG. Chico Martinez Creek runs through the northwestern portion of Project Site 2 (see Figure 8). Chico Martinez Creek is a dry bed except during and immediately following rainstorms. Chico Martinez Creek is not a water of the United States subject to Section 404 of the Clean Water Act. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would have an impact on riparian habitats, sensitive natural communities or wetlands.

Mitigation: None Required



Figure 8. Chico Martinez Creek



Migratory Corridors (d)

Conclusion: The Project will have a less than significant impact on migratory corridors.

Discussion: The Project is within the existing boundaries of the South Belridge Oilfield. The Project is located on property currently occupied by Aera for oil production activities consistent with current and surrounding land uses. The project sites are located at or in close proximity to existing steam generator sites. Existing steam generator sites have not posed difficulties with migratory wildlife. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would have an impact on the migratory corridors and the movement of threatened and endangered species.

Mitigation: None Required

Policies, Ordinances and Conservation Plans (e-f)

Conclusion: The Project will not conflict with local policies or ordinances protecting biological resources or any provision of adopted federal, state, regional, or local conservation plans.

Discussion: The County has a Draft Habitat Conservation Plan (HCP) that is designed to protect biological resources. The proposed project sites are located in a "Productive Oil Area" that is designated as having "White Zone" habitat quality in the HCP. These characteristics identify Aera's operations as occurring in a densely developed oilfield with limited sensitive species habitat quality. The Project is not located within the



boundaries of a Multiple Species Habitat Conservation Plans (MSHCP), Natural Community Conservation Plans (NCCP) or any USFWS designated critical habitat.

Through compliance with Aera's environmental policies and practices, no take of endangered species are expected to occur during Project implementation due to the practice of avoidance measures. Well and facility impacts to endangered species habitat (as identified in pre-activity surveys) associated with the installation of the generators will be mitigated at the Coles Levee Ecological Preserve at a ratio of 1.1:1. Aera acquired the Coles Levee Ecological Preserve in 1999. Since that time Aera has utilized approximately 100 acres of the preserve to mitigate endangered species impacts on its Fee and Bureau of Land Management (BLM) properties leaving approximately 760 acres of mitigation credits in its bank.

The District concludes that there is no substantial evidence of record to support a conclusion that the construction and operation of the Project would conflict with local policies or ordinances, or any provision of adopted federal, state, regional, or local conservation plans protecting biological resources.

Mitigation: See Mitigation Measure BIO-2

References

California Department of Conservation, Division of Oil, Gas and Geothermal Resources. *DOGGR Online Mapping System (DOMS)*. Website:
<http://maps.conservation.ca.gov/doms/index.html>

California Department of Fish and Game. *Conservation and Mitigation Banks in California Approved by the Department of Fish and Game*. Website:
<http://www.dfg.ca.gov/habcon/conplan/mitbank/catalogue/catalogue.html>

Chambers, Ron L., Lead Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.

County of Kern. *2009 General Plan*. Website:
<http://www.co.kern.ca.us/planning/pdfs/kcgp/KCGP.pdf>

County of Kern. *First Draft Valley Floor Habitat Conservation Plan*. Website:
http://www.co.kern.ca.us/planning/pdfs/vfhcp_dec06.pdf

County of Kern. *Kern County Online GIS Mapping*. Website:
<http://www.co.kern.ca.us/gis/>

United States Fish and Wildlife Service. *Conservation Plans and Agreements Database*. Website: http://ecos.fws.gov/conserv_plans/public.jsp



United States Fish and Wildlife Service. *Critical Habitat Mapper*. Website:
<http://crithab.fws.gov/flex/crithabMapper.jsp?>

United States Fish and Wildlife Service. *Endangered Species Glossary*. Website:
<http://www.fws.gov/midwest/Endangered/glossary/index.html>

Wikipedia. Website: http://en.wikipedia.org/wiki/South_Belridge_Oil_Field

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.

V. CULTURAL RESOURCES Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Cause a substantial adverse change in the significance of a historical resource as defined in '15064.5?				X
b) Cause a substantial adverse change in the significance of an archaeological resource pursuant to '15064.5?			X	
c) Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?			X	
d) Disturb any human remains, including those interred outside of formal cemeteries?			X	

Historical Resources (a)

Conclusion: The Project will not have an impact on historical resources.

Discussion: The Project is within the existing boundaries of the South Belridge Oilfield. The Project is located on property currently occupied by Aera for oil production activities consistent with current and surrounding land uses. The project sites are located at or very near existing steam generator sites. A query of state and federal registers indicated that there are no registered historic resources within the Project site. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would have an impact on historical resources.

Mitigation: None needed.



Archaeological/Paleontological Resources and Human Remains (b, c, d)

Conclusion: The Project, with the incorporation of mitigation measures, will have a less than significant impact on archaeological and paleontological resources and human remains.

Discussion: The Project is within the existing boundaries of the South Belridge Oilfield. The Project is located on property currently occupied by Aera for oil production activities consistent with current and surrounding land uses. The project sites are located at or very near existing steam generator sites. Human remains are not known to exist at the subject site. Although there is a possibility of archaeological or paleontological resources being uncovered during grading at sites that have been previously developed, the area being disturbed is small. Standard protocol in compliance with existing regulations would require that, in the event that archaeological/paleontological resources, including human remains, are discovered during construction of the Project, all work within 100 feet be ceased and the discovery to be immediately reported to the appropriate authorities. Mitigation measures have been incorporated into the Project to minimize impacts on archaeological or paleontological resources ; therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would have a significant impact on archaeological or paleontological resources.

Mitigation: See below.

- ❖ **CUL-1** – In the event that archaeological resources are discovered during ground-disturbing activities associated with construction of the proposed Project, all work within 100 feet of the find shall cease. Aera will notify and retain a qualified archaeologist to assess and provide an evaluation of the significance of the find. Aera shall determine whether avoidance is necessary and feasible in light of the factors such as the nature of the find, project design, costs, and other considerations, and, if necessary, develop appropriate mitigation measures in consultation with Kern County and other appropriate agencies and individuals. Work may resume on the Project site once the evaluation of the find is complete by the qualified archaeologist.
- ❖ **CUL-2** – In the event that paleontological resources are discovered during ground-disturbing activities associated with construction of the proposed Project, all work within 100 feet of the find shall cease. Aera will notify and retain a qualified paleontologist to assess and provide an evaluation of the significance of the find. Aera shall determine whether avoidance is necessary and feasible in light of the factors such as the nature of the find, project design, costs, and other considerations, and, if necessary, develop appropriate mitigation measures in consultation with Kern County and other appropriate agencies and individuals. Work



may resume on the Project site once the evaluation of the find is complete by the qualified paleontologist.

- ❖ **CUL-3** – In the event that human remains are discovered during construction of the Project, all work within 100 feet shall be ceased and the discovery will immediately be reported to the County Coroner. If the remains are determined to be Native American in origin, the County Coroner shall notify the Native American Heritage Commission (NAHC) within 24 hours of the determination. The NAHC will solicit those persons it believe to be the nearest descendants of the remains for recommendations. Aera shall, in consultation with the identified descendants of the remains and/or NAHC, will identify the appropriate measures for the treatment or disposition of the remains.

References

California Code of Resources §15064.5

California Department of Parks and Recreation. Office of Historic Preservation. Website: http://ohp.parks.ca.gov/listed_resources/?view=county&criteria=15

California Health and Safety Code §7050.5

California Natural Resources Agency. *CERES: State Historical Landmarks for Kern County*. Website: http://ceres.ca.gov/geo_area/counties/Kern/landmarks.html

National Register of Historic Places Website:
<http://www.nationalregisterofhistoricplaces.com/ca/Kern/state.html>

Native American Heritage Commission. *Professional Guide for the Preservation and Protection of Native American Remains and Associated Grave Goods*. Website: <http://www.nahc.ca.gov/profguide.html>

Public Resources Code § 5097.94 and §5097.98

United States. National Park Service. *National Register of Historic Places Database*. Website: <http://nrhp.focus.nps.gov/natreghome.do?searchtype=natreghome>

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.



VI. GEOLOGY / SOILS				
Would the Project	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:				
i) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault? Refer to Division of Mines and Geology Special Publication 42.				X
ii) Strong seismic ground shaking?			X	
iii) Seismic-related ground failure, including liquefaction?				X
iv) Landslides?				X
b) Result in substantial soil erosion or the loss of topsoil?				X
c) Be located on a geologic unit or soil that is unstable, or that would become unstable as a result of the Project, and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction or collapse?			X	
d) Be located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating substantial risks to life or property?				X
e) Have soils incapable of adequately supporting the use of septic tanks or alternative wastewater disposal systems where sewers are not available for the disposal of wastewater?				X

Seismic Activity and Geological Stability (a, c, d)

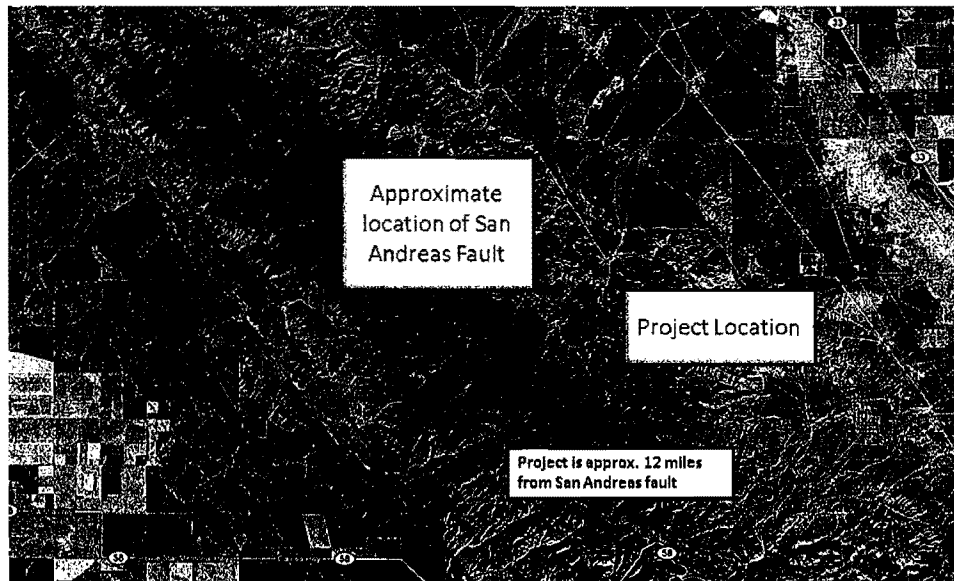
Conclusion: Potential risks of loss, injury or death resulting from strong seismic activity, unstable or expansive soils, and ground failure are less than significant.

Discussion: The Project is located on property currently occupied by Aera, within the existing South Belridge Oilfield boundaries as designated by DOGGR. The Project site is consistent with current land use which has historically been used for oil production. The Project is located in an area with stable soils with little potential for strong seismic activity and ground failure.



No major fault systems are known to exist in Kern County. The nearest fault to the Project site is the San Andreas Fault, approximately four miles west of the Kern County Line, or approximately 12 miles west of the Project site (see Figure 9). The Project is not located within an Alquist-Priolo Earthquake Fault Zone or within 500 feet of a known active fault trace. The Project is not located within a liquefaction hazard area, or within a landside hazard area. The Project will not be located on an unstable geological unit, unstable soil, or expansive soil. Therefore, potential for extensive surface rupture, strong ground shaking, and seismic ground failure, including liquefaction and landslides, is considered to be minimal.

Figure 9. Project Vicinity to San Andreas Fault



The Project site is consistent with current land use is designed in accordance with all building code requirements including those pertaining to excavations, grading, and foundations. Adherence to California Buildings Standards Code (CBSC) requirements and compliance with California seismic design requirements would ensure that the Project would not expose persons or property to substantial risk of loss, injury or death resulting from seismic activity.

The District concludes that there is no substantial evidence of record to support a conclusion that the Project would result in significant risks to life and property as a result of impacts to geologic and soil resources.

Mitigation: None required.



Soil Erosion (b)

Conclusion: The Project will not result in substantial soil erosion or the loss of topsoil and impacts are less than significant.

Discussion: The construction of the steam generators would involve ground-disturbing activities, including pad preparation and installation of piping and electrical systems, which could potentially create erosion. Construction of the steam generators is consistent with the current land use and oilfield operations and will occur in areas that have been previously disturbed by similar activities. The steam generators will be built on soil with ratings of low susceptibility to erosion. Potential impacts to soil erosion will be reduced through compliance with Kern County Planning and Building Department requirements. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would result in substantial soil erosion or loss of topsoil.

Mitigation: None required.

Soil Capacity for Wastewater (e)

Conclusion: The Project will have no impact on the capacity of the soil to support wastewater disposal systems.

Discussion: The Project includes the construction and operation of up to 22 steam generators on two (2) project sites. An auxiliary "touchdown" facility will also be located at each project site. The touchdown facilities consist of a small control room and a restroom. The restrooms will require the installation of new septic systems. The septic systems will be constructed in accordance with CBSC requirements and Kern County building codes. Therefore, the Project will not impact the soil or its capacity to support wastewater disposal.

Mitigation: None required.

References

California Department of Conservation, California Geological Survey. *Fault Parameters-Alquist Priolo Earthquake Fault Zones*. Website:
<http://www.conservation.ca.gov/cgs/rghm/ap/Pages/Index.aspx>

California Department of Conservation, California Geological Survey. *Seismic Shaking Hazards in California*. Website:
<http://redirect.conservation.ca.gov/cgs/rghm/pshamap/pshamain.html>



Chambers, Ron L., Lead Environmental Advisor. Aera Energy LLC. Electronic and Telephone Communication.

County of Kern. 2009 *General Plan*. Website:
<http://www.co.kern.ca.us/planning/pdfs/kcgp/KCGP.pdf>

Natural Resources Conservation Service (NRCS) *Web Soil Survey*. Website:
<http://websoilsurvey.nrcs.usda.gov/app/>

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.

VII. GREENHOUSE GAS EMISSIONS				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Generate greenhouse gas emissions, either directly or indirectly, that may have a significant impact on the environment?			X	
b) Conflict with an applicable plan, policy, or regulation adopted for the purpose of reducing the emissions of greenhouse gases?			X	

Greenhouse Gases (a, b)

Conclusion: Project related greenhouse gas (GHG) emissions will have a less than significant impact on the environment and will not conflict with applicable plans, policies, or regulations to reduce GHG emissions.

Discussion: Assembly Bill (AB) 32 was adopted establishing a cap on statewide greenhouse gas emissions and sets forth the regulatory framework to achieve the corresponding reduction in statewide emissions levels. In executing its legislative mandate under AB32, the ARB developed a Scoping Plan. The Scoping Plan contains the main strategies California will use to reduce greenhouse gas (GHG) from Business-as-Usual (BAU) emissions projected from 2020 levels back down to 1990 levels. BAU is the projected emissions caused by growth, without any GHG reduction measures. ARB determined that a 29% reduction from BAU is necessary to achieve the 1990 GHG emissions level.

On December 17, 2009, the District adopted the policy "*District Policy – Addressing GHG Emissions Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency*". The policy was developed to assist Lead Agencies, project



proponents, permit applicants, and interested parties in assessing and reducing the impacts of project specific GHG emissions on global climate change. The approach in the policy relies on the use of Best Performance Standards (BPS) that would be applicable to projects that result in increased GHG emissions. BPS is defined as the most effective achieved-in-practice means of reducing or limiting GHG emissions from a GHG emissions source. Projects implementing BPS would be determined to have a less than cumulatively significant impact. Otherwise, demonstration of a 29% reduction in GHG emissions from BAU is required to determine that a project would have a less than cumulatively significant impact consistent with GHG emission reduction targets established in ARB's AB32 Scoping Plan.

Construction Related GHG Emissions

Construction related GHG emissions, in the form of carbon dioxide (CO₂), will result from temporary, short-term construction activities (i.e., engine exhaust emissions). BPS has not been established for construction equipment therefore, construction related GHG emissions were quantified. As presented in Table 5 below, Project construction will result in a total of 1,099.8 metric tons CO₂e.

Table 5 – Construction Related CO₂ Emissions

Construction Period	Emissions - CO₂e (tons)
2011 Project 1	348.9
2012 Project 1 & Project 2	549.9
2013 Project 2	201.0
Total CO ₂ e	1,099.8

The lifetime of excess atmospheric carbon dioxide has been estimated within the range of 19 to 49 years. Given the uncertainty in predicting the environmental half-life of atmospheric CO₂, the District determined it was appropriate to amortize construction related GHG emissions over the life of the project and express project specific construction emissions in terms of tons of CO₂e per year. Aera provided information that demonstrates the lifespan of an average steam generator varies from fifteen (15) to thirty (30) years. As such, the District amortized construction related GHG emissions over a 15-year project life as presented below.



$$\frac{1,099.8 \text{ [Sum of Construction GHG emissions (metric tons)]}}{15 \text{ [Project Life (years)]}}$$

$$= 73.32 \text{ Total Construction CO}_2\text{e (metric tons/year)}$$

Project specific greenhouse gas emissions less than or equal to 230 metric tons-CO₂e/year are considered to be equivalent to zero, per District Policy (APR-2015). Therefore, it is reasonable to conclude that construction related GHG emissions for the project will have a less than cumulatively significant impact.

Operation Related GHG Emissions

Existing Aera staff and contract workers will be reassigned to this location from other positions at Belridge or nearby projects that are ramping down; therefore, no increases in mobile source greenhouse gas emissions are expected.

Operational GHG emissions for this project will result from the operation of up to twenty two (22) steam generators. The proposed steam generators will implement BPS. Therefore, per District Policy (APR-2005), the District concludes that Project related operational GHG emissions will have a less than cumulatively significant impact on global climate change.

GHG Plans, Policies, and Regulations

Kern County does not have an adopted GHG Climate Change Action Plan. As discussed above the District, acting as Lead Agency, requires either the incorporation of BPS or the demonstration of a 29% reduction in GHG emissions from BAU. BPS is proposed for this Project and complies with District policy for reducing GHG impacts. Therefore, the Project will not conflict with any known applicable plans, policies or regulations for addressing GHG impacts. The District concludes that there is no substantial evidence of record to support a conclusion that Project related GHG emissions would have a significant impact on the environment and global climate change.

Mitigation: None required.

References

Moore, B., III, and B. H. Braswell. 1994. The lifetime of excess atmospheric carbon dioxide, *Global Biogeochem. Cycles*, 8(1), 23–38, doi: 10.1029/93GB03392.



San Joaquin Valley Unified Air Pollution Control District. December 2009. *Addressing GHG Emission Impacts for Stationary Source Projects Under CEQA When Serving as the Lead Agency* (APR 2005). Website:

http://www.valleyair.org/policies_per/policies/apr2005.pdf

San Joaquin Valley Unified Air Pollution Control District. July 2010. *Authority to Construct: Application Review*, Applicant No. S-1547, Project No. S-1084210 and S-1084433. Available at San Joaquin Valley Air Pollution Control District. 1990 East Gettysburg Avenue, Fresno, CA 93611.

San Joaquin Valley Unified Air Pollution Control District. *Best Performance Standards (BPS) for Stationary Sources*. Website:

http://www.valleyair.org/Programs/CCAP/bps/BPS_idx.htm

San Joaquin Valley Unified Air Pollution Control District. March 2010. *Zero Equivalency Policy for Addressing Greenhouse Gases* (APR-2015). Website:

http://www.valleyair.org/policies_per/policies/apr2015.pdf

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.

VIII. HAZARDS & HAZARDOUS MATERIALS				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Create a significant hazard to the public or the environment through the routine transport, use, or disposal of hazardous materials?			X	
b) Create a significant hazard to the public or the environment through reasonably foreseeable upset and accident conditions involving the release of hazardous materials into the environment?			X	
c) Emit hazardous emissions or handle hazardous or acutely hazardous materials, substances, or waste within one-quarter mile of an existing or proposed school?				X
d) Be located on a site which is included on a list of hazardous materials sites compiled pursuant to Government Code Section 65962.5 and, as a result, would it create a significant hazard to the public or the environment?				X



VIII. HAZARDS & HAZARDOUS MATERIALS (CONTINUED)	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
Would the Project:				
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project result in a safety hazard for people residing or working in the Project area?				X
f) For a Project within the vicinity of a private airstrip, would the Project result in a safety hazard for people residing or working in the Project area?			X	
g) Impair implementation of or physically interfere with an adopted emergency response plan or emergency evacuation plan?				X
h) Expose people or structures to a significant risk of loss, injury or death involving wildland fires, including where wildlands are adjacent to urbanized areas or where residences are intermixed with wildlands?			X	

Hazardous Materials (a-d)

Conclusion: The Project will not expose the public to hazardous materials, and impacts are less than significant.

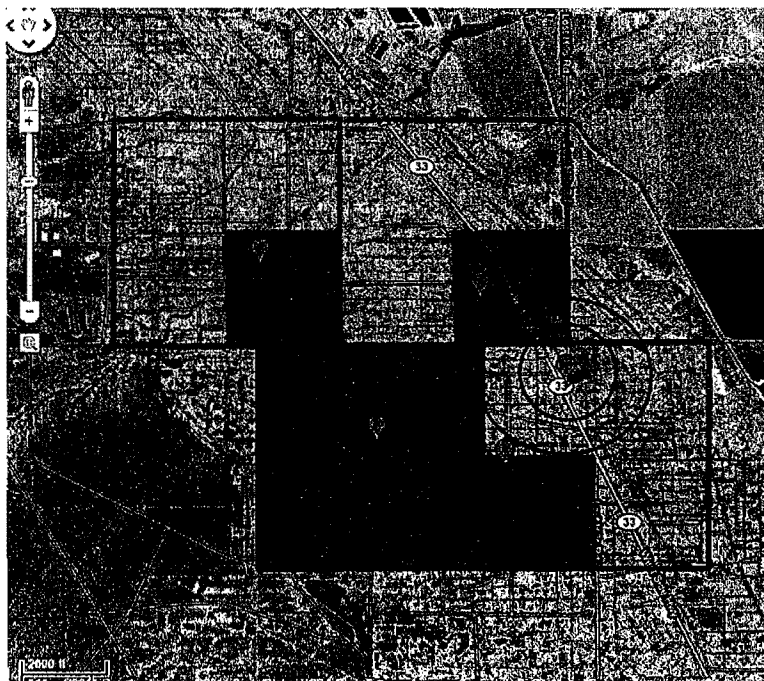
Discussion:

The Project is located on property currently occupied by Aera, within the existing South Belridge Oilfield boundaries as designated by DOGGR. The project sites are consistent with current land use which has historically been used for oil production. The area immediately surrounding the Project is zoned for agricultural uses, which includes general agricultural operations and oil field production. The Project is not located on a site which meets this definition of Government Code Section 65962.5, which requires specific hazardous waste facilities to submit required information to the Department of Toxic Substances Control (DTSC).

Human receptors nearest the Project are located at distances sufficient to reduce potential impacts from hazardous materials. The nearest public location, Triangle Market, is at least 600 feet from the nearest generator site (see Figure 10); nearest school is Belridge Elementary School, located approximately two (2) miles west of the Project site; and nearest community is Lost Hills, six (6) miles to the north of the Project site.



Figure 10. Proximity to Sensitive Receptors



Note: inner circle is 1,000 foot radius, outer circle is 2,000 foot radius

Potentially hazardous materials are not expected to be associated with the steam generator sites at this time. However, there is a remote possibility that there will be two (2) or three (3) steam generators that will be equipped with SCR and ammonia injection systems for NO_x emission control. Ammonia would be delivered and kept on site in portable, small-to-medium sized cylinders or pressure tanks. It is not anticipated that the size of the cylinders or tanks would require a process hazard analysis (PHA). If SCR is employed for the steam generators, the permits issued by the District will limit stack emissions of ammonia to 20 ppm. The District has conducted a risk screening analysis indicating that the operation of the steam generators would not pose a significant risk to the public. Ammonia used in SCR is expected to be fully used up in the process and no disposal is anticipated. Therefore, the risk of exposure from the transport, use, and disposal of hazardous materials is minimal.

Development of the project consistent with DOGGR's Well Review Program will further minimize potential hazards to the public, Aera's employees and contractors, and the environment. DOGGR's Well Review Program is available to developers to assist them in identifying potentially dangerous impacts resulting from construction operations near existing and abandoned oil and natural gas wells and the measures necessary to reduce those impacts. Aera is familiar with this program and will implement the



elements pertinent to this project. Aera has evaluated Project Area 1 for abandoned and active well conflicts consistent with DOGGR's Well Review Program. A site map and list of identified wells located in Project Area 1 are provided in Attachment 2. Prior to construction Aera's Investment Recovery Team will evaluate the abandonment records of the wells identified and obtain the appropriate permits as needed for abandonment, reabandonment or modifications to the wells. Mitigation measures, consistent with DOGGR's recommendations in the Well Review Program, have been incorporated into the project to ensure the development would have no impacts resulting from abandoned wells.

Compliance with existing safety standards in the construction and long-term operation of the steam generators will minimize any potential hazard to the public, Aera's employees and contractors, and the environment. Occupational safety standards exist in Federal and State laws to minimize worker safety risks from both physical and chemical hazards in the workplace. The California Department of Industrial Relations Division of Occupational Safety and Health (Cal/OSHA) is responsible for developing and enforcing safety standards and assuring worker safety in the handling and use of hazardous materials. Among other requirements, Cal/OSHA obligates many businesses to prepare Injury and Illness Prevention Plans and Chemical Hygiene Plans. The Hazard Communication Standard requires that workers be informed of the hazards associated with the materials they handle, if need be. Therefore, impacts resulting from the accidental release of hazardous materials are expected to be less than significant.

The District concludes that there is no substantial evidence of record to support a conclusion that the transportation, use, or disposal of hazardous materials would pose a hazard to the public.

Mitigation:

- ❖ **HAZ-1** – Prior to the start of construction activities, Aera shall provide the District with documentation demonstrating that maps identifying all wells in the vicinity of the sites have been submitted to DOGGR for compliance with DOGGR's "Well Review Program".
- ❖ **HAZ-2** – During construction activities, if unknown, unrecorded or abandoned wells are discovered or if any wells are damaged, Aera shall immediately notify the DOGGR.
- ❖ **HAZ-3** – Any wells discovered or exposed during construction activities will be tested for flammable vapors.



Airports and Airstrips (e, f)

Conclusion: The Project is not located near active airports or airstrips; therefore, the Project will not have an impact on the safety of people residing or working in the Project area.

Discussion: The Project is located on property currently occupied by Aera, within the existing South Belridge Oilfield boundaries as designated by DOGGR. The project sites are consistent with current land use which has historically been used for oil production. The project sites are not within two (2) miles of a public airport or public use airport. The nearest public airport is the Meadows Field Airport (BFL), located approximately 45 miles east of the Project in the City of Bakersfield. A private landing strip is located in the northeastern quadrant of Project Area 1 (see Figure 11). The landing strip is closed per Federal Aviation Administration (FAA) regulations. It is only under extreme circumstances, such as emergency evacuation of severely injured personnel or emergency transport of incident response personnel for a large incident, that the landing strip may be utilized by helicopter. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project's location near airports or airstrips would pose a risk to people residing or working in or near the Project area.

Mitigation: None required.

Figure 11. Private Landing Strip on Aera Property





Emergency Response and Fire Hazards (g, h)

Conclusion: The Project will not interfere with emergency response or evacuation plans; nor will it expose people or structures to risks from wildland fires.

Discussion: The Project is located on property currently occupied by Aera, within the existing South Belridge Oilfield boundaries as designated by DOGGR. The oilfield comprises a contiguous area having a size of about 14.72 square miles within Kern County. No wildlands are within close proximity of the Project and the nearest residence is approximately five (5) miles away. Although there have been occasional, insignificant brush fires within the South Belridge oilfield, the California Department of Forestry and Fire Prevention (CAL FIRE) has determined that Kern County has no Very High Fire Hazard Severity Zones (FHSZ) in the Local Responsibility Area (LRA) and only a Moderate FHSZ in the State Responsibility Area (SRA).

The Project is consistent with current land use which has historically been used for oil production. The Project would not require any physical alterations to existing public roadways that would impair or interfere with emergency response or evacuation. Project Area 1 includes two (2) vehicle access points. Project Area 2 has not yet been defined, but it is expected that the area will include at least one access point.

A private landing strip, which has been closed per FAA regulations, is located on the Project site. However, under extreme circumstances, such as emergency evacuation or emergency transport of incident response personnel, the landing strip may be utilized to aid in emergency response. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would interfere with emergency response or expose people or structures to risks from fires.

Mitigation: None required.

References

California Department of Forestry and Fire Protection. *Fire Hazard Severity Zones Map*. Website: http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones.php

California Department of Toxic Substances Control. *DTSC's Hazardous Waste and Substances Site List - Site Cleanup (Cortese List)*. Website: http://www.dtsc.ca.gov/SiteCleanup/Cortese_List.cfm

California Environmental Protection Agency. *Cortese List: Section 65962.5(a)*. Website: <http://www.calepa.ca.gov/sitecleanup/corteselist/SectionA.htm>

Chambers, Ron L., Lead Environmental Advisor. Aera Energy LLC. Electronic and Telephone Communication.



Google Maps. February, 2011.

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.

IX. HYDROLOGY / WATER QUALITY				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Violate any water quality standards or waste discharge requirements?				X
b) Substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?				X
c) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, in a manner, which would result in substantial erosion or siltation on- or off-site?				X
d) Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner which would result in flooding on- or off-site?				X
e) Create or contribute runoff water which would exceed the capacity of existing or planned storm water drainage systems or provide substantial additional sources of polluted runoff?				X
f) Otherwise substantially degrade water quality?				X
g) Place housing within a 100-year flood hazard area as mapped on a federal Flood Hazard Boundary or Flood Insurance Rate Map or other flood hazard delineation map?				X



IX. HYDROLOGY / WATER QUALITY (CONTINUED)	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
Would the Project:				
h) Place within a 100-year flood hazard area structures which would impede or redirect flood flows?				X
i) Expose people or structures to a significant risk of loss, injury or death involving flooding, including flooding as a result of the failure of a levee or dam?			X	
j) Inundation by seiche, tsunami, or mudflow				X

Water Quality, Waste Discharge, and Groundwater Supplies (a, b, e, f)

Conclusion: The Project will not violate any water quality standards or waste discharge requirements and will not substantially deplete or degrade groundwater supplies or interfere with groundwater recharge; therefore, impacts are less than significant.

Discussion: The Project is located on property currently occupied by Aera which historically has allowed for the exploration and production of oil. The Project is located within the existing boundaries of the South Belridge Oilfield as designated by DOGGR, and is consistent with current operations.

Construction Activities:

Construction activities will include:

- Demolition of some existing onsite equipment
- Site prep: excavation, grading, soil compaction, etc.
- New foundation construction as needed - pour slurry, place rebar / supports
- Facility Construction/Installation: Install below ground drain system, install concrete sump, install grounding halos, place structural steel, install pre-fabricated pipe spools, erect pre-fabricated equipment frames and platforms
- Set equipment: Separators, small chemical tanks, air compressor, generator(s), pump(s)
- Insulate pipe / equipment
- Install transformer and pad
- Install septic system and control room
- Touch up paint for structural steel
- Complete grade and pave access roads

Project 1 is planned to be sited at an existing steam generator setting where there will be minimal "new" disturbance of soil, native vegetation, and habitat. Older steam



generators will be moved aside and soil will be compacted and/or excavated and replaced with better-compacted soil to ensure adequate footing for new steam generator foundations. Approximately four (4) acres of soil is expected to be disturbed in connection with the construction.

Project 2 construction sites have not yet been defined. Project 1 and Project 2 are similar in number of steam generators to be installed. Therefore, for the purpose of this analysis, Project 2 construction activities are assumed to be the same as Project 1. All of this area will be within the existing oilfield.

All of the surface area disturbed by construction is expected to remain as part of the plant site after construction is complete. Temporary equipment staging areas will become part of the plant site and/or be set aside for employee and visitor vehicle parking.

Operational Activities:

The Project will use recycled produced water to generate steam. All of the water used for the Project will come from the Belridge water recycling plants that process water produced from the oil reservoir. In 2008 (the most recent year that DOGGR records are available) produced water capable of being recycled as steam was 128.2 million barrels (MM bbls). Produced water recycled as steam totaled 55 MM bbls leaving 73.2 MM bbls of surplus. Demand for softened produced water from these projects is a maximum of approximately 22 MM bbls per year for each site (44 MM bbls total). This will potentially reduce the amount of surplus produced water to approximately 30 MM bbls per year.

Treated produced water used in the steam generation process is not potable and is not suitable even for agricultural purposes until after it is processed through the Belridge water plants. No wastewater will be discharged to the environment from steam generators. No beneficial-use aquifers are affected.

Potentially hazardous materials are not expected to be associated with the steam generator sites at this time. However, there is a remote possibility that there will be two (2) or three (3) steam generators that will be equipped with SCR and ammonia injection systems for NOx emission control. Ammonia would be delivered and kept on site in portable, small-to-medium sized cylinders or pressure tanks and is expected to be fully used up in the SCR process. Therefore, the use of ammonia will not provide a source of polluted runoff.

The District concludes that there is no substantial evidence of record to support a conclusion that the Project would violate water quality standards or waste water discharge requirements or have a negative impact on groundwater supplies.



Mitigation: None required.

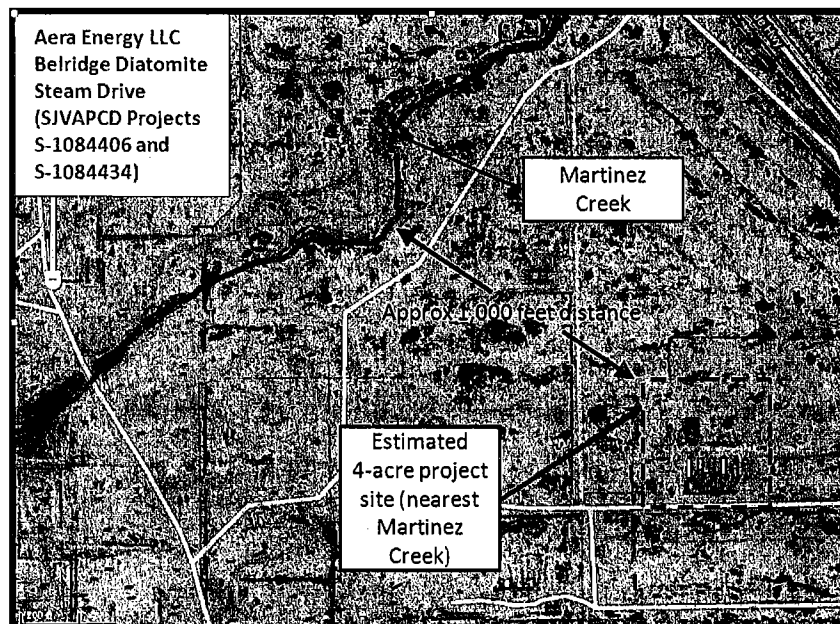
Drainage Systems (c, d.)

Conclusion: The Project will not have an impact resulting from the alteration of existing drainage patterns or contribution to runoff water exceeding the capacity of storm water drainage systems.

Discussion: The Project is located on property currently occupied by Aera, within the existing South Belridge Oilfield boundaries as designated by DOGGR. The project sites are consistent with current land use which has historically been used for oil production. As discussed above, project construction requires minimal alteration of existing sites, and therefore is expected to neither have an impact on existing drainage patterns nor contribute to excessive runoff water.

Chico Martinez Creek runs through the northernmost quarter-sections of Project Area 2. Martinez Creek is a dry bed except during and immediately following rainstorms. The specific locations of the steam generators in Project Area 2 are undefined at this time; however, steam generators will not be located in the 100-year flood hazard area adjacent to the creek. If the proposed site closest to Chico Martinez creek is selected, this would still leave a distance of about 1,000 feet between the project boundary and Martinez Creek.

Figure 12. Project Site in Relation to Chico Martinez Creek





The existing sites will not be altered enough to have a negative effect on surface runoff or increase flooding potential. All runoff from steam generator sites either percolates near the site or runs to natural drainage channels. Therefore, there will be no impacts on any public drainage systems.

Mitigation: None required.

Flooding and Inundation (g - j)

Conclusion: The Project will not expose people or structures to negative impacts resulting from floods, seiche, tsunami, or mudflow; therefore, impacts are less than significant.

Discussion: The Project is located on property currently occupied by Aera, within the existing South Belridge Oilfield boundaries as designated by DOGGR. The project sites are consistent with current land use which has historically been used for oil production. Construction of the Project will occur at existing steam generator sites. The Project does not include construction of any housing units. The Project is not located within the 100-year flood zone as mapped on Flood Insurance Rate Maps (FIRM), nor is it located in an FHSZ as designated by Kern County. The Project site is in a county not identified in the Tsunami Inundation maps by the California Geological Survey as a county with inundation risk. The steam generator sites are open, with the only surrounding barriers being chain-link fence, which would not impede or redirect flood flows. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would expose persons or structures to negative impacts resulting from flooding, tsunamis, or mudflow.

Mitigation: None required.

References

California Department of Conservation, California Geological Survey. *Tsunami Information*. Website:
http://www.conservation.ca.gov/cgs/geologic_hazards/Tsunami/Pages/Index.aspx

County of Kern. *Kern County Online GIS Mapping*. Website:
<http://www.co.kern.ca.us/gis/>

Federal Emergency Management Agency. Website: <http://www.msc.fema.gov/>

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.



X. LAND USE / PLANNING				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Physically divide an established community?				X
b) Conflict with any applicable land use plan, policy, or regulation of an agency with jurisdiction over the Project (including, but not limited to the general plan, specific plan, local coastal program, or zoning ordinance) adopted for the purpose of avoiding or mitigating an environmental effect?				X
c) Conflict with any applicable habitat conservation plan or natural community conservation plan?				X

Land Use and Planning (a, b)

Conclusion: The Project will not divide an established community or conflict with applicable land use plans, policies, or regulations.

Discussion: The Project is located on property currently occupied by Aera. The nearest community to the Project site is Lost Hills, which is approximately six (6) miles to the north of the Project. Therefore, the Project will not divide an established community.

The Project sites are currently designated in the Kern County 2009 General Plan as Mineral and Petroleum (Code 8.4) and Mineral and Petroleum Flood Plain (Code 8.4/2.5) and are zoned as Exclusive Agriculture (Zone A). Pursuant to Section 19.12.020(E) of the Zoning Ordinance of Kern County; steam generators (excluding coal fired), are a permitted use in Zone A. The Project is within the existing South Belridge Oilfield boundaries as designated by DOGGR. The exploration and production of oil have historically been allowed on the project sites. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would conflict with applicable land use plans, policies, or regulation.

Mitigation: None required.

Habitat and Natural Community Conservation Plans (c)

Conclusion: The Project will not conflict with any applicable HCP, MSHCP, or NCCP.



Discussion: The Project is located on property currently occupied by Aera, within the existing South Belridge Oilfield boundaries as designated by DOGGR. The Project is consistent with current land use which has historically been used for oil production.

The Project is not located within the boundaries of a MSHCP, NCCP or any USFWS designated critical habitat. The County has a Draft HCP that is designed to protect biological resources. The proposed project sites are located in a "Productive Oil Area" that is designated as having "White Zone" habitat quality in the HCP. These characteristics identify Aera's operations as occurring in a densely developed oilfield with limited sensitive species habitat quality. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would conflict with any applicable HCPs.

Mitigation: None required.

References

California Department of Fish and Game. *Conservation and Mitigation Banks in California Approved by the Department of Fish and Game*. Website:
<http://www.dfg.ca.gov/habcon/conplan/mitbank/catalogue/catalogue.html>

County of Kern. *2009 General Plan*. Website:
<http://www.co.kern.ca.us/planning/pdfs/kcgp/KCGP.pdf>

County of Kern. *First Draft Valley Floor Habitat Conservation Plan*. Website:
http://www.co.kern.ca.us/planning/pdfs/vfhcp_dec06.pdf

United States Fish and Wildlife Service. *Conservation Plans and Agreements Database*. Website: http://ecos.fws.gov/conserv_plans/public.jsp

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.



XI. MINERAL RESOURCES				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Result in the loss of availability of a known mineral resource that would be of value to the region and the residents of the state?				X
b) Result in the loss of availability of a locally important mineral resource recovery site delineated on a local general plan, specific plan or other land use plan?				X

Mineral Resources (a, b)

Conclusion: The Project will not have an impact on mineral resources.

Discussion: The project sites are currently designated in the Kern County 2009 General Plan for Mineral and Petroleum (Code 8.4) and are zoned as Exclusive Agriculture (Zone A). The Project is located on property currently occupied by Aera, within the existing South Belridge Oilfield boundaries as designated by DOGGR. The Project is consistent with current land use which has historically been used for oil production. The Project site is not located in an area known to contain a mineral resource that is of value to the region or state. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would result in the loss of a known mineral resource or the availability of a locally important mineral resource recovery site.

Mitigation: None required.

References

California Department of Conservation, California Geological Survey. *Mineral Resources*. Website:
http://www.conservation.ca.gov/cgs/geologic_resources/mineral_resource_mapping/Pages/Index.aspx

County of Kern. *Kern County Online GIS Mapping*. Website:
<http://www.co.kern.ca.us/gis/>

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.



XII. NOISE				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Exposure of persons to or generation of noise levels in excess of standards established in the local general plan or noise ordinance, or applicable standards of other agencies?			X	
b) Exposure of persons to or generation of excessive groundborne vibration or groundborne noise levels?			X	
c) A substantial permanent increase in ambient noise levels in the Project vicinity above levels existing without the Project?			X	
d) A substantial temporary or periodic increase in ambient noise levels in the Project vicinity above levels existing without the Project?			X	
e) For a Project located within an airport land use plan or, where such a plan has not been adopted, within two miles of a public airport or public use airport, would the Project expose people residing or working in the Project area to excessive noise levels?				X
f) For a Project within the vicinity of a private airstrip, would the Project expose people residing or working in the Project area to excessive noise levels?				X

Exposure of Persons to Noise and Vibration (a-b)

Conclusion: The Project may result in the exposure of persons to increased noise or vibrations; however, the potential impacts are considered less than significant.

Discussion: The Project is within the existing boundaries of the South Belridge Oilfield. The Project is located on property currently occupied by Aera for oil production activities consistent with current and surrounding land uses. The project sites are located at or very near existing steam generator sites.

The Project is consistent with current land use and existing operations. The nearest public location, Triangle Market, is at least 600 feet (see Figure 10) from all proposed steam generator locations and the nearest school is greater than two (2) miles from the project sites. Sound pressure decreases as distance between the source and the receptor increases. A sound level of 85 dB measured at 50 feet from the source would decrease to about 63 dB at a distance of 600 feet. As such, the Project will not exceed any standards set forth in the Kern County General Plan or Noise Ordinance at the nearest public receptor.



State and federal standards set by the Occupational Safety and Health Administration (OSHA) regulate the amount of time workers may be exposed to sound levels above 90 decibels. Aera performed a noise survey for a similar steam generator project and found that areas surrounding the steam generators generally have noise levels averaging 85 dB or less. The only high-noise areas (>90 dB) found were those in the immediate area of the steam discharge headers. The Project may result in noise exceeding 90 dB and a slight increase in ground vibration within 50 feet of the proposed steam generators. If the Project results in noise exceeding 85 dB, Aera's safety protocol requires that warning signs be posted and steam generator operators to wear hearing protection.

The District concludes that there is no substantial evidence of record to support a conclusion that the Project would expose the public or Aera employees to significant increases in noise or vibrations.

Mitigation: None required.

Ambient Noise Levels (c-d)

Conclusion: The Project may increase ambient noise levels in the Project vicinity; however, the Project is consistent with current land use and impacts are considered less than significant.

Discussion: The Project is located within the existing boundaries of the South Belridge Oilfield on property currently occupied by Aera for oil production activities. The Project is consistent with current and surrounding land uses which have historically been used for oil production.

Construction:

Construction of the steam generators will occur at or very near existing steam generator sites. During construction activities, noise levels will be elevated. However, the increase in noise is temporary and will subside once construction of the Project is completed. The nearest public location, Triangle Market is at least 600 feet from the steam generator sites (see Figure 10). Sound pressure decreases as distance between the source and the receptor increases. A sound level of 85 dB measured at 50 feet from the source would decrease to about 63 dB at a distance of 600 feet. Therefore, construction noise is expected to have a less than significant impact on the nearest public receptor.



Operation:

The steam generators in this project will result in a permanent increase in ambient noise levels. However, ambient noise levels are not expected to increase to above 90 db except in areas immediately near the discharge headers. Since the steam generators are being installed at or adjacent to existing steam generator sites, there will be no distinguishable changes in noise levels. Future noise types and volumes will be consistent with current land use and existing operations.

Triangle Market is at least 600 feet from the steam generator sites (see Figure 10). Sound pressure decreases as distance between the source and the receptor increases. A sound level of 85 dB measured at 50 feet from the source would decrease to about 63 dB at a distance of 600 feet. Therefore, operational noise is expected to have a less than significant impact on the nearest public receptor.

Mitigation: None required.

Increased Noise Exposure Near Airfields (e, f)

Conclusion: The Project will not expose people residing or working in the project area to excessive noise levels.

Discussion: The Project is not located within two (2) miles of a public airport. The nearest public airport is the Meadows Field Airport (BFL), located approximately 45 miles east of the Project in the City of Bakersfield. A private landing strip is located in the northeastern quadrant of Project Area 1 (see Figure 11). The landing strip is closed per FAA regulations. It is only under extreme circumstances, such as emergency evacuation of severely injured personnel or emergency transport of incident response personnel, that the landing strip may be utilized by helicopter.

Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would expose people residing or working in the project area to excessive noise levels.

Mitigation: None required.

References

Aera Energy, LLC. November, 2010. *Noise Survey for Steam Generator 2868 (ATC Project S-1072356)*

California Department of Industrial Relations. *General Industry Safety Orders, Group 15. Occupational Noise*. Website: <http://www.dir.ca.gov/title8/sb7g15.html>



County of Kern. *Code of Ordinances, Title 8 – Health and Safety*. Website:
http://library.municode.com/HTML/16251/level2/SUHITA_TIT8HESA.html

Google Maps. February, 2011.

Sengpiel Audio. *Damping of Sound Level with Distance*. Website:
<http://www.sengpielaudio.com/calculator-distance.htm>

United States Department of Labor. *Occupational Safety and Health Administration. Regulations (Standards - 29 CFR.)* Website:
http://www.osha.gov/pls/oshaweb/owadisp.show_document?p_id=9735&p_table=STANDARDS

Winn, Brent. Environmental Engineer, Aera Energy LLC. Electronic and Telephone Communication.

XIII. POPULATION / HOUSING				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Induce substantial population growth in an area, either directly (for example, by proposing new homes and businesses) or indirectly (for example, through extension of roads or other infrastructure)?				X
b) Displace substantial numbers of existing housing, necessitating the construction of replacement housing elsewhere?				X
c) Displace substantial numbers of people, necessitating the construction of replacement housing elsewhere?				X

Population and Housing (a, b, c)

Conclusion: The Project will not result in a substantial growth in population growth or the displacement of people or housing units.

Discussion: The Project is within the existing boundaries of the Belridge Oilfield. The Project is located on property currently occupied by Aera for oil production activities consistent with current and surrounding land uses. The Project will not increase substantial population growth in the area because the Project is expected to be maintained and manned by existing Aera personnel and contractors. The project sites are located at or very near existing steam generator sites and are developed for current operations, which does not include on-site housing. Therefore, the District concludes



that there is no substantial evidence of record to support a conclusion that the Project would induce substantial population growth or displace substantial numbers of people or housing.

Mitigation: None needed.

References

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.

XIV. PUBLIC SERVICES				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Result in substantial adverse physical impacts associated with the provision of new or physically altered governmental facilities, need for new or physically altered governmental facilities, the construction of which could cause significant environmental impacts, in order to maintain acceptable service ratios, response times or other performance objectives for any of the public services:				
i) Fire protection?				X
ii) Police protection?				X
iii) Schools?				X
iv) Parks?				X
v) Other public facilities?				X

Fire Protection (a.i)

Conclusion: The Project will not require additional fire protection facilities and will not negatively impact the existing facility's ability to provide services.

Discussion: The Project is located on property currently occupied by Aera which historically has allowed for the exploration and production of oil. The Project is located within the existing boundaries of the South Belridge Oilfield as designated by DOGGR, and is consistent with current operations. CAL FIRE has determined that Kern County has no Very High FHSZs in the LRA and only a Moderate FHSZ in the SRA. The Project will be designed to meet the standards of the current California Fire Code and Federal safety standards. Installation and operation of the Project in accordance with



these standards will minimize the potential for fire. To further reduce the risk of potential fires and other operational hazards, prior to the commencement of operations Aera will conduct a Hazardous Operations Analysis for each project site. Therefore the District concludes that there is no substantial evidence of record to support a conclusion that the Project would have a negative impact on existing fire protection service.

Mitigation: None required.

Police Protection and Other Public Facilities (a.ii –a.v)

Conclusion: The Project will not require additional police protection, school, park, or other public facilities, nor will it negatively impact existing facilities' ability to provide services.

Discussion: The Project is located on property currently occupied by Aera which historically has allowed for the exploration and production of oil. The Project is located within the existing boundaries of the South Belridge Oilfield as designated by DOGGR, and is consistent with current operations. The Project is expected to be maintained and manned by existing Aera personnel and contractors and, therefore, will not increase the population in the surrounding area. A lack of substantial increase in population precludes the possibility of the Project having a negative impact on police services, local schools and parks, or any other public facility. Therefore the District concludes that there is no substantial evidence of record to support a conclusion that the Project would have a significant impact on public facilities and services.

Mitigation: None required.

References

California Department of Forestry and Fire Protection. *Fire Hazard Severity Zones Map*. Website: http://www.fire.ca.gov/fire_prevention/fire_prevention_wildland_zones.php

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.



XV. RECREATION Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated?				X
b) Include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment?				X

Recreational Facilities (a, b)

Conclusion: The Project will not have an impact on neighborhood or regional parks, or any other local recreational facilities.

Discussion: The Project consists solely of the construction and operation of steam generators and is located on property currently occupied by Aera which historically has allowed for the exploration and production of oil. The Project is located within the existing boundaries of the South Belridge Oilfield as designated by DOGGR, and is consistent with current operations. The Project is expected to be maintained and manned by existing Aera personnel and contractors and, therefore, will not increase the population in the surrounding area. The Project does not include new recreational facilities, and a lack of substantial increase in population precludes the possibility of the Project having a negative impact on neighborhood and regional parks. The District concludes that there is no substantial evidence of record to support a conclusion that the Project would have a significant impact on or resulting from recreational facilities.

Mitigation: None required.

References

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.



XVI. TRANSPORTATION / TRAFFIC Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Conflict with an applicable plan, ordinance or policy establishing measures of effectiveness for the performance of the circulation system, taking into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation systems, including but not limited to intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit?				X
b) Conflict with an applicable congestion management program, including, but not limited to level of service standards and travel demand measures, or other standards established by the county congestion management agency for designated roads or highways?				X
c) Result in a change in air traffic patterns, including either an increase in traffic levels or a change in location that results in substantial safety risks?				X
d) Substantially increase hazards due to a design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?				X
e) Result in inadequate emergency access?				X
f) Conflict with adopted policies, plans, or programs regarding public transit, bicycle, or pedestrian facilities, or otherwise decrease the performance or safety of such facilities?				X

Conflict with Transportation and Transit Plans and Facilities (a, b, f)

Conclusion: The Project will not conflict with any circulation plans, congestion management programs, or alternative transportation facilities.



Discussion: The Project is located on property currently occupied by Aera which historically has allowed for the exploration and production of oil. The Project is located within the existing boundaries of the South Belridge Oilfield as designated by DOGGR, and is consistent with current operations.

During peak construction, staffing is expected to include 35 to 45 mechanical/civil/structural workers, 5 Aera staff, and 10-12 electricians. There will be few if any new permanent employees. Existing Aera staff and contract workers will be reassigned to this location from other positions at Belridge or nearby projects that are ramping down. It is expected that for each project area approximately 70 heavy-duty truck trips (140 truck trips for the Project) are needed to transport construction materials. The trucks are expected to utilize one (1) of three (3) routes to access the Project site:

- from Bakersfield: Highway 58 to Lokern Road to Highway 33; or
- Seventh Standard Road to Interstate 5 to Lerdo Highway, then down Lost Hills Road back to Seventh Standard Road; or
- from Taft: Highway 33.

Project construction related traffic is short-term and will not be sufficient to impede the flow of traffic or decrease the level of service (LOS) on these roads.

The Project consists of the construction and operation of steam generators which are used in the oil recovery process. The Project is expected to be maintained and manned by existing Aera personnel and contractors. As the project will not yield finished product, there will be no additional off-site vehicle trips associated with the operation of the project except for the occasional maintenance supplies.

Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would conflict with transportation and transit plans or would result in negative impacts to existing circulation systems.

Mitigation: None required.

Impact (c, d, e)

Conclusion: Project related traffic will not change air traffic patterns or include hazardous design features and, therefore, will not pose a safety risk.

Discussion: The Project is located on property currently occupied by Aera which historically has allowed for the exploration and production of oil. The Project is located within the existing boundaries of the South Belridge Oilfield as designated by DOGGR, and is consistent with current operations.

The project sites are not within two (2) miles of a public airport or public use airport. The nearest public airport is the Meadows Field Airport (BFL), located approximately 45



miles east of the Project in the City of Bakersfield. A private landing strip is located in the northeastern quadrant of Project Area 1 (see Figure 11). The landing strip is closed per FAA regulations. It is only under extreme circumstances, such as emergency evacuation of severely injured personnel or emergency transport of incident response personnel for a large incident, that the landing strip may be utilized by helicopter. Therefore, the Project will not have an impact on safety risks resulting from a change in any air traffic patterns

The Project does not include the construction of new roads or alterations to existing roads or intersections. Dependent on the final locations in Project Area 2, an access road may need to be installed. However, this road will be consistent with current operations and would remain as part of the plant site after construction is complete. Therefore, the Project will be designed in such a manner that there are no potential impacts on emergency access.

Mitigation: None required.

References

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.

XVII. UTILITIES / SERVICE SYSTEMS				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Exceed wastewater treatment requirements of the applicable Regional Water Quality Control Board?				X
b) Require or result in the construction of new water or wastewater treatment facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X
c) Require or result in the construction of new storm water drainage facilities or expansion of existing facilities, the construction of which could cause significant environmental effects?				X



XVII. UTILITIES / SERVICE SYSTEMS (CONTINUED)				
Would the Project:	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
d) Have sufficient water supplies available to serve the Project from existing entitlements and resources, or are new or expanded entitlements needed?				X
e) Result in a determination by the wastewater treatment provider that serves or may serve the Project that it has adequate capacity to serve the Project's projected demand in addition to the provider's existing commitments?				X
f) Be served by a landfill with sufficient permitted capacity to accommodate the Project's solid waste disposal needs?				X
g) Comply with federal, state, and local statutes and regulations related to solid waste?				X

Wastewater and Storm Water Facilities (a-c, e)

Conclusion: The Project would not exceed wastewater treatment requirements or require the construction of new wastewater or storm water facilities.

Discussion: The Project is located on property currently occupied by Aera which historically has allowed for the exploration and production of oil. The Project is located within the existing boundaries of the South Belridge Oilfield as designated by DOGGR, and is consistent with current operations.

All of the water used for the Project will come from the Belridge water recycling plants that process water produced from the oil reservoir. The Project will not result in wastewater discharge, nor will it involve the treatment of wastewater. The Project will not require approvals from the California RWQCB. The Project will not require the construction or modification of wastewater facilities and, therefore, will have not impact on any wastewater treatment providers.

Construction of Project 1 will occur at existing steam generator sites and requires minimal earth moving activities. Runoff at these existing sites either percolates into the ground near the site or runs to nearby natural drainage channels. Project 2 construction sites have not yet been defined; however, because construction activities require minimal earthmoving activities, the Project will have little impact on existing runoff and



flooding potential. . Therefore, new or expanded storm water facilities will not be required.

The District concludes that there is no substantial evidence of record to support a conclusion that the Project would have a significant impact resulting from wastewater and storm water treatment and associated facilities.

Mitigation: None required.

Water Supply (d)

Conclusion: The Project will have sufficient water supplies and new or expanded entitlements are not required.

Discussion: The Project is located on property currently occupied by Aera which historically has allowed for the exploration and production of oil. The Project is located within the existing boundaries of the South Belridge Oilfield as designated by DOGGR, and is consistent with current operations. The Project will use recycled produced water to generate steam. In 2008 (the most recent year that DOGGR records are available) produced water capable of being recycled as steam was 128.2 million barrels (MM bbls). Produced water recycled as steam totaled 55 MM bbls leaving 73.2 MM bbls of surplus. Demand for softened produced water from these projects is a maximum of approximately 22 MM bbls per year for each site (44 MM bbls total). This will potentially reduce the amount of surplus produced water to approximately 30 MM bbls per year.

Mitigation: None required.

Solid Waste (f, g)

Conclusion: The Project will comply with all solid waste regulations and will not have an impact on the landfill that currently serves Aera's Belridge operations.

Discussion: The Project is located on property currently occupied by Aera which historically has allowed for the exploration and production of oil. The Project is located within the existing boundaries of the South Belridge Oilfield as designated by DOGGR, and is consistent with current operations. Aera's Belridge operations are currently served by the Taft Sanitary Landfill. The Project will result in only minimal amounts of solid waste and Aera has detailed guidelines for employees to ensure solid wastes are handled in accordance with all applicable laws. Therefore, the District concludes that there is no substantial evidence of record to support a conclusion that the Project would have a significant impact resulting from the disposal of solid waste.

Mitigation: None required.



References

Winn, Brent., Environmental Engineer. Aera Energy LLC. Electronic and Telephone Communication.

XVIII. MANDATORY FINDINGS OF SIGNIFICANCE				
Would the Project	Potentially Significant Impact	Potentially Significant Impact Unless Mitigated	Less Than Significant Impact	No Impact
a) Does the Project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory?		X		
b) Does the Project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively Considerable" means that the incremental effects of a Project are considerable when viewed in connection with the effects of past Projects, the effects of other current Projects, and the effects of probable future Projects)?			X	
c) Does the Project have environmental effects, which will cause substantial adverse effects on human beings, either directly or indirectly?			X	

Impacts on the Environment and Special Status Species (a)

Conclusion: The Project, with the incorporation of mitigation measures, will have a less than significant impact on the environment and special status plant and animal species.

Discussion: With the incorporation of required permit conditions, the surrender of ERCs, and the incorporation of mitigation measures as outlined in the Initial Study, the



Project will have a less than significant impact on air quality, biological resources, and cultural resources.

Mitigation: See Mitigation Measures: BIO-1 through BIO-8 and CUL-1 through CUL-3

Cumulative Impacts (b)

Conclusion: The Project will not have cumulatively significant impacts on the environment, plant and animal species, or the human population.

Discussion: CEQA Guidelines state that a Lead Agency shall consider whether the cumulative impact of a project is significant and whether the effects of the project are cumulatively considerable (CCR §15065). The assessment of the significance of the cumulative effects of the project must, therefore, be conducted in connection with the effects of past projects, other current projects, and probable future projects. Due to the nature and location of the Project and consistency with environmental policies, incremental contributions to impacts are considered less than cumulatively considerable. The Project is not a part of any larger, planned developments. Therefore, the Project would not contribute substantially to adverse cumulative conditions, or create any substantial indirect impacts (i.e., an increase in population that could lead to an increase need to housing, increase in traffic, air pollutants, etc.).

Mitigation: None required.

Impacts on Humans (c)

Conclusion: The Project will not result in environmental impacts that would cause substantial adverse effects on human beings.

Discussion: The analyses of environmental issues contained in this Initial Study indicate that the Project is not expected to have a substantial impact on human beings, either directly or indirectly. Project design elements and mitigation measures have been incorporated into the Project to reduce all potentially significant impacts to less than significant.

Mitigation: See Mitigation Measures: BIO-1 through BIO-8 and CUL-1 through CUL-3



H. Acronyms and Abbreviations:

AB 2588	Assembly Bill 2588 – Air Toxics “Hot Spots” Information and Assessment Act
ARB	California Air Resources Board
ATC	Authority to Construct
BACT	Best Available Control Technology
dB	Decibel
BLM	Bureau of Land Management
BPS	Best Performance Standards
CAL FIRE	California Department of Forestry and Fire Prevention
Cal/OSHA	California Department of Industrial Relations - Division of Occupational Safety and Health
CBSC	California Building Standards Code
CCR	California Code of Regulations
CDFG	California Department of Fish and Game
CEQA	California Environmental Quality Act
CO	Carbon Monoxide
COC	Certificate of Conformity
District	San Joaquin Valley Unified Air Pollution Control District
DOGGR	California Division of Oil, Gas, and Geothermal Resources
DTSC	California Department of Toxic Substances Control
EE	Engineering Evaluation
EHS	Environmental Health and Safety
ERC	Emission Reduction Credit
ERG	Environmental Review Guidelines
ESP	Endangered Species Program
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
FHSZ	Fire Hazard Severity Zone
FIRM	Flood Insurance Rate Map
GAMAQI	Guide for Assessing and Mitigating Air Quality Impacts
HAP	Hazardous Air Pollutant
HCP	Habitat Conservation Plan
HRA	Health Risk Assessment
LRA	Local Responsible Area
MEI	Maximally Exposed Individual
MMBtu/hr	Million British Thermal Units Per Hour
MSHCP	Multiple Species Habitat Conservation Plan
NAHC	Native American Heritage Commission
NCCP	Natural Community Conservation Plan
NOx	Oxides of Nitrogen
NSR	New Source Review
O ₂	Oxygen



OSHA	US Department of Labor - Occupational Safety and Health Administration
PM10	Particulate Matter 10 microns in diameter
ppm	Parts Per Million
ppmv	Parts Per Million Volume
PRC	Public Resources Code
psia	Pounds Per Square Inch Absolute
PUC	Public Utilities Commission
RMR	Risk Management Review
ROG	Reactive Organic Gases
RWQCB	Regional Water Quality Control Board
SCR	Selective Catalytic Reduction
SOx	Sulfur Oxides
SRA	State Responsible Agency
T-BACT	Toxics Best Available Control Technology
TAC	Toxic Air Contaminant
TEOR	Thermally Enhanced Oil Recovery
tpy	Tons Per Year
US EPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
VOC	Volatile Organic Compound