



**Santa Barbara County
Air Pollution Control District**

Our Vision  Clean Air

November 21, 2016

Kathryn Lehr
Santa Barbara County
Planning and Development
123 E. Anapamu Street
Santa Barbara, CA 93101

Re: APCD Response to the Notice of Preparation of an Environmental Impact Report for the East Cat Canyon Oil Field Redevelopment Plan Project, 15PPP-00000-00001, 15DVP-00000-00005, 15TRM-00000-00003

Dear Ms. Lehr:

The Santa Barbara County Air Pollution Control District (APCD) appreciates the opportunity to provide comments on the Notice of Preparation (NOP) of a Draft Environmental Impact Report (EIR) for the East Cat Canyon Oil Field Redevelopment Plan Project. The applicant, Aera Energy LLC, proposes to re-establish oil production in an existing oil field. Project plans include construction and restoration of approximately 72 well pads, construction and restoration of over nine miles of field access roads, and drilling of up to 296 wells divided amongst the following categories: production, steam injection, water injection, and observation. Use of hydraulic fracturing is not proposed. New processing facilities would include a production group station for bulk separation of produced gas and liquids; a central processing facility for oil cleaning, water softening, oil storage, and oil sales; and a steam generation site with up to seven new steam generators. Project infrastructure would also include an office building, a multipurpose building, a warehouse and maintenance building, a facility control building, and an onsite septic system. A fresh water system with a 3,000 barrel tank and water distribution pipelines is planned for drinking water and ancillary purposes. No fresh water would be used to generate steam; only non-potable water would be used. Utility connections include a new approximately 0.3-mile 115 kilovolt (kV) power line and a new substation within the proposed central processing facility, as well as a 14-mile, 8-inch natural gas pipeline and associated facilities, capable of providing 13 million cubic feet per day of natural gas to the project at a delivery pressure of 300 pounds per square inch gauge. Lastly, the project includes importing light crude for blending by tanker truck from Aera's Belridge Producing Complex in the South Belridge Oil Field near Bakersfield (134 miles), and exporting produced, blended crude oil back to Aera's Belridge Producing Complex by tanker truck.

The proposed project is located within the state-designated Cat Canyon Oil Field in northern Santa Barbara County, near the community of Sisquoc. All proposed project facilities would be located on 2,112 acres within Assessor's Parcel Numbers 101-040-005, -006, -011, -012, -013, -014, -019, -020; 101-050-13, -014, -042; 101-070-007; and 129-210-017; which are located in the Agricultural II (AG-II-100) and Agricultural Commercial (AC) zone districts.

Aera submitted an application for an Authority to Construct permit for the proposed project to the District on April 17, 2015. On May 9, 2016 the APCD deemed Aera's Authority to Construct (ATC) permit application complete (ATC 14624). During the completeness review the District relied upon the project description, stationary source emission calculations, and stationary source health risk assessment

submitted with the application for ATC 14624. If the project description or emissions change, the applicant should modify their ATC permit application. APCD's permit application review focused on criteria pollutant emissions from the stationary source. The EIR should assess air quality impacts, including criteria pollutants, greenhouse gases, and toxic air pollutants, from both stationary and mobile sources.

APCD staff reviewed the NOP of the draft EIR, and concur that air quality, greenhouse gas (GHG) and health risk impacts should be addressed in the EIR. The proposed well drilling, well testing, and production phases of the project will be subject to APCD permit requirements and prohibitory rules. Therefore, **APCD will be a responsible agency under the California Environmental Quality Act (CEQA), and will rely on the EIR when evaluating any APCD permits for proposed equipment.** The EIR should include the air pollutant emissions for all proposed equipment. APCD's guidance document, entitled *Scope and Content of Air Quality Sections in Environmental Documents* (updated April, 2015), is available online at www.ourair.org/land-use/. This document should be referenced for general guidance in assessing air quality impacts in the Draft EIR.

The following key points should be addressed in the EIR:

1. Mitigated and unmitigated emissions should be clearly reported in the Draft EIR and mitigation accounted for in the mitigated emissions calculations should be clearly defined.
2. The Draft EIR should lay out a process for developing a Mitigation Monitoring and Reporting Program (MMRP) with input from APCD to ensure that project emissions are accounted for on an ongoing basis and mitigated.
3. If the proposed facility would be subject to emissions reduction requirements under the California Air Resources Board (ARB) Cap and Trade program for GHG reductions, the Draft EIR and MMRP should include a discussion of how the facility's Cap and Trade compliance obligation would be counted towards mitigation for GHG impacts under CEQA.
4. The Draft EIR should clearly articulate that Santa Barbara County's GHG threshold would be applied to the project.

The EIR should evaluate the following potential impacts related to the East Cat Canyon Oil Field Redevelopment Plan Project:

1. Attainment Status and Consistency with the APCD's Current Air Quality Attainment Plan, the 2016 Ozone Plan. The APCD has posted the most up-to-date attainment status for the County on the APCD website www.ourair.org/air-quality-standards/ and the most recent Plan is available at www.ourair.org/planning-clean-air/. The website should be consulted for the most up-to-date air quality information prior to the release of the Public Draft EIR.

The 2016 Ozone Plan includes land use and population projections provided by the Santa Barbara County Association of Governments (SBCAG), along with on-road emissions forecasts provided by the California Air Resources Board (ARB) as a basis for vehicle emissions forecasting. The EIR should examine whether the proposed project will be consistent with the growth assumptions in the 2016 Ozone Plan.

Stationary source projects will generally be considered consistent with the Air Quality Attainment Plan if they are consistent with APCD rules and regulations.

2. Cumulative Health Risk: The APCD notes that a Health Risk Assessment (HRA) for the stationary source was prepared in conjunction with the Authority to Construct permit application for the proposed project. This HRA, including all calculations and source files, should be included in the EIR. The health risk assessment should be performed in accordance with the current version of the APCD *Modeling Guidelines for Health Risk Assessments* (APCD Form-15i, available on the APCD website at www.ourair.org/wp-content/uploads/apcd-15i.pdf). Note that these guidelines were updated in August 2015.

The APCD does not require the inclusion of mobile sources and construction activities in the processing of an HRA for our permitting program. As noted above, the HRA used in the EIR should be consistent with the stationary source HRA submitted as part of the ATC application, except the EIR **should also evaluate health risk from mobile sources and construction activities associated with the project.**

3. Increase in Criteria Pollutant Emissions from Proposed Project. The EIR should present significance thresholds for ozone precursor emissions (reactive organic compounds [ROC], and oxides of nitrogen [NO_x]), particulate matter (PM), and greenhouse gas emissions, and determine whether the proposed project will produce emissions in excess of Santa Barbara County's air quality thresholds.

- a. Existing Setting (Environmental Baseline): As outlined in CEQA Guidelines Section 15125(a), an EIR must include a description of the physical environmental conditions as they normally exist at the time that the notice of preparation is published.
- b. Proposed Project Emissions: The proposed project will involve air quality impacts associated with motor vehicle trips from employee passenger vehicles and from truck trips, including trucks used for importing light crude for blending from and exporting produced, blended crude oil to Aera's Belridge Producing Complex. Emissions should be calculated for trips both to and from the facility (i.e., round-trips). The air quality impact analysis for mobile source emissions should be based on project-specific information and supported by a traffic study whenever possible. In addition to motor vehicle emissions, the analysis should include emissions associated with unpermitted stationary sources such as commercial heating and cooling equipment. These emissions (termed "area source" emissions) should be included in the operational phase emission evaluation. Stationary source emissions should also be presented in the analysis and emissions calculations should be documented in the EIR. The stationary source emissions should be consistent with the stationary source emissions and assumptions included in the ATC application.
- c. Air Quality Impacts Associated with the Proposed Project: Stationary and area source emissions must be added to transportation source emissions prior to applying the project-specific thresholds of significance. The EIR should show the total proposed operational emissions of the mobile, area, and stationary sources from the proposed project ("potential to emit").

In addition to evaluating impacts from stationary source operations, the ambient air quality impact analysis for the project should also evaluate whether mobile sources and construction activities associated with the project will cause or contribute to a violation of any ambient air quality standards.

If the proposed project exceeds the significance thresholds for air quality or greenhouse gases, the applicant should propose project design changes and/or mitigation measures that will avoid, reduce, or mitigate those impacts to levels that are less than significant. Section 6 of APCD's *Scope and Content* document offers ideas for air quality mitigation. However, project-specific measures should be developed that are pertinent to the proposed project and are enforceable by the County of Santa Barbara. For example, per the project description, tanker trucks will be exporting all the produced crude. These emissions should be quantified and mitigated.

4. Construction Impacts. The proposed project will involve a substantial amount of grading, road construction, operation of heavy duty construction equipment, driving on unpaved roads, and potential demolition activities. The EIR should include a description and quantification of potential air quality impacts associated with construction activities for the proposed project. APCD's April 2015 *Scope and Content* document, Section 6, presents recommended mitigation measures for fugitive dust and equipment exhaust emissions associated with construction projects. Construction mitigation measures should be enforced as conditions of approval for the project. The EIR should include a Mitigation Monitoring and Reporting Plan that explicitly states the required mitigation and establishes a mechanism for enforcement.

5. Asbestos Reporting Requirements. If the project will involve any demolition or renovation of existing structures, the EIR should include a discussion of how materials will be removed in compliance with APCD Rule 1001 - National Emission Standards for Hazardous Air Pollutants (NESHAP) -Asbestos. Advance notification to the District may be required before asbestos is disturbed and/or removed. For additional information regarding asbestos notification requirements, please visit our website at www.ourair.org/asbestos/.

Furthermore, the EIR should include a discussion of the potential for Naturally Occurring Asbestos (NOA) on the project site. If it is determined that NOA is present in the project area, appropriate abatement measures may be required. Additional information on NOA and the ARB's Toxic Control Measure for Construction, Grading, Quarrying and Surface Mining Operations requirements for minimizing NOA are available at www.arb.ca.gov/toxics/asbestos/asbestos.htm.

6. Odors. The NOP indicates that the potential for odor impacts due to hydrogen sulfide (H₂S) will be assessed in the EIR. APCD concurs that odor impacts, particularly due to H₂S, should be analyzed in the EIR. If new wells emit H₂S, the applicant must ensure that wells do not cause nuisance odors and should contact the APCD to determine the need for an Authority to Construct permit for any method used to control H₂S emissions.

7. Global Climate Change/Greenhouse Gas Impacts. Greenhouse gas (GHG) emissions and global climate change impacts should be addressed in the CEQA document. Global climate change is a cumulative impact; a project participates in this potential impact through its incremental contribution combined with the cumulative increase of all other sources of greenhouse gases.

CEQA documents should include a quantification of GHG emissions from all project sources, direct and indirect, as applicable. The discussion of climate change impacts can be included under cumulative air quality impacts or in its own section.

The EIR should include a discussion of how the project is consistent with, and complies with, California's Assembly Bill (AB) 32, the California Global Warming Solutions Act, Climate Change Scoping Plan to reduce overall greenhouse gas emissions in California. This discussion should address the Mandatory Reporting Regulation, Cap and Trade Regulation, and any other applicable programs related to AB 32.

If climate change impacts are found to be significant and mitigation measures are applied, those measures must be fully enforceable through permit conditions, agreements, or other legally binding instruments. The EIR should include a MMRP that explicitly states the required mitigations and establishes a mechanism for enforcement.

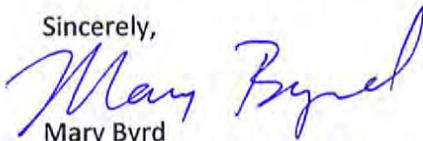
The EIR should examine how the project can be designed and operated to minimize GHG emissions. Some potential measures include, but are not limited to:

- Leak detection to reduce fugitive emissions
- Minimize flaring of field gas
- Incorporate high efficiency process equipment such as steam generators, boilers and heaters
- Reduction in vehicle trips from passenger and haul vehicles
- Utilization of a truck fleet with the newest/cleanest possible vehicles

For guidance regarding greenhouse gas analysis for CEQA environmental documents, please refer to the CAPCOA CEQA & Climate Change document. CAPCOA has also published *Quantifying Greenhouse Gas Mitigation Measures*, an extensive sector-by-sector compendium of project-specific mitigation measures, including quantification methods to calculate GHG reductions. Both of these documents are available online at www.capcoa.org.

We hope you find our comments useful. We look forward to reviewing the Draft EIR. Please contact me at (805) 961-8833 or by e-mail at ByrdM@sbcapcd.org if you have questions.

Sincerely,



Mary Byrd
Community Programs Supervisor
Technology and Environmental Assessment Division

cc: Michael Goldman, Manager, APCD Engineering Division
TEA Chron File
Project File



Department of Conservation

Division of Oil, Gas, and Geothermal Resources – District 3

195 South Broadway • Suite 101

Orcutt, CA 93455

(805) 937-7246 • FAX (805) 937-0673

November 15, 2016

Ms. Kathryn Lehr, Planner
County of Santa Barbara
Planning & Development, Energy & Minerals Division
123 East Anapamu St.
Santa Barbara, CA 93101

RECEIVED
NOV 17 2016
SB COUNTY
PLANNING & DEVELOPMENT

Dear Ms. Lehr:

**NOTICE OF PREPARATION FOR DRAFT ENVIRONMENTAL IMPACT REPORT
EAST CAT CANYON OIL FIELD REDEVELOPMENT PLAN PROJECT
15PPP-00000-00001 and 15DVP-00000-00005**

The Division of Oil, Gas, and Geothermal Resources (Division) has reviewed the Notice of Preparation for the above referenced project. The Division is mandated by Section 3106 of the Public Resources Code (PRC) to supervise the drilling, operation, maintenance, and abandonment of oil and gas wells. This is for the purposes of preventing: 1) damage to life, health, property, and natural resources; 2) damage to underground and surface waters suitable for irrigation or domestic use; 3) loss of oil, gas, or reservoir energy; and 4) damage to oil and gas deposits by infiltration of water and other causes.

The Division has regulatory authority over the drilling of new wells or the reentering of plugged and abandoned wells. The proposed 296 wells, which includes oil and gas producing wells, steam injection wells, observation wells, and water sources wells, will require submission of Notices of Intention to Drill to the Division's district office under PRC §3203 and California Code of Regulations (CCR) §1722(d). The notices will be reviewed by Division staff for completeness and ensure that proposed mechanical configurations and operations will be conducted as per the established Cat Canyon field rule and/or Division laws and regulations for the Brooks sand. See enclosed field rule. Blowout prevention and related well control equipment shall also conform to the requirements outlined in the Division's M07 publication as required in CCR §1722.5, as well as drilling fluid requirements in CCR §1722.6. The operator must not deviate from the submitted and approved program and Permit to Conduct Well Operation requirements without prior written approval.

Prior to drilling, the operator will be required to submit a SPCC plan as required under CCR §1722(b) and §1722.9. An operator must also be in good standing and have required bonding on file as required in PRC §3204 through §3206.

Once drilled, wells must conform to the Division's environmental requirements outlined in CCR §1722.1.1, §1775 through §1776, and §1778 through §1779.

The proposed project requires enhanced oil recovery methods for extraction. PRC §3106(b) and (d) broadly gives the Division authority to permit these operations. The Division has regulatory authority over the permitting of steamflood injection, cyclic steaming injection, water disposal, and

water source well operations. Aera Energy LLC (Aera) will be required to provide project data as required in CCR §1724.6 through 1724.8 for steamflood and cyclic steaming in the Brooks sands as well as production and water disposal into upper Sisquoc formations. Project data requirements includes, but is not limited to, providing casing diagrams for proposed steamflood, cyclic steam, and water disposal injection wells and for any active, idle, or plugged and abandoned wells within the determined injection area of influence. The Division may require that existing wells within the injection area of influence be repaired, plugged and abandoned, or reabandoned as necessary. Geologic and engineering data, cross sections, a type log, as well as a facility map must also be provided for the Brooks sand and Sisquoc formation proposed injection projects. This proposed reactivation of the area will require Aera to notify offset operators in the field; and the Division would notice the State of California, Regional Water Quality Control Board, and a public notice would be filed in the Santa Maria Times soliciting public comment regarding the proposed project. A water analysis of the native zone proposed to be injected into, as well as a water analysis of the injection fluid to be injected are required prior to initiating injection. Approved sampling protocols are listed on the Division's website at www.conservation.ca.gov. An aquifer exemption is required prior to injecting into a zone that is tested and found to be between 3,000 – 10,000 total dissolved solids (tds). The submitted data requirements and tests are reviewed and must be approved by the Division as well as the State Water Board and Regional Water Quality Control Board, and if required, by the US Environmental Protection Agency prior to establishing an approved project and authorized injection. Any zone water sampling that is over 10,000 tds will not be covered under the federal USDW requirements, but will still require submission of data, review and approval by State agencies. Injection wells, once approved, will be required to be tested and adhere to project approval letter requirements as well as current laws and regulations CCR §1724.10. Aera will also be required to meet with Division engineering staff to review injection projects on a regular basis.

The Division has the authority to regulate and issue permits for well stimulation treatment (WST). This project does not propose to include hydraulic fracturing operations.

The Division has regulatory authority over the construction, maintenance, testing, and containment of fluids within production and injection facilities under CCR §1773.1 through §1773.5. and CCR §1777 through §1777.4. In addition, the Division has regulatory authority over the construction, maintenance, and testing of certain pipelines under CCR §1774 through §1774.2. This would require that Aera submit a Pipeline Management Plan for review by this office.

Any oil spills or seepage associated with production operations must be reported promptly to the State Office of Emergency Services, as well as the Division's district office.

If you have any questions, please contact our district office at 805 937-7246

Sincerely,



Patricia A. Abel
Coastal District Deputy

cc: State Clearinghouse
CEQA - Unit
Aera Energy LLC
Project File - Inactive

STATE OF CALIFORNIA
 DEPARTMENT OF CONSERVATION
 DIVISION OF OIL, GAS, & GEOTHERMAL RESOURCES

NO.: 307-026

CAT CANYON FIELD RULES

Date: 6/12/2007

Area(s) East	Zone(s)/Pool(s) All Sisquoc zones including the Brooks sand.
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CASING PROGRAM

Casing String	Cementing Depth		Annular Cement Fill (Marker or Zone + ___')
	Marker or Zone	Remarks	
Conductor			Surface
Surface (optional)	As needed		Surface
Production (a)	Top of intended zone. Horizontal wells will set casing 200'± drilled depth below the top of the zone.	For slotted liner completion..	100' above BFW.
Liner	Through zone		Usually gravel packed.
Production (b)	Through zone	For perforated completion.	100' above BFW.

GEOLOGIC DATA

Reference: pages 86,87, and 92 in DOGGR publication TR-11, Volume II, California Oil & Gas Fields; Dibblee Foundation geologic map DF53 – Sisquoc quadrangle.

BLOWOUT PREVENTION EQUIPMENT PROGRAM (Referenced from MO7)

Operation	Surface Pressure Category	DOGGR Class	Additional Requirements
Drilling	Low	IIA 2M	With hydraulic controls. A diverter with minimum 6" vent line is required if drilling to TD with only a conductor.
Completion	Low	II 2M	With hydraulic controls.
Perforating	Low	Lubricator or packoff	
Additional Comments:			

BASE OF FRESH WATERS

Marker: Base of Careaga / top of Sisquoc Fm.	Depth: 300' – 1100'	Comments: Must be determined from well logs.
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GENERAL COMMENTS

As the Sisquoc zones in Cat Canyon field have had a long production history, and a history of successful water shutoffs, testing and approval of water shutoff by review of production is not required. However, the Division of Oil, Gas, and Geothermal Resources routinely monitors production data, and if anomalous water production is indicated, remedial action will be ordered.

Field rules apply to development wells only. All operations are subject to California Code of Regulations., Title 14, Division 2, Chapter 4.

 Hal Bopp, State Oil and Gas Supervisor

By Original signed by W.E. Brannon, District Deputy
 (Signature) (Title)

NATIVE AMERICAN HERITAGE COMMISSION

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RECEIVED

October 26, 2016

OCT 31 2016

SB COUNTY
 sent via e-mail:
 PLANNING & DEVELOPMENT
klehr@countyofsb.org

Kathryn Lehr
 Santa Barbara County
 123 E. Anapamu Street
 Santa Barbara, CA 93101

RE: SCH# 2016101060; East Cat Canyon Oil Field Redevelopment Plan Project, Notice of Preparation for Draft Environmental Impact Report, Santa Barbara County, California

Dear Ms. Lehr:

The Native American Heritage Commission has received the Notice of Preparation (NOP) for the project referenced above. The California Environmental Quality Act (CEQA) (Pub. Resources Code § 21000 et seq.), specifically Public Resources Code section 21084.1, states that a project that may cause a substantial adverse change in the significance of an historical resource is a project that may have a significant effect on the environment. (Pub. Resources Code § 21084.1; Cal. Code Regs., tit. 14, § 15064.5 (b) (CEQA Guidelines Section 15064.5 (b)). If there is substantial evidence, in light of the whole record before a lead agency, that a project may have a significant effect on the environment, an environmental impact report (EIR) shall be prepared. (Pub. Resources Code § 21080 (d); Cal. Code Regs., tit. 14, § 15064 subd.(a)(1) (CEQA Guidelines § 15064 (a)(1)). In order to determine whether a project will cause a substantial adverse change in the significance of a historical resource, a lead agency will need to determine whether there are historical resources with the area of project effect (APE).

CEQA was amended significantly in 2014. Assembly Bill 52 (Gatto, Chapter 532, Statutes of 2014) (AB 52) amended CEQA to create a **separate category of cultural resources**, "tribal cultural resources" (Pub. Resources Code § 21074) and provides that a project with an effect that may cause a substantial adverse change in the significance of a tribal cultural resource is a project that may have a significant effect on the environment (Pub. Resources Code § 21084.2). Please reference California Natural Resources Agency (2016) "Final Text for tribal cultural resources update to Appendix G: Environmental Checklist Form," <http://resources.ca.gov/ceqa/>. Public agencies shall, when feasible, avoid damaging effects to any tribal cultural resource. (Pub. Resources Code § 21084.3 (a)). **AB 52 applies to any project for which a notice of preparation or a notice of negative declaration or mitigated negative declaration is filed on or after July 1, 2015.** If your project involves the adoption of or amendment to a general plan or a specific plan, or the designation or proposed designation of open space, on or after March 1, 2005, it may also be subject to Senate Bill 18 (Burton, Chapter 905, Statutes of 2004) (SB 18). **Both SB 18 and AB 52 have tribal consultation requirements.** If your project is also subject to the federal National Environmental Policy Act (42 U.S.C. § 4321 et seq.) (NEPA), the tribal consultation requirements of Section 106 of the National Historic Preservation Act of 1966 (154 U.S.C. 300101, 36 C.F.R. § 800 et seq.) may also apply.

The NAHC recommends **lead agencies consult with all California Native American tribes** that are traditionally and culturally affiliated with the geographic area of your proposed project as early as possible in order to avoid inadvertent discoveries of Native American human remains and best protect tribal cultural resources. Below is a brief summary of portions of AB 52 and SB 18 as well as the NAHC's recommendations for conducting cultural resources assessments. **Consult your legal counsel about compliance with AB 52 and SB 18 as well as compliance with any other applicable laws.**

AB 52

AB 52 has added to CEQA the additional requirements listed below, along with many other requirements:

1. **Fourteen Day Period to Provide Notice of Completion of an Application/Decision to Undertake a Project:** Within fourteen (14) days of determining that an application for a project is complete or of a decision by a public agency to undertake a project, a **lead agency** shall provide formal notification to a designated contact of, or tribal representative of, traditionally and culturally affiliated California Native American tribes that have requested notice, to be accomplished by at least one written notice that includes:
 - a. A brief description of the project.
 - b. The lead agency contact information.
 - c. Notification that the California Native American tribe has 30 days to request consultation. (Pub. Resources Code § 21080.3.1 (d)).

- d. A "California Native American tribe" is defined as a Native American tribe located in California that is on the contact list maintained by the NAHC for the purposes of Chapter 905 of Statutes of 2004 (SB 18). (Pub. Resources Code § 21073).
2. Begin Consultation Within 30 Days of Receiving a Tribe's Request for Consultation and Before Releasing a Negative Declaration, Mitigated Negative Declaration, or Environmental Impact Report: A lead agency shall begin the consultation process within 30 days of receiving a request for consultation from a California Native American tribe that is traditionally and culturally affiliated with the geographic area of the proposed project. (Pub. Resources Code § 21080.3.1, subds. (d) and (e)) and prior to the release of a negative declaration, mitigated negative declaration or environmental impact report. (Pub. Resources Code § 21080.3.1(b)).
 - a. For purposes of AB 52, "consultation shall have the same meaning as provided in Gov. Code § 65352.4 (SB 18). (Pub. Resources Code § 21080.3.1 (b)).
 3. Mandatory Topics of Consultation if Requested by a Tribe: The following topics of consultation, if a tribe requests to discuss them, are mandatory topics of consultation:
 - a. Alternatives to the project.
 - b. Recommended mitigation measures.
 - c. Significant effects. (Pub. Resources Code § 21080.3.2 (a)).
 4. Discretionary Topics of Consultation: The following topics are discretionary topics of consultation:
 - a. Type of environmental review necessary.
 - b. Significance of the tribal cultural resources.
 - c. Significance of the project's impacts on tribal cultural resources.
 - d. If necessary, project alternatives or appropriate measures for preservation or mitigation that the tribe may recommend to the lead agency. (Pub. Resources Code § 21080.3.2 (a)).
 5. Confidentiality of Information Submitted by a Tribe During the Environmental Review Process: With some exceptions, any information, including but not limited to, the location, description, and use of tribal cultural resources submitted by a California Native American tribe during the environmental review process shall not be included in the environmental document or otherwise disclosed by the lead agency or any other public agency to the public, consistent with Government Code sections 6254 (r) and 6254.10. Any information submitted by a California Native American tribe during the consultation or environmental review process shall be published in a confidential appendix to the environmental document unless the tribe that provided the information consents, in writing, to the disclosure of some or all of the information to the public. (Pub. Resources Code § 21082.3 (c)(1)).
 6. Discussion of Impacts to Tribal Cultural Resources in the Environmental Document: If a project may have a significant impact on a tribal cultural resource, the lead agency's environmental document shall discuss both of the following:
 - a. Whether the proposed project has a significant impact on an identified tribal cultural resource.
 - b. Whether feasible alternatives or mitigation measures, including those measures that may be agreed to pursuant to Public Resources Code section 21082.3, subdivision (a), avoid or substantially lessen the impact on the identified tribal cultural resource. (Pub. Resources Code § 21082.3 (b)).
 7. Conclusion of Consultation: Consultation with a tribe shall be considered concluded when either of the following occurs:
 - a. The parties agree to measures to mitigate or avoid a significant effect, if a significant effect exists, on a tribal cultural resource; or
 - b. A party, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached. (Pub. Resources Code § 21080.3.2 (b)).
 8. Recommending Mitigation Measures Agreed Upon in Consultation in the Environmental Document: Any mitigation measures agreed upon in the consultation conducted pursuant to Public Resources Code section 21080.3.2 shall be recommended for inclusion in the environmental document and in an adopted mitigation monitoring and reporting program, if determined to avoid or lessen the impact pursuant to Public Resources Code section 21082.3, subdivision (b), paragraph 2, and shall be fully enforceable. (Pub. Resources Code § 21082.3 (a)).
 9. Required Consideration of Feasible Mitigation: If mitigation measures recommended by the staff of the lead agency as a result of the consultation process are not included in the environmental document or if there are no agreed upon mitigation measures at the conclusion of consultation, or if consultation does not occur, and if substantial evidence demonstrates that a project will cause a significant effect to a tribal cultural resource, the lead agency shall consider feasible mitigation pursuant to Public Resources Code section 21084.3 (b). (Pub. Resources Code § 21082.3 (e)).
 10. Examples of Mitigation Measures That, If Feasible, May Be Considered to Avoid or Minimize Significant Adverse Impacts to Tribal Cultural Resources:

- a. Avoidance and preservation of the resources in place, including, but not limited to:
 - i. Planning and construction to avoid the resources and protect the cultural and natural context.
 - ii. Planning greenspace, parks, or other open space, to incorporate the resources with culturally appropriate protection and management criteria.
- b. Treating the resource with culturally appropriate dignity, taking into account the tribal cultural values and meaning of the resource, including, but not limited to, the following:
 - i. Protecting the cultural character and integrity of the resource.
 - ii. Protecting the traditional use of the resource.
 - iii. Protecting the confidentiality of the resource.
- c. Permanent conservation easements or other interests in real property, with culturally appropriate management criteria for the purposes of preserving or utilizing the resources or places.
- d. Protecting the resource. (Pub. Resource Code § 21084.3 (b)).
- e. Please note that a federally recognized California Native American tribe or a nonfederally recognized California Native American tribe that is on the contact list maintained by the NAHC to protect a California prehistoric, archaeological, cultural, spiritual, or ceremonial place may acquire and hold conservation easements if the conservation easement is voluntarily conveyed. (Civ. Code § 815.3 (c)).
- f. Please note that it is the policy of the state that Native American remains and associated grave artifacts shall be repatriated. (Pub. Resources Code § 5097.991).

11. Prerequisites for Certifying an Environmental Impact Report or Adopting a Mitigated Negative Declaration or Negative Declaration with a Significant Impact on an Identified Tribal Cultural Resource: An environmental impact report may not be certified, nor may a mitigated negative declaration or a negative declaration be adopted unless one of the following occurs:
- a. The consultation process between the tribes and the lead agency has occurred as provided in Public Resources Code sections 21080.3.1 and 21080.3.2 and concluded pursuant to Public Resources Code section 21080.3.2.
 - b. The tribe that requested consultation failed to provide comments to the lead agency or otherwise failed to engage in the consultation process.
 - c. The lead agency provided notice of the project to the tribe in compliance with Public Resources Code section 21080.3.1 (d) and the tribe failed to request consultation within 30 days. (Pub. Resources Code § 21082.3 (d)). *This process should be documented in the Cultural Resources section of your environmental document.*

The NAHC's PowerPoint presentation titled, "Tribal Consultation Under AB 52: Requirements and Best Practices" may be found online at: http://nahc.ca.gov/wp-content/uploads/2015/10/AB52TribalConsultation_CalEPAPDF.pdf

SB 18

SB 18 applies to local governments and requires **local governments** to contact, provide notice to, refer plans to, and consult with tribes prior to the adoption or amendment of a general plan or a specific plan, or the designation of open space. (Gov. Code § 65352.3). Local governments should consult the Governor's Office of Planning and Research's "Tribal Consultation Guidelines," which can be found online at: https://www.opr.ca.gov/docs/09_14_05_Updated_Guidelines_922.pdf

Some of SB 18's provisions include:

1. Tribal Consultation: If a local government considers a proposal to adopt or amend a general plan or a specific plan, or to designate open space it is required to contact the appropriate tribes identified by the NAHC by requesting a "Tribal Consultation List." If a tribe, once contacted, requests consultation the local government must consult with the tribe on the plan proposal. **A tribe has 90 days from the date of receipt of notification to request consultation unless a shorter timeframe has been agreed to by the tribe.** (Gov. Code § 65352.3 (a)(2)).
2. No Statutory Time Limit on SB 18 Tribal Consultation. There is no statutory time limit on SB 18 tribal consultation.
3. Confidentiality: Consistent with the guidelines developed and adopted by the Office of Planning and Research pursuant to Gov. Code section 65040.2, the city or county shall protect the confidentiality of the information concerning the specific identity, location, character, and use of places, features and objects described in Public Resources Code sections 5097.9 and 5097.993 that are within the city's or county's jurisdiction. (Gov. Code § 65352.3 (b)).
4. Conclusion of SB 18 Tribal Consultation: Consultation should be concluded at the point in which:
 - a. The parties to the consultation come to a mutual agreement concerning the appropriate measures for preservation or mitigation; or
 - b. Either the local government or the tribe, acting in good faith and after reasonable effort, concludes that mutual agreement cannot be reached concerning the appropriate measures of preservation or mitigation. (Tribal Consultation Guidelines, Governor's Office of Planning and Research (2005) at p. 18).

Agencies should be aware that neither AB 52 nor SB 18 precludes agencies from initiating tribal consultation with tribes that are traditionally and culturally affiliated with their jurisdictions before the timeframes provided in AB 52 and SB 18. For that reason,

we urge you to continue to request Native American Tribal Contact Lists and "Sacred Lands File" searches from the NAHC. The request forms can be found online at: <http://nahc.ca.gov/resources/forms/>

NAHC Recommendations for Cultural Resources Assessments

To adequately assess the existence and significance of tribal cultural resources and plan for avoidance, preservation in place, or barring both, mitigation of project-related impacts to tribal cultural resources, the NAHC recommends the following actions:

1. Contact the appropriate regional California Historical Research Information System (CHRIS) Center (http://ohp.parks.ca.gov/?page_id=1068) for an archaeological records search. The records search will determine:
 - a. If part or all of the APE has been previously surveyed for cultural resources.
 - b. If any known cultural resources have been already been recorded on or adjacent to the APE.
 - c. If the probability is low, moderate, or high that cultural resources are located in the APE.
 - d. If a survey is required to determine whether previously unrecorded cultural resources are present.
2. If an archaeological inventory survey is required, the final stage is the preparation of a professional report detailing the findings and recommendations of the records search and field survey.
 - a. The final report containing site forms, site significance, and mitigation measures should be submitted immediately to the planning department. All information regarding site locations, Native American human remains, and associated funerary objects should be in a separate confidential addendum and not be made available for public disclosure.
 - b. The final written report should be submitted within 3 months after work has been completed to the appropriate regional CHRIS center.
3. Contact the NAHC for:
 - a. A Sacred Lands File search. Remember that tribes do not always record their sacred sites in the Sacred Lands File, nor are they required to do so. A Sacred Lands File search is not a substitute for consultation with tribes that are traditionally and culturally affiliated with the geographic area of the project's APE.
 - b. A Native American Tribal Consultation List of appropriate tribes for consultation concerning the project site and to assist in planning for avoidance, preservation in place, or, failing both, mitigation measures.
4. Remember that the lack of surface evidence of archaeological resources (including tribal cultural resources) does not preclude their subsurface existence.
 - a. Lead agencies should include in their mitigation and monitoring reporting program plan provisions for the identification and evaluation of inadvertently discovered archaeological resources per Cal. Code Regs., tit. 14, section 15064.5(f) (CEQA Guidelines section 15064.5(f)). In areas of identified archaeological sensitivity, a certified archaeologist and a culturally affiliated Native American with knowledge of cultural resources should monitor all ground-disturbing activities.
 - b. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the disposition of recovered cultural items that are not burial associated in consultation with culturally affiliated Native Americans.
 - c. Lead agencies should include in their mitigation and monitoring reporting program plans provisions for the treatment and disposition of inadvertently discovered Native American human remains. Health and Safety Code section 7050.5, Public Resources Code section 5097.98, and Cal. Code Regs., tit. 14, section 15064.5, subdivisions (d) and (e) (CEQA Guidelines section 15064.5, subds. (d) and (e)) address the processes to be followed in the event of an inadvertent discovery of any Native American human remains and associated grave goods in a location other than a dedicated cemetery.

Please contact me if you need any additional information at gayle.totton@nahc.ca.gov.

Sincerely,



Gayle Totton, M.A., PhD.
Associate Governmental Program Analyst

cc: State Clearinghouse



State of California – Natural Resources Agency
DEPARTMENT OF FISH AND WILDLIFE
South Coast Region
3883 Ruffin Road
San Diego, CA 92123
(858) 467-4201
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EDMUND G. BROWN JR., Governor
CHARLTON H. BONHAM, Director



November 16, 2016

Kathryn Lehr, Planner
Santa Barbara County, Planning & Development
123 East Anapamu Street
Santa Barbara, CA 93101
klehr@co.santa-barbara.ca.us

RECEIVED
NOV 21 2016
S B COUNTY
PLANNING & DEVELOPMENT

Subject: Comments on the Notice of Preparation of a Draft Environmental Impact Report for the East Cat Canyon Oil Field Redevelopment Plan Project

Dear Ms. Lehr:

The California Department of Fish and Wildlife (Department) has reviewed the above-referenced Notice of Preparation (NOP) for the East Cat Canyon Oil Field Redevelopment Plan Project (DEIR). The project site is 2,112 acres located in the eastern area of the 26,440 acre Cat Canyon Oil Field, southeast of the City of Santa Maria, in northern Santa Barbara County.

The project site consists predominantly of rolling hills with some steep slopes, and currently supports office/warehouse buildings, abandoned oil wells, four non-producing test wells, a system of graded access roads and wells pads, former facility locations, a permitted beneficial reuse site, fresh groundwater wells, firewater and grazing tanks, and cattle grazing. Land uses surrounding the project site include oil and gas production and grazing to the north, south, and west; a wine tasting room to the northeast; an office in the southwest portion of the site; and residences on large agricultural parcels primarily to the north and south-southeast.

The project would re-establish oil production at a forecasted level of up to 10,000 barrels of oil per day by implementing thermally enhanced (steam) oil recovery process within the Brooks sand reservoir underlying the eastern area of the existing Cat Canyon Oil Field.

The project includes the following:

- Development and operation of up to 296 steam production wells;
- construction and restoration of approximately 72 well pads;
- construction and restoration of over 9 miles of field access roads;
- construction of new processing facilities, including a steam generation site with up to six generators;
- construction of new field systems, including steam distribution network and electrical power distribution;
- construction of an office building, a multipurpose building, a warehouse and maintenance building, a facility control building, and an onsite septic system;
- construction of a 3,000-barrel water tank and water distribution pipelines for drinking water and ancillary purposes;
- construction of a 14-mile, 8-inch natural gas pipeline and associated facilities; and
- construction of an approximately 0.3-mile 115 kilovolt (kV) power line.

Conserving California's Wildlife Since 1870

The project would be built out in two phases, and is expected to continue for more than 30 years after initial production.

The following comments and recommendations have been prepared pursuant to the Department's authority as a Responsible Agency under CEQA Guidelines section 15381 over those aspects of the proposed project that come under the purview of the California Endangered Species Act (Fish and Game Code § 2050 *et seq.*) and Fish and Game Code section 1600 *et seq.*, and pursuant to our authority as Trustee Agency with jurisdiction over natural resources affected by the project (California Environmental Quality Act, [CEQA] Guidelines § 15386) to assist the Lead Agency in avoiding or minimizing potential project impacts on biological resources.

Specific Comment

Seeps – Seeps are generally low energy, non-eruptive leakages of oil seeping to the ground surface, generally from shallower oil bearing zones such as the Careaga Sands (located west of the project site). Although able to flow to the surface on their own, seeps can increase in frequency of occurrence and volume with the addition of steam.

The Department's concern relates to the potential damage to wildlife and wildlife habitat from project-induced seeps and the potential for adverse effects from seep management over the life of the project. The occurrences of project-induced seeps and subsequent management (commonly involving the installation of seep cans and French drains) are unpredictable. The DEIR should therefore include an analysis of the potential for seeps, a discussion of project-induced seeps and seep management, a discussion of how seeps and seep management might negatively affect biological resources, and a presentation of mitigation measures proposed to minimize negative effects to those resources.

General Comments

- 1) Project Description and Alternatives. To enable the Department to adequately review and comment on the proposed project from the standpoint of the protection of plants, fish, and wildlife, we recommend the following information be included in the DEIR:
 - a) A complete discussion of the purpose and need for, and description of, the proposed project, including all staging areas and access routes to the construction and staging areas; and,
 - b) A range of feasible alternatives to project component location and design features to ensure that alternatives to the proposed project are fully considered and evaluated. The alternatives should avoid or otherwise minimize direct and indirect impacts to sensitive biological resources and wildlife movement areas.
- 2) Lake and Streambed Alteration Agreements (LSA). As a Responsible Agency under CEQA Guidelines section 15381, the Department has authority over activities in streams and/or lakes that will divert or obstruct the natural flow, or change the bed, channel, or bank (including vegetation associated with the stream or lake) of a river or stream, or use material from a streambed. For any such activities, the project applicant (or "entity") must provide

written notification to the Department pursuant to section 1600 *et seq.* of the Fish and Game Code. Based on this notification and other information, the Department determines whether a Lake and Streambed Alteration Agreement (LSA) with the applicant is required prior to conducting the proposed activities. The Department's issuance of a LSA for a project that is subject to CEQA will require CEQA compliance actions by the Department as a Responsible Agency. As a Responsible Agency, the Department may consider the Negative Declaration or Environmental Impact Report of the local jurisdiction (Lead Agency) for the project. To minimize additional requirements by the Department pursuant to section 1600 *et seq.* and/or under CEQA, the document should fully identify the potential impacts to the stream or riparian resources and provide adequate avoidance, mitigation, monitoring and reporting commitments for issuance of the LSA.¹

- a) The project area supports aquatic, riparian, and wetland habitats; therefore, a preliminary jurisdictional delineation of the streams and their associated riparian habitats should be included in the DEIR. The delineation should be conducted pursuant to the U. S. Fish and Wildlife Service wetland definition adopted by the Department.² Some wetland and riparian habitats subject to the Department's authority may extend beyond the jurisdictional limits of the U.S. Army Corps of Engineers' Section 404 permit and Regional Water Quality Control Board Section 401 Certification.
 - b) In project areas which may support ephemeral streams, herbaceous vegetation, woody vegetation, and woodlands also serve to protect the integrity of ephemeral channels and help maintain natural sedimentation processes; therefore, the Department recommends effective setbacks be established to maintain appropriately-sized vegetated buffer areas adjoining ephemeral drainages.
 - c) Project-related changes in drainage patterns, runoff, and sedimentation should be included and evaluated in the environmental document.
- 3) Wetlands Resources. The Department, as described in Fish & Game Code § 703(a) is guided by the Fish and Game Commission's policies. The Wetlands Resources policy (<http://www.fgc.ca.gov/policy/>) of the Fish and Game Commission "...seek[s] to provide for the protection, preservation, restoration, enhancement and expansion of wetland habitat in California. Further, it is the policy of the Fish and Game Commission to strongly discourage development in or conversion of wetlands. It opposes, consistent with its legal authority, any development or conversion which would result in a reduction of wetland acreage or wetland habitat values. To that end, the Commission opposes wetland development proposals unless, at a minimum, project mitigation assures there will be "no net loss" of either wetland habitat values or acreage. The Commission strongly prefers mitigation which would achieve expansion of wetland acreage and enhancement of wetland habitat values".

¹ A notification package for a LSA may be obtained by accessing the Department's web site at www.wildlife.ca.gov/habcon/1600.

² Cowardin, Lewis M., et al. 1970. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Department of the Interior, Fish and Wildlife Service.

- a) The Wetlands Resources policy provides a framework for maintaining wetland resources and establishes mitigation guidance. The Department encourages avoidance of wetland resources as a primary mitigation measure and discourages the development or type conversion of wetlands to uplands. The Department encourages activities that would avoid the reduction of wetland acreage, function, or habitat values. Once avoidance and minimization measures have been exhausted, the project must include mitigation measures to assure a "no net loss" of either wetland habitat values, or acreage, for unavoidable impacts to wetland resources. Conversions include, but are not limited to, conversion to subsurface drains, placement of fill or building of structures within the wetland, and channelization or removal of materials from the streambed. All wetlands and watercourses, whether ephemeral, intermittent, or perennial, should be retained and provided with substantial setbacks, which preserve the riparian and aquatic values and functions for the benefit to on-site and off-site wildlife populations. The Department recommends mitigation measures to compensate for unavoidable impacts be included in the DEIR and these measures should compensate for the loss of function and value.
 - b) The Fish and Game Commission's Water policy guides the Department to ensure the quantity and quality of the waters of this state should be apportioned and maintained respectively so as to produce and sustain maximum numbers of fish and wildlife; to provide maximum protection and enhancement of fish and wildlife and their habitat; encourage and support programs to maintain or restore a high quality of the waters of this state, and prevent the degradation thereof caused by pollution and contamination; and endeavor to keep as much water as possible open and accessible to the public for the use and enjoyment of fish and wildlife. The Department recommends avoidance of water practices and structures that use excessive amounts of water, and minimization of impacts that negatively affect water quality, to the extent feasible.
- 4) California Endangered Species Act (CESA). The Department considers adverse impacts to a species protected by CESA, for the purposes of CEQA, to be significant without mitigation. As to CESA, take of any endangered, threatened, candidate species, or state-listed rare plant species that results from the project is prohibited, except as authorized by state law (Fish and Game Code, §§ 2080, 2085; Cal. Code Regs., tit. 14, §786.9). Consequently, if the project, project construction, or any project-related activity during the life of the project will result in take of a species designated as endangered or threatened, or a candidate for listing under CESA, the Department recommends that the project proponent seek appropriate take authorization under CESA prior to implementing the project. Appropriate authorization from the Department may include an Incidental Take Permit (ITP) or a consistency determination in certain circumstances, among other options (Fish and Game Code §§ 2080.1, 2081, subds. (b),(c)). Early consultation is encouraged, as significant modification to a project and mitigation measures may be required in order to obtain a CESA Permit. Revisions to the Fish and Game Code, effective January 1998, may require that the Department issue a separate CEQA document for the issuance of an ITP unless the project CEQA document addresses all project impacts to CESA-listed species and specifies a mitigation monitoring and reporting program that will meet the requirements of an ITP. For these reasons, biological mitigation monitoring and reporting proposals should be of sufficient detail and resolution to satisfy the requirements for a CESA ITP.

- 5) Biological Baseline Assessment. To provide a complete assessment of the flora and fauna within and adjacent to the project area, with particular emphasis upon identifying endangered, threatened, sensitive, regionally and locally unique species, and sensitive habitats, the DEIR should include the following information:
- a) Information on the regional setting that is critical to an assessment of environmental impacts, with special emphasis on resources that are rare or unique to the region (CEQA Guidelines § 15125[c]);
 - b) a thorough, recent, floristic-based assessment of special status plants and natural communities, following the Department's *Protocols for Surveying and Evaluating Impacts to Special Status Native Plant Populations and Natural Communities* (see <http://www.dfg.ca.gov/habcon/plant/>);
 - c) floristic, alliance- and/or association-based mapping and vegetation impact assessments conducted at the project site and within the neighboring vicinity. *The Manual of California Vegetation*, second edition, should also be used to inform this mapping and assessment (Sawyer et al. 2008). Adjoining habitat areas should be included in this assessment where site activities could lead to direct or indirect impacts offsite. Habitat mapping at the alliance level will help establish baseline vegetation conditions;
 - d) a complete, recent, assessment of the biological resources associated with each habitat type on site and within adjacent areas that could also be affected by the project. The Department's California Natural Diversity Data Base (CNDDDB) in Sacramento should be contacted to obtain current information on any previously reported sensitive species and habitat. The Department recommends that CNDDDB Field Survey Forms be completed and submitted to CNDDDB to document survey results. Online forms can be obtained and submitted at http://www.dfg.ca.gov/biogeodata/cnddb/submitting_data_to_cnddb.asp ;
 - e) a complete, recent assessment of rare, threatened, and endangered, and other sensitive species on site and within the area of potential effect, including California Species of Special Concern (CSSC) and California Fully Protected Species (Fish and Game Code § 3511). Species to be addressed should include all those which meet the CEQA definition (see CEQA Guidelines § 15380). Seasonal variations in use of the project area should also be addressed. Focused species-specific surveys, conducted at the appropriate time of year and time of day when the sensitive species are active or otherwise identifiable, are required. Acceptable species-specific survey procedures should be developed in consultation with the Department and the U.S. Fish and Wildlife Service; and,
 - f) a recent, wildlife and rare plant survey. The Department generally considers biological field assessments for wildlife to be valid for a one-year period, and assessments for rare plants may be considered valid for a period of up to three years. Some aspects of the proposed project may warrant periodic updated surveys for certain sensitive taxa, particularly if build out could occur over a protracted time frame, or in phases.

- 6) Biological Direct, Indirect, and Cumulative Impacts. To provide a thorough discussion of direct, indirect, and cumulative impacts expected to adversely affect biological resources, with specific measures to offset such impacts, the following should be addressed in the DEIR:
- a) a discussion of potential adverse impacts from lighting, noise, human activity, exotic species, and drainage. The latter subject should address project-related changes on drainage patterns and downstream of the project site; the volume, velocity, and frequency of existing and post-project surface flows; polluted runoff; soil erosion and/or sedimentation in streams and water bodies; and post-project fate of runoff from the project site. The discussion should also address the proximity of the extraction activities to the water table, whether dewatering would be necessary and the potential resulting impacts on the habitat, if any, supported by the groundwater. Mitigation measures proposed to alleviate such impacts should be included;
 - b) a discussion regarding indirect project impacts on biological resources, including resources in nearby public lands, open space, adjacent natural habitats, riparian ecosystems, and any designated and/or proposed or existing reserve lands (e.g., preserve lands associated with a NCCP). Impacts on, and maintenance of, wildlife corridor/movement areas, including access to undisturbed habitats in adjacent areas, should be fully evaluated in the DEIR;
 - c) the impacts of zoning of areas for development projects or other uses nearby or adjacent to natural areas, which may inadvertently contribute to wildlife-human interactions. A discussion of possible conflicts and mitigation measures to reduce these conflicts should be included in the environmental document; and,
 - d) a cumulative effects analysis, as described under CEQA Guidelines section 15130. General and specific plans, as well as past, present, and anticipated future projects, should be analyzed relative to their impacts on similar plant communities and wildlife habitats.
- 7) Avoidance, Minimization, and Mitigation for Sensitive Plants. The DEIR should include measures to fully avoid and otherwise protect sensitive plant communities from project-related direct and indirect impacts. The Department considers these communities to be imperiled habitats having both local and regional significance. Plant communities, alliances, and associations with a statewide ranking of S-1, S-2, S-3 and S-4 should be considered sensitive and declining at the local and regional level. These ranks can be obtained by querying the CNDDDB and are included in *The Manual of California Vegetation* (Sawyer et al. 2008³).

³ Sawyer, J. O., Keeler-Wolf, T., and Evens J.M. 2008. A manual of California Vegetation, 2nd ed.

- 8) Compensatory Mitigation. The DEIR should include mitigation measures for adverse project-related impacts to sensitive plants, animals, and habitats. Mitigation measures should emphasize avoidance and reduction of project impacts. For unavoidable impacts, on-site habitat restoration or enhancement should be discussed in detail. If on-site mitigation is not feasible or would not be biologically viable and therefore not adequately mitigate the loss of biological functions and values, off-site mitigation through habitat creation and/or acquisition and preservation in perpetuity should be addressed.
- 9) Long-Term Management of Mitigation Lands. For proposed preservation and/or restoration, the DEIR should include measures to protect the targeted habitat values from direct and indirect negative impacts in perpetuity. The objective should be to offset the project-induced qualitative and quantitative losses of wildlife habitat values. Issues that should be addressed include, but are not limited to, restrictions on access, proposed land dedications, monitoring and management programs, control of illegal dumping, water pollution, and increased human intrusion. An appropriate non-wasting endowment should be set aside to provide for long-term management of mitigation lands.
- 10) Nesting Birds. The Department recommends that measures be taken to avoid project impacts to nesting birds. Migratory nongame native bird species are protected by international treaty under the Federal Migratory Bird Treaty Act (MBTA) of 1918 (Title 50, § 10.13, Code of Federal Regulations). Sections 3503, 3503.5, and 3513 of the California Fish and Game Code prohibit take of all birds and their active nests including raptors and other migratory nongame birds (as listed under the Federal MBTA). Proposed project activities (including, but not limited to, staging and disturbances to native and nonnative vegetation, structures, and substrates) should occur outside of the avian breeding season which generally runs from February 1st through September 1st (as early as January 1st for some raptors) to avoid take of birds or their eggs. If avoidance of the avian breeding season is not feasible, the Department recommends surveys by a qualified biologist with experience in conducting breeding bird surveys to detect protected native birds occurring in suitable nesting habitat that is to be disturbed and (as access to adjacent areas allows) any other such habitat within 300 feet of the disturbance area (within 500 feet for raptors). Project personnel, including all contractors working on site, should be instructed on the sensitivity of the area. Reductions in the nest buffer distance may be appropriate depending on the avian species involved, ambient levels of human activity, screening vegetation, or possibly other factors.
- 11) Translocation/Salvage of Plants and Animal Species. Translocation and transplantation is the process of moving an individual from the project site and permanently moving it to a new location. The Department generally does not support the use of translocation or transplantation as the primary mitigation strategy for unavoidable impacts to rare, threatened, or endangered plant or animal species. Studies have shown that these efforts are experimental and the outcome unreliable. The Department has found that permanent preservation and management of habitat capable of supporting these species is often a more effective long-term strategy for conserving sensitive plants and animals, and their habitats.

- 12) Moving out of Harm's Way. The proposed project is anticipated to result in clearing of natural habitats that support many species of indigenous wildlife. To avoid direct mortality, the Department recommends a qualified biological monitor approved by the Department be on site prior to and during ground and habitat disturbing activities to move out of harm's way special status species or other wildlife of low mobility that would be injured or killed by grubbing or project-related construction activities. It should be noted that the temporary relocation of on-site wildlife does not constitute effective mitigation for the purposes of offsetting project impacts associated with habitat loss.
- 13) Wildlife Movement and Connectivity. The project area supports significant biological resources and is located adjacent to a regional wildlife movement corridor. The project area contains habitat connections and supports movement across the broader landscape, sustaining both transitory and permanent wildlife populations. Onsite features, which contribute to habitat connectivity, should be evaluated and maintained. Aspects of the project could create physical barriers to wildlife movement from direct or indirect project-related activities. Indirect impacts from lighting, noise, dust, and increased human activity may displace wildlife in the general area.
- 14) Revegetation/Restoration Plan. Plans for restoration and re-vegetation should be prepared by persons with expertise in southern California ecosystems and native plant restoration techniques. Plans should identify the assumptions used to develop the proposed restoration strategy. Each plan should include, at a minimum: (a) the location of restoration sites and assessment of appropriate reference sites; (b) the plant species to be used, sources of local propagules, container sizes, and seeding rates; (c) a schematic depicting the mitigation area; (d) a local seed and cuttings and planting schedule; (e) a description of the irrigation methodology; (f) measures to control exotic vegetation on site; (g) specific success criteria; (h) a detailed monitoring program; (i) contingency measures should the success criteria not be met; and (j) identification of the party responsible for meeting the success criteria and providing for conservation of the mitigation site in perpetuity. Monitoring of restoration areas should extend across a sufficient time frame to ensure that the new habitat is established, self-sustaining, and capable of surviving drought.
 - a) The Department recommends that local onsite propagules from the project area and nearby vicinity be collected and used for restoration purposes. Onsite seed collection should be initiated in the near future in order to accumulate sufficient propagule material for subsequent use in future years. Onsite vegetation mapping at the alliance and/or association level should be used to develop appropriate restoration goals and local plant palettes. Reference areas should be identified to help guide restoration efforts. Specific restoration plans should be developed for various project components as appropriate.
 - b) Restoration objectives should include providing special habitat elements where feasible to benefit key wildlife species. These physical and biological features can include, for example, retention of woody material, logs, snags, rocks and brush piles (see Mayer and Laudenslayer, 1988, for a more detailed discussion of special habitat elements⁴).

⁴ Mayer, K. E. and W. F. Laudenslayer, Jr. 1988. Editors: A guide to wildlife habitats of California. State of California, The Resources Agency, Department of Forestry and Fire Protection, Sacramento, CA.

Kathryn Lehr, Planner
Santa Barbara County, Planning & Development
November 16, 2016
Page 9 of 9

We appreciate the opportunity to comment on the referenced NOP. Questions regarding this letter and further coordination on these issues should be directed to Mr. Martin Potter, Senior Environmental Scientist (Specialist) at (805) 640-3677 or Martin.Potter@Wildlife.ca.gov.

Sincerely,



Betty J. Courtney
Environmental Program Manager I
South Coast Region

ec: Mary Meyer, CDFW, Ojai
Christine Found-Jackson, CDFW, Westlake Village
Martin Potter, CDFW, Ojai
Sarah Rains, Ojai
Roger Root, USFWS, Ventura
Scott Morgan, State Clearinghouse, Sacramento



United States Department of the Interior



FISH AND WILDLIFE SERVICE
Ventura Fish and Wildlife Office
2493 Portola Road, Suite B
Ventura, California 93003

IN REPLY REFER TO:
08EVEN00-2017-CPA-0018

November 29, 2016

Kathryn Lehr, Planner
Santa Barbara County Planning & Development
123 East Anapamu Street
Santa Barbara, California 93101

Subject: Notice of Preparation of a Draft Environmental Impact Report for the East Cat Canyon Oil Field Redevelopment Plan Project, Santa Barbara County, California

Ms. Lehr:

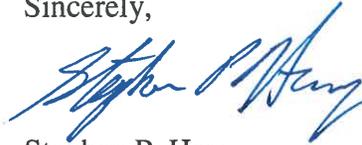
This letter provides the U.S. Fish and Wildlife Service's (Service) comments on the Notice of Preparation (NOP) regarding the Draft Environmental Impact Report (DEIR) for the East Cat Canyon Oil Field Redevelopment Plan Project (Project), located in the eastern area of the Cat Canyon Oil Field in Santa Barbara County, California. The Project would re-establish oil production of up to 10,000 barrels of oil per day by implementing a thermal enhanced oil recovery process within the eastern area of the existing Cat Canyon Oil Field. The Project would include the re-establishment and construction of approximately 72 well pads and associated infrastructure (i.e., roads, utility lines, buildings) across 2,112 acres.

The Service's responsibilities include administering the Endangered Species Act of 1973, as amended (Act), including sections 7, 9, and 10. Section 9 of the Act and its implementing regulations prohibit the taking of any federally listed endangered or threatened species. Section 3(19) of the Act defines "take" to mean "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or to attempt to engage in any such conduct." Harm is further defined by the Service to include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering. Harass is defined by the Service as intentional or negligent actions that create the likelihood of injury to a listed species by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering. The Act provides for civil and criminal penalties for the unlawful taking of listed species. Exemptions to the prohibitions against take may be obtained through coordination with the Service in two ways. If a project is to be funded, authorized, or carried out by a Federal agency, and may affect a listed species, the Federal agency must consult with the Service pursuant to section 7(a)(2) of the Act. If a proposed project does not involve a Federal agency but may result in take of a listed animal species, the project proponent should apply to the Service for an incidental take permit pursuant to section 10(a)(1)(B) of the Act.

According to the NOP, the DEIR will identify and evaluate potentially significant adverse impacts, whether direct or indirect, that may result from Project implementation. It will also determine whether mitigation measures and/or alternatives can be implemented that would mitigate such impacts to a level that is less than significant. The NOP identifies a number of environmental issues that will be analyzed in the DEIR, one of which is biological resources. We encourage you to work with us and the California Department of Fish and Wildlife to ensure that you have the most recent information regarding resources under our respective jurisdiction and to provide an accurate depiction of Federal and State permitting processes.

We appreciate the opportunity to provide comments on the NOP for the East Cat Canyon Oil Field Redevelopment Plan Project DEIR and look forward to receiving the draft document, inclusive of all relevant technical appendices and reports, during the public review period. If you have any questions regarding our response to the NOP, please contact Rachel Henry at (805) 644-1766, extension 333.

Sincerely,

A handwritten signature in blue ink, appearing to read "Stephen P. Henry".

Stephen P. Henry
Field Supervisor

cc:
Martin Potter, California Department of Fish and Wildlife



November 14, 2016

via electronic mail and U.S. mail to:

Kathryn Lehr, Planner
Santa Barbara County
Planning & Development
123 East Anapamu Street
Santa Barbara, CA 93101
klehr@countyofsb.org

**Re: Comments on Scoping for Draft Environmental Impact Report
East Cat Canyon Oil Field Redevelopment Plan Project**

Dear Ms. Lehr,

The Center for Biological Diversity (“Center”) submits these comments about the East Cat Canyon Oil Field Redevelopment Plan Project (“Project”).

The Center for Biological Diversity is a non-profit organization with more than one million members and online activists throughout the United States, more than 2,200 of which reside in Santa Barbara County. The Center’s mission is to ensure the preservation, protection and restoration of biodiversity, native species, ecosystems, public lands and waters and public health. In furtherance of these goals, the Center’s Climate Law Institute seeks to reduce U.S. greenhouse emissions and other air pollution to protect biological diversity, the environment, and human health and welfare.

The recent decision to reject a massive expansion of the Orcutt Hills oil field was a significant and much-needed step in moving Santa Barbara away from dangerous fossil fuel extraction and toward a cleaner, healthier future. Just as the Orcutt Hills project threatened the County’s air, water, safety, and climate, so too does this project. Where the project proponent in Orcutt Hills proposed 192 operating wells, Aera’s proposed project aims to have 296 operating wells, promising even greater damage. Moreover, the wells will utilize the same dangerous steam injection techniques that introduce new and increased risks to public safety and the environment.

There is no mitigation that can offset the harms that would be caused by this project. Therefore, the Center suggests that the Santa Barbara Planning Commission adopt the “no project” option in any EIR that is developed for this project and deny Aera Energy permits to reactivate and redevelop the eastern portion of the Cat Canyon Oil Field.

1. The only way to prevent catastrophic climate change is to end new fossil fuel developments, including this Project.

Aera's proposal to reactivate a defunct section of Cat Canyon, build new infrastructure, and extract heavy, carbon-intensive crude oil is very dangerous. The Santa Barbara Planning Commission owes it to future generations to carefully and thoroughly examine the greenhouse gas (GHG) and climate implications of the Project.¹

The severe impacts of global warming to the United States and the rest of the world from the 1°C warming that the planet has already experienced highlight the urgency of stronger climate action to avoid truly catastrophic impacts to people and planet. The Third National Climate Assessment, released in 2014 by the U.S. Global Change Research Program, makes clear that “reduc[ing] the risks of some of the worst impacts of climate change” will require “aggressive and sustained greenhouse gas emission reductions” over the course of this century.²

The United States has committed to the climate goal of limiting global temperature rise to “well below 2°C above pre-industrial levels” and pursuing efforts to limit the temperature increase to 1.5°C above pre-industrial levels under the Paris Agreement, which entered into force on 4 November 2016.³ The Paris Agreement codified the 1.5°C climate target since 2°C of warming is no longer considered a safe “guardrail” for avoiding catastrophic climate impacts and runaway climate change.⁴

A new report from Oil Change International (OCI) finds that, to have even a 50 percent chance of limiting warming to 1.5°C and a 66 percent chance limiting warming to 2°C, 85 percent and 68 percent, respectively, of known fossil fuel reserves must stay in the ground.⁵ Moreover, the developed reserves in currently operating oil and gas fields alone, even with no coal, would take the world beyond 1.5°C. As a result, to stay below 1.5°C or 2°C, no new fossil fuel extraction or transportation infrastructure should be built, and governments should grant no new permits for them.⁶ The OCI report concludes that, because “existing fossil fuel reserves considerably exceed both the 2°C and 1.5°C carbon budgets[, i]t follows that exploration for new fossil fuel reserves is at best a waste of money and at worst very dangerous.”⁷

¹ The EIR must conduct a comprehensive, quantitative analysis of the Project's considerable GHG emissions, including a full analysis of direct, indirect, and cumulative impacts, as set forth by the California Supreme Court in the *Center for Biological Diversity v. Department of Fish & Wildlife* (2015) 234 Cal. App. 4th; <http://www.courts.ca.gov/opinions/documents/B245131.PDF>.

² Melillo, Jerry M., *Climate Change Impacts in the United States: The Third National Climate Assessment*, Terese (T.C.) Richmond, and Gary W. Yohe, Eds., U.S. Global Change Research Program, doi:10.7930/J0Z31WJ2 (2014), pp. 13, 14, and 649.

³ See United Nations Framework Convention on Climate Change, Conference of the Parties Nov. 30-Dec. 11, 2015, Adoption of the Paris Agreement Art. 2, U.N. Doc. FCCC/CP/2015/L.9 (Dec. 12, 2015), available at <http://unfccc.int/resource/docs/2015/cop21/eng/l09.pdf> (“Paris Agreement”).

⁴ See the comprehensive scientific review under the United Nations Framework Convention on Climate Change (UNFCCC) of the global impacts of 1.5°C versus 2°C warming: U.N. Subsidiary Body for Scientific and Technological Advice, Report on the structured expert dialogue on the 2013-2015 review (2015), FCCC/SB/2015/INF.1 (2014), <http://unfccc.int/resource/docs/2015/sb/eng/inf01.pdf>; Schleussner, C.-F., et al., “Differential climate impacts for policy-relevant limits to global warming: the case of 1.5C and 2C,” 7 *Earth Systems Dynamics* 327 (2016).

⁵ Oil Change International, *The Sky's Limit: Why the Paris Climate Goals Require a Managed Decline of Fossil Fuel Production* (“The Sky's Limit”) (September 2016), “Climate Science and Carbon Budgets,” pp. 6.

⁶ *The Sky's Limit*, p. 5.

⁷ *The Sky's Limit*, p. 17.

Aera's proposal to extract heavy, carbon-intensive crude oil over the next few decades and build new infrastructure is inconsistent not only with United States' climate commitments under the Paris Agreement but also with California's mandates for rapid statewide GHG emissions reductions. California has strict mandates to rapidly reduce emissions to prescribed levels by the years 2020, 2030, and 2050. Under AB 32, California must reach 1990 levels of GHG emissions by the year 2020, equivalent to approximately a 15 percent reduction from a business-as-usual projection. (Health & Saf. Code § 38550.) By 2030, California must achieve the more ambitious target of reducing GHG emissions by 40 percent below 1990 levels, under SB 32. By 2050, the state must reduce emissions levels to 80 percent below 1990 levels, under Executive Order S-3-05 (2005).

The urgent need to prevent the worst impacts of climate change means that the world in general – and California in particular – cannot afford to invest in new infrastructure that locks in carbon intensive oil production for years into the future. However, according to the Notice of Preparation for this EIR, “[p]roduction from the Project is expected to continue for more than 30 years.”⁸ In fact, just installing new infrastructure (wells, drilling pads, etc.) is slated to last until 2051.⁹

Worse still, the oil Aera proposes to extract is heavy crude, which requires large inputs of energy to produce and refine.¹⁰ The large carbon footprint of this project makes it a bad choice for Santa Barbara County and the planet.

2. The Project endangers underground aquifers.

California's historic drought has prompted mandatory water restrictions; the drilling of new water wells deeper and tapping into previously unused aquifers; and the serious consideration of using alternative water purification technologies. Overall, 85 percent of California's public water systems depend on groundwater for at least part of their drinking water, and smaller urban and rural areas depend entirely on groundwater.¹¹ California's reliance on groundwater increases during times of drought and will continue to increase with the growing demand from municipal, agricultural, and industrial sources, especially as surface water availability changes as a result of climate change and drought.¹² The most recent data available as of October 2014 shows that groundwater levels have decreased in many basins throughout the state since spring 2013, and more notably since spring 2010.¹³ This trend is likely to continue as climate change increases the occurrences and severity of droughts and California.¹⁴

⁸ Notice of Preparation of a Draft Environmental Impact Report, from Kathryn Lehr, Santa Barbara County Planner, to Governor's Office of Planning and Research (“Notice of Preparation”) (October 21, 2016), p. 7.

⁹ Notice of Preparation, p. 14.

¹⁰ Light crude will need to be driven from 134 miles away to mix with the heavy crude extracted at Cat Canyon, then driven back 134 miles for processing (Notice of Preparation, p. 8). All recovery from this project will require steam inputs in order to reduce the viscosity of the heavy crude enough for it to flow (Notice of Preparation, p. 8).

¹¹ State Water Resources Control Board, Report to the Legislature: Draft Communities that Rely on Contaminated Ground Water (Feb. 2012) (“SWRCB, 2012”), p. 6.

¹² SWRCB, 2012, p. 6; Memorandum from Howitt et al., UC Davis Center for Watershed Sciences, to California Department of Food and Agriculture (May 31, 2015) (“Howitt, 2015”), available at: https://watershed.ucdavis.edu/files/biblio/2015Drought_PrelimAnalysis.pdf.

¹³ Cal. Department of Water Resources, “Public Update for Drought Response: Groundwater Basins with Potential Water Shortages, Gaps in Groundwater Monitoring, Monitoring of Land Subsidence, and Agricultural Land

As communities are more dependent than ever on underground water resources, it is vital that Santa Barbara County ensure its aquifers are protected from the toxic wastewater generated by oil and gas production.

The Notice of Preparation indicates the reliance of local communities and farms on groundwater for drinking and irrigation, including wells that tap into deep water aquifers.¹⁵ The Project proposes to inject large volumes of steam and wastewater contaminated with chemicals into the Sisquoc formation. This injection places groundwater resources in danger in multiple ways.

First, as the Notice of Preparation correctly points out, leaking well casings, seeps, and water flow through underground pathways could all result in contamination of surface and well water.¹⁶ Second, the pipelines needed to transport fluids from production wells to treatment facilities and from the steam generators to injection wells provide additional pathways for contamination of surface waters through leaking valves. Third, the many abandoned wells in the Project area will degrade over time. Those wellbores can provide conduits for upward migration of fluids and contamination of overlying aquifers.

Finally, while certain areas of the Sisquoc formation into which this Project will inject unknown volumes of contaminated water are exempted from the requirements of the Safe Drinking Water Act (SDWA),¹⁷ there is no evidence that fluid injected into this formation will not flow laterally and horizontally into other, nonexempt areas.

In fact, there is evidence that fluid injected into this area of the Cat Canyon Oil Field *will not* be contained in the Sisquoc formation and could flow into nearby Underground Sources of Drinking Water (USDWs). When DOGGR undertook a review of its Underground Injection (UIC) program, it found 136 wells improperly injecting into nonexempt aquifers in the Cat Canyon Oil Field. ERG, which operates leases in the active western portion of Cat Canyon, applied for an aquifer exemption to inject into the areas of the Sisquoc formation that were not exempted from the SDWA in 1982. This aquifer exemption application stated that “[t]he proposed area for exemption is hydrologically connected to the currently exempted areas.”¹⁸ Maps attached to the ERG Application illustrate the free flow of injected fluids within Cat

Following (November 2014) (“DWR, 2014”), pp. 5, 11 (emphasis added), *available at*:

http://water.ca.gov/waterconditions/docs/DWR_PublicUpdateforDroughtResponse_GroundwaterBasins.pdf.

¹⁴ See e.g., Williams, Park A. et al., “Contribution of Anthropogenic Warming to California Drought During 2012-2014,” *Geophysical Research Letters*, Vol. 42, Issue 16 (Aug. 28, 2015), pp. 6819-6828.

¹⁵ Notice of Preparation, Surface/Groundwater Resources, p. 20.

¹⁶ *Ibid.*

¹⁷ See Memorandum of Agreement between DOGGR and EPA, *available at*

http://www.conservation.ca.gov/dog/for_operators/Documents/MOU-MOA/MOA_EPA_UIC_1982.pdf. Aquifers that have the potential to serve as USDWs, now or in the future, must be protected under the Safe Drinking Water Act (SDWA). Aquifers with less than 10,000 TDS (total dissolved solids) can be exempted from the SDWA but an aquifer exemption, approved by DOGGR and the EPA, is required before injection can begin.

¹⁸ Aquifer Exemption Summary Sheet, Cat Canyon Aquifer Exemption (“ERG Application”) (2/12/2013), received from EPA via FOIA request and available at

<https://foiaonline.regulations.gov/foia/action/public/view/record?objectId=090004d280eb27fb> and attached.

Canyon Oil Field.¹⁹ The maps and the ERG Application do not indicate whether the injected fluid will be contained within the oil field boundaries.

The original aquifer exemption for limited portions of the Cat Canyon oil field was granted at a time when even less was understood about underground water flow than the minimal knowledge we have today. The EPA has a history of issuing aquifer exemptions without doing its due diligence to make sure that injected water is contained within the exempted formation and area.²⁰ In light of the failures of DOGGR (which has permitted at least 154 wells to inject into nonexempt aquifers in Santa Barbara County) and EPA to protect USDWs, it is incumbent on Santa Barbara County to protect its groundwater resources.

Not only has the science and technology changed since the federal aquifer exemption regulations were put in place over thirty years ago, which exempted portions of the Sisquoc formation under Cat Canyon Oil Field, but the regulatory environment has also changed significantly. Since the 1980s, California has seen the passage and implementation of AB 32, the Low Carbon Fuel Standard, and water restrictions due to a historic and severe drought. As a result of these and other changes in environmental law, science, and technology since the 1980s, the exemption criteria are no longer enough. The agencies must consider these advances of the last thirty years in preparing the EIR for this Project.

The deliberate introduction of harmful pollutants into groundwater resources ensures some level of environmental degradation and presents a clear risk of permanently contaminating drinking water sources. Some chemical constituents of wastewater include chemicals deemed harmful under Prop 65, which may not be discharged into water or onto land that could be a conduit to drinking water. Hydrological connections between groundwater resources are complex and are not yet adequately documented. This complexity and uncertainty makes remediation of groundwater resource after contamination extremely difficult and often impossible.

Aera has not presented a detailed analysis of the toxicity of the water it uses for steam injection or waste water disposal; nor has it provided an analysis of the effects its injection will have on groundwater flow or whether the fluids they plan to inject will be contained within the oil field.

Given the lack of containment inside this oil field, it is possible for toxic wastewater injected in the east part of Cat Canyon will flow out into unintended zones. The EIR must take a hard look at the potential for the Project to contaminate USDWs.

3. Consideration of the Project must include consideration of the cumulative impact of ERG's proposed expansion in west Cat Canyon Oil Field.

¹⁹ See Maps 1, 2, 3 and 6 (2/12/2013). Map 6 also shows the locations of some nearby water wells.

²⁰ GAO, EPA Program to Protect Underground Sources from Injection of Fluids Associated with Oil and Gas Production Needs Improvement. (June 2014); Natural Resources Defense Council, Citizen Petition to Repeal or Amend the EPA's Aquifer Exemption Regulations to Protect Underground Sources of Drinking Water (March 23, 2016).

ERG plans to drill an additional 200 wells in the western portion of Cat Canyon. The Project, if approved, would lead to as many as 296 new wells in the eastern area. Many of these new wells in both locations will inject steam and wastewater into the Sisquoc formation.

As noted above, there is no barrier between this formation in the east and west portions of Cat Canyon. ERG must obtain an aquifer exemption if it is to complete its expansion project and, indeed, continue inject into more than 100 wells that currently inject without an aquifer exemption in place. Aera's plan to inject into the eastern portion of Cat Canyon could cause injections to flow to the eastern portion of Cat Canyon.²¹

The injection from these two projects will be cumulative and could increase pressure on the formation, leading to flow of contaminated water through new pathways. The cumulative injection from the ERG Cat Canyon project and this Project must be considered in the EIR, as well as the cumulative impacts of spills, habitat destruction, earthquake risks, air pollution, and GHG emissions.

4. Earthquakes could cause additional conduits for fluid migration.

The Notice of Preparation fails to mention the risk that earthquakes will create new pathways to other groundwater sources, and damage wells. Known and unknown faults can be conduits for fluid migration.²² In fact, Federal Regulations require that all new Class II wells be sited "in such a fashion that they inject into a formation which is separated from any USDW by a confining zone that is free of known open faults or fractures within the area of review."²³

The EIR for this Project must contain a seismic analysis of this subbasin and an analysis of potential changes in groundwater movement as a result of earthquakes that may occur. There must be analysis of potential impacts to the flow of formation water if faults shift. Without a comprehensive examination of the risk that earthquakes--natural or induced--will aggravate, widen, extend or otherwise modify existing faults or create new ones that then provide conduits for pollutants to travel out of the aquifer into surrounding groundwater, the EIR for the Project will be inadequate.

5. The Project could lead to induced earthquakes.

Oil and gas activity, including from wastewater injection, can activate faults and trigger earthquakes.²⁴ As a 2014 report noted: if "produced water is disposed of by injection and not

²¹ ERG Application, p. 1: "The proposed area for exemption is hydrologically connected to the currently exempted areas."

²² California Council of Science and Technology, Potential Environmental Impacts of Hydraulic Fracturing and Acid Stimulation (Jul. 2015) ("CCST Report"), Vol. II, Ch. 2, pp. 125-126.

²³ 40 C.F.R. § 146.22(a). *See also* CCST Report, Vol. II, Ch. 2, p. 151 ("Site characterization requirements include a confining zone free of known open faults or fractures that separates the injection zone from underground sources of drinking water. . . .").

²⁴ California Council on Science and Technology Lawrence Berkeley National Laboratory Pacific Institute, *Advanced Well Stimulation in California*, "Executive Summary" (August 28, 2014) ("2014 CCST Report"), pp. 41, 269-275, available at: <http://ccst.us/publications/2014/2014wstES.pdf>. Further study is needed as well. "[A]reas of the southern San Joaquin, Ventura, Santa Clarita and Santa Maria basins, where active water disposal wells are

handled through an expansion of water treatment and re-use systems, it could increase seismic hazards.”²⁵ The EIR for this Project must analyze the potential for oil and gas activity to trigger or increase the risk of earthquakes here.

The mechanisms linking oil and gas activities and earthquakes are understood: injection-induced increases in fluid pressure within aquifers, fault lubrication by injected fluids, and extraction-induced pressure decreases and aquifer subsidence all have the potential to destabilize wellbores and cause preexisting faults to slip.²⁶ Such mechanisms serve to explain atypical seismic activity, such as extensively documented in the central and eastern United States.²⁷ This surge of activity includes a magnitude 5.7 earthquake that struck Oklahoma in 2011, in close proximity to active hydraulic fracturing wastewater wells, that proved to be the most powerful earthquake ever recorded in Oklahoma, and the largest event attributed to wastewater injection.²⁸

Earthquakes induced by oil industry wastewater injection have been documented in California. Scientific research published earlier this year linked a sudden surge in wastewater injection in 2005 with an earthquake swarm in the Tejon oil field near Bakersfield, with two earthquakes reaching magnitude 4.7.²⁹ These earthquakes occurred about five miles from the injection wells that triggered the seismic activity. In a related study in Kern County, researchers identified at least three other cases where wastewater injection likely induced earthquakes, including earthquakes greater than magnitude 4.³⁰ The researchers cautioned that the damage from induced earthquakes can be disastrous: “considering the numerous active faults in California, the seismogenic consequences of even a few induced cases can be devastating.”³¹

6. The Project could have significant impacts on habitat and wildlife.

The EIR must fully analyze the Project’s potential repercussions on the habitats and species in and around the Project area. Oil and gas extraction does not and cannot occur in a

concentrated at present (Figure 5-10), have relatively high rates of seismicity in the 2-5 magnitude range. While undoubtedly most of these earthquakes are naturally-occurring, detailed study of the seismicity in relation to fluid injection will be needed to assess the likelihood that a proportion of the events in these areas are induced.” 2014 CCST Report, pp. 275-6. *See also* Hamilton, Douglas H. and Richard L. Meehan, “Ground Rupture in the Baldwin Hills,” *Science*, vol. 172, no. 3981 (April 23, 1971), pp. 333-344; Brodsky, Emily and Lisa J. Lajoie, “Anthropogenic Seismicity Rates and Operational Parameters at the Salton Sea Geothermal Field,” *Science*, vol. 341 (Aug. 2, 2013); Ellsworth, William, “Injection-Induced Earthquakes,” *Science*, vol. 341 (July 12, 2013).

²⁵ 2014 CCST Report, p. 41.

²⁶ Brodsky, Emily and Lisa J. Lajoie, “Anthropogenic Seismicity Rates and Operational Parameters at the Salton Sea Geothermal Field,” *Science*, vol. 341 (Aug. 2, 2013); Davies, Richard et al., “Induced Seismicity and Hydraulic Fracturing for the Recovery of Hydrocarbons,” 45 *Marine and Petroleum Geology* 171 (2013).

²⁷ Ellsworth, William, “Injection-Induced Earthquakes,” *Science*, vol. 341 (July 12, 2013). There were earthquake count has increased dramatically over the last decade, with more than 300 earthquakes with $M \geq 3$ occurring between 2010 and 2012, or an average of 100 events/year, compared with an average rate of 21 events/year for the period spanning 1967 to 2000.

²⁸ Keranen, Katie M. et al., “Potentially Induced Earthquakes in Oklahoma, USA: Links between Wastewater Injection and the 2011 Mw 5.7 Earthquake Sequence,” 41 *Geology* 699 (2013).

²⁹ Goebel, T.H.W et al., “Wastewater disposal and earthquake swarm activity at the southern end of the Central Valley, California,” 43 *Geophys. Res. Lett.*, doi:10.1002/2015GL066948 (2016).

³⁰ Goebel, T.H.W. et al., “An objective method for the assessment of fluid injection-induced seismicity and application to tectonically active regions in central California.” 120 *J. Geophys. Res. Solid Earth* 7013 (2015).

³¹ Goebel, T.H.W. et al. 2016, at 7.

vacuum. It requires significant land disturbance at the surface. Infrastructure like roads, pipelines, storage facilities, and wellpads will disturb or destroy habitat. Disruptive operations such as drilling, construction, truck traffic, and injection itself add to the harm to biological resources. In addition, surface spills may endanger species in the area.

Under the California Endangered Species Act (CESA), all state agencies “shall seek to conserve endangered species and threatened species.”³² And, “state agencies should not approve projects as proposed which would jeopardize the continued existence of any endangered species or threatened species . . . if there are reasonable and prudent alternatives available.”³³

The federal Endangered Species Act (ESA)³⁴ also affords protections to imperiled species in the Cat Canyon area. The area encompassed by the aquifer exemption would overlap with the habitats of numerous federally managed species.³⁵

To determine the species potentially impacted by the project, the U.S. Fish and Wildlife Service’s Information for Planning and Conservation (IPaC) tool³⁶ and DOGGR’s Well Finder tool were used.³⁷ The U.S. Fish and Wildlife Service listed at least 12 federally endangered or threatened species and 30 migratory birds that may occur or could potentially be affected by activities in this location:

Federally threatened and endangered species	
Arroyo toad	<i>Anaxyrus californicus</i>
California red-legged frog	<i>Rana draytonii</i>
California tiger salamander	<i>Ambystoma californiense</i>
California condor	<i>Gymnogyps californianus</i>
Least Bell’s vireo	<i>Vireo bellii pusillus</i>
Southwestern willow flycatcher	<i>Empidonax traillii extimus</i>
Vernal pool fairy shrimp	<i>Branhinecta lynchi</i>
Gambel’s watercress	<i>Rorippa gambellii</i>
La Graciosa thistle	<i>Cirsium loncholepis</i>
Lompoc Yerba Santa	<i>Eriodictyon capitatum</i>
Marsh sandwort	<i>Arenaria paludicola</i>
Steelhead	<i>Oncorhynchus mykiss</i>

Given the direct and indirect harm likely to result from the Project, the EIR must carefully consider alternatives, including no project. Santa Barbara County cannot approve this Project without determining whether “reasonable and prudent alternatives” exist to protect and

³² Cal. Fish & Game Code § 2055, et seq..

³³ *Id.* § 2053.

³⁴ 7 U.S.C. § 136, 16 U.S.C. § 1531 et seq.

³⁵ U.S. Fish & Wildlife Service, Information for Planning and Conservation (IPaC) database, available at <https://ecos.fws.gov/ipac/>

³⁶ *Id.*

³⁷ Department of Conservation: DOGGR Well Finder, Cat Canyon Oil Field, available at <http://maps.conservation.ca.gov/doggr/#> (search “Cat Canyon” in Find by Oil/Gas Field tab.)

conserve endangered or threatened species.³⁸ The County must be prepared to comply with the procedural and substantive requirements of ESA and CESA if it intends to approve the Project.

7. The Project must be reviewed for compliance with the Water Quality Control Plan for the Central Coastal Basin.

Cat Canyon Oil Field overlaps with the Santa Maria Subbasin, and consequently must adhere to the Water Quality Control Plan for the Central Coastal Basin (“Basin Plan”).³⁹ Basin Plans are required by the state Porter-Cologne Water Quality Control Act, codified as the California Water Code.⁴⁰ Additionally, Article X of the California Constitution requires water resources be put to “beneficial use to the fullest extent of which they are capable.”⁴¹

If injection activity renders the underlying aquifers unusable, the likelihood of overdraft in other aquifers will increase. Therefore, the EIR for the Project must take a thorough look at the impact of injection on all aquifers in the Project area.

8. Cyclic steam injection is a dangerous extraction technique.

The Project’s proposed use of cyclic steam injection, a dangerous “enhanced oil recovery” technique, introduces new and increased risks to public safety and the environment.

a. Cyclic steam injection increases the risk of accidents and leaks.

In cyclic steam injection, the repeated soaking of the formation with very hot steam creates “large temperature variations and formation movements,” putting extreme pressure on the ground and well casing, which can cause well failure or the migration of fluids and steam.⁴² Indeed, “[c]yclic steam injection presents some of the harshest conditions” under which a well can be placed.⁴³ Thus, it is not surprising that rates of well casing failure from “excessive deformation, buckling, and collapse” are especially high in cyclic steam injection wells.⁴⁴ Further, the injection of hot steam can deform the surrounding formation and overlying ground so much that cyclic steaming can result in the migration of fluids and steam. This can sometimes pollute underground aquifers. It can also result in “surface expressions,” which is another way of saying that the steam, oil, gas, and whatever else might be mixed in underground have come bubbling to, or even exploding out of the surface of the ground.⁴⁵

³⁸ Fish & G. Code, § 2053.

³⁹ See Water Quality Control Plan for the Central Coastal Basin, *available at* http://www.waterboards.ca.gov/centralcoast/publications_forms/publications/basin_plan.

⁴⁰ Wat. Code, § 13240.

⁴¹ Cal. Const., art. X, § 2.

⁴² Xie, Jueren, Analysis of Casing Deformations in Thermal Wells (2008).

⁴³ Kulakofsky, David, Achieving Long-Term Zonal Isolation in Heavy-Oil Steam Injection Wells, a Case History (2008).

⁴⁴ Wu, Jiang, Casing Temperature and Stress Analysis in Steam-Injection Wells (2006); *see also* Wu, Jiang, Casing Failures in Cyclic Steam Injection Wells (2008).

⁴⁵ California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Report of Occurrences, The Chevron Fatality Accident, June 21, 2011, and Area Surface Expression Activity, Pre and Post Accident, Sections 21 & 22 T.32S./R.23E., Midway-Sunset Oil Field, Kern County (May 2012) (“Accident Report”); California Department of Conservation, Division of Oil, Gas, and Geothermal Resources, Reports of Occurrence:

Cyclic steam injection leads to changes in subsurface pressures, which are poorly understood and opens the door to fluid migration. A scientist at Lawrence Berkeley National Laboratory explained:

“As important as the subsurface is for U.S. energy strategy, our understanding of how the subsurface responds to common perturbations, such as those caused by pulling fluids out or pushing fluids in, is quite crude.... We’re not able to manipulate the subsurface with the control that can guarantee that we’re not only maximizing energy production or waste storage, but that we’re also protecting our environment—including minimizing greenhouse gas emissions, impacts to groundwater, and induced seismicity. That’s a significant gap.”⁴⁶

These are not just theoretical harms; they have occurred and with disastrous effects. On June 21, 2011, a Chevron worker was killed when investigating steam coming from a surface expression caused by cyclic steaming in Kern County’s Midway-Sunset oil field.⁴⁷ When approaching the plume of steam, the ground gave way, and the worker fell into a sinkhole.⁴⁸ In May 2012, California’s Division of Oil, Gas, and Geothermal Resources (DOGGR) issued a report on the tragedy.⁴⁹ As with the Project at issue, operations in the Midway-Sunset oil field were using cyclic steam injection to exploit shallow heavy oil deposits.⁵⁰ DOGGR’s report describes the extensive damage the cyclic steaming of the deposit had done to the area. In an area of approximately one-half mile by one-quarter mile, roughly thirty surface expressions appeared.⁵¹ Most of the surface expressions were described as having a “seep-like characteristic,” in which water and oil rose to the surface.⁵² Some of the surface expressions, however, had more violent traits.

On June 22, 2011, a surface expression unexpectedly surfaced and spread within a few minutes, ultimately covering substantial areas of two terraces of land.⁵³ The surface expression produced about 500 barrels of fluid within the first twenty-four hours, and thousands of barrels of fluid in the subsequent months.⁵⁴ DOGGR found that the source of the surface expression was “[s]team injection into shallow diatomite reservoir resulting in surface break through of steam, water and oil.”⁵⁵

Surface Expressions in Bakersfield (2011) (“Spill Binder”).

⁴⁶ Chao, J., “Underground Science: Berkeley Lab Digs Deep For Clean Energy Solutions,” Lawrence Berkeley National Laboratory, Oct. 19, 2016, quoting Susan Hubbard, Associate Director, available at <http://newscenter.lbl.gov/2016/10/19/berkeley-lab-digs-deep-clean-energy-solutions/>.

⁴⁷ Department of Conservation Division of Oil, Gas and Geothermal Resources, Executive Summary of Report of Occurrences: The Chevron Fatality Accident June 21, 2011 and Area Surface Expression Activity Pre and Post Accident – Sections 21 & 22 T.32S./R.23E., Midway-Sunset Oil Field Kern County (May 2012). (aka “Accident Report ES”); Accident Report at 2.

⁴⁸ Accident Report at 2.

⁴⁹ *Id.* at 1.

⁵⁰ *Id.* at 9.

⁵¹ *Ibid.*

⁵² *Ibid.*

⁵³ *Id.* at 4; Spill Binder part 3 at 16.

⁵⁴ Accident Report at 10; Spill Binder part 3 at 16.

⁵⁵ Spill Binder part 3 at 16.

Later, two large eruptions occurred at a surface expression near the fatality site. First, at some point during the night before August 5, 2011, an existing “crater site” experienced “a sudden and large explosive eruption that had expelled large rocks and spray of water and oil a distance of 30 to 150 feet”⁵⁶ Second, on the morning of August 17, 2011, an even larger eruption occurred, “expelling fluid and spray to a height of approximately 100 feet, and releasing a steam plume to an even greater height.”⁵⁷ The radius of the fluid spray was perhaps eighty yards.⁵⁸ Onsite personnel reported that the ground trembled.⁵⁹

b. Cyclic Steam operations are a threat to groundwater and surface water.

In addition to causing potentially deadly surface expressions, cyclic steaming can pollute groundwater aquifers. In the winter of 1995, six well casings in a field in Alberta, Canada, failed under the pressure of cyclic steam stimulation.⁶⁰ Similar to the Project at issue here, the operations were pursuing heavy oil at relatively shallow depths.⁶¹ The failures released approximately 55,000 cubic meters of “oil, saline produced water, and solids” to the environment, polluting two groundwater aquifers in the process.⁶²

Contaminating nearby aquifers would be an irreversible disaster, especially when California is experiencing its sixth year of record drought. The State Water Resources Control Board explained to the state legislature last year that injection wells across the state have already contaminated scores of aquifers: “any injection [from injection wells] into the aquifers that are not exempt has contaminated those aquifers.”⁶³ And once contaminants reach an aquifer, according to the Water Board, “you don't clean up aquifers, you contain the spread of contamination.”⁶⁴

c. Chemicals used in used in oil well drilling and operations are harmful yet will not be disclosed.

All oil and gas wells, cyclic steam wells included, use a host of chemicals that are harmful to the environment and human health.⁶⁵ Operators use them in drilling muds to facilitate the drilling process, in powerful cleaning solvents, or in chemical mixtures designed to maintain

⁵⁶ Accident Report at 7.

⁵⁷ Id. at 8.

⁵⁸ Spill Binder part 2 at 11.

⁵⁹ Accident Report at 8.

⁶⁰ Kennedy, Alan and Calvin Sikstrom, Assessment and Remediation of a Heavy-Oil Spill into Groundwater Aquifers, International Oil Spill Conference Proceedings: April 1997, Vol. 1997, No. 1, pp. 347-363 (1997).

⁶¹ Ibid.

⁶² Ibid.

⁶³ Transcript: Joint Oversight Hearing: Senate Natural Resource and Water and Environmental Quality Committees, "Ensuring Groundwater Protection: Is the Underground Injection Control Program Working?" Jonathan Bishop speaking, March 10, 2015, p. 74.

⁶⁴ Id. at 73.

⁶⁵ See Shonkoff, S., “Hazard Assessment of Chemical Additives Used in Oil Fields that Reuse Produced Water for Agricultural Irrigation, Livestock Watering, and Groundwater Recharge in The San Joaquin Valley of California: Preliminary Results.” PSE Health Energy Technical Report (Sept. 2016).

the well. Oil and gas operations emit large amounts of VOCs and NOX.⁶⁶ VOCs make up about 3.5 percent of the gases emitted by oil or gas operations.⁶⁷ The VOCs emitted include the BTEX compounds—benzene, toluene, ethyl benzene, and xylene—which are Hazardous Air Pollutants.⁶⁸ There is substantial evidence of the harm from these pollutants.⁶⁹ One analysis found that 37 percent of the chemicals used during natural gas drilling, fracturing, and production were volatile, and that of those volatile chemicals, 81 percent can harm the brain and nervous system, 71 percent can harm the cardiovascular system and blood, and 66 percent can harm the kidneys.⁷⁰ Exposure to benzene has been associated with increased incidence of leukemia and other serious health conditions; exposure to toluene can damage the nervous system; and xylenes can cause dizziness, headaches, and loss of balance.⁷¹

Unfortunately, neither state nor federal regulations require companies to disclose the chemical identities or volumes used. While some chemicals have been identified, a substantial portion of chemicals remain secret. This is worrisome because enhanced oil recovery operations like cyclic steam injection commonly employ harmful chemicals acting as surfactants, polymers, caustics, or biocides to facilitate the operation. Implying that cyclic steam injection is simply the reuse of “water” is a gross mischaracterization that hides real risks from these high-intensity operations.

d. DOGGR routinely allows steam injection at dangerously high pressures.

Injecting at high pressures can increase the risk of leaks, well failure, and fluid migration. When the pressure is high enough to fracture the surrounding formation, it creates additional risk that new pathways for fluid migration will be created, and further risk that contaminants will escape to other subsurface areas.

Compounding the risk of leaks and fluid migration is DOGGR’s refusal to limit the pressures under which steam is injected into the well. An investigation by the state legislature found that the agency allows operators to inject steam at pressures high enough to fracture the

⁶⁶ Sierra Club et al. comments on New Source Performance Standards: Oil and Natural Gas Sector; Review and Proposed Rule for Subpart OOOO (Nov. 30, 2011) (“Sierra Club Comments”) at 13.

⁶⁷ Brown, Heather, Memorandum to Bruce Moore, U.S.EPA/OAQPS/SPPD re Composition of Natural Gas for use in the Oil and Natural Gas Sector Rulemaking, July 28, 2011 (“Brown Memo”) at 3.

⁶⁸ Each has also been identified as a carcinogen. Mall, Amy, Petition for Rulemaking Pursuant to Section 6974(a) of the Resource Conservation and Recovery Act Concerning the Regulation of Wastes Associated with the Exploration, Development, or Production of Crude Oil or Natural Gas or Geothermal Energy at 13 (Sep. 8, 2010); 42 U.S.C. § 7412(b).

⁶⁹ Colborn, Theo et al., Natural Gas Operations for a Public Health Perspective, 17 Human and Ecological Risk Assessment 1039 (2011) (“Colborn 2011”); McKenzie, Lisa et al., Human Health Risk Assessment of Air Emissions from Development of Unconventional Natural Gas Resources, *Sci Total Environ* (2012), doi:10.1016/j.scitotenv.2012.02.018; Food & Water Watch, *The Case for a Ban on Fracking* (2012).

⁷⁰ Colborn 2011 at 8.

⁷¹ Mall, Amy, Petition for Rulemaking Pursuant to Section 6974(a) of the Resource Conservation and Recovery Act Concerning the Regulation of Wastes Associated with the Exploration, Development, or Production of Crude Oil or Natural Gas or Geothermal Energy at 7 (Sep. 8, 2010).

formation as a matter of “routine.”⁷² This directly violates DOGGR’s own regulations, which state, “Maximum allowable surface injection pressure *shall be less than the fracture pressure.*”⁷³

Conclusion

On a local level, the Project threatens Santa Barbara’s groundwater, air quality, public health, and protected species and carries a high level of seismic risk. On a larger level, this Project will worsen the impacts of global warming and is inconsistent with state and national mandates to reduce GHG emissions. There is no mitigation that can offset the harms that would be caused by this project.

The EIR for this project must take a hard look at these factors and Santa Barbara County must seriously consider the No Project option. This Project is dangerous for Santa Barbara and for the planet.

Thank you for your consideration to this important issue. Please don’t hesitate to contact us if you have any questions.

Sincerely,



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⁷² Oversight Hearing of the Senate Natural Resources and Water and Environmental Quality Committees, *Ensuring Groundwater Protection: Is the Underground Injection Control Program Working?: Background Information*, 12 (Mar. 10, 2015) (“Oversight Hearing Background Information”) available at http://sntr.senate.ca.gov/sites/sntr.senate.ca.gov/files/3_10_14_uic_background.pdf.

⁷³ 14 Cal. Code of Regs. § 1724.10(i) (emphasis added).



November 21, 2016

Ms. Katherine Lehr, Planner
Santa Barbara County
Planning and Development Department
123 East Anapamu Street
Santa Barbara, California 93101 and *electronically to klehr@countyofsb.org*

RE: East Cat Canyon Oil Field Redevelopment Plan Project

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Dear Ms. Lehr:

Santa Barbara County Action Network (SBCAN), a non-profit countywide membership organization, submits the following scoping comments for the Environmental Impact Report on the East Cat Canyon Oil Field Redevelopment Plan Project. SBCAN works within Santa Barbara County to promote social and economic justice, to preserve environmental and agricultural resources, and to create sustainable communities. Our members live, visit, work and recreate in the area that would be affected by the Project.

We concur with the scoping comments submitted by the Center for Biological Diversity and many by attorney John Dorwin and will try to avoid duplicating them. SBCAN staff and volunteers, not experts in the various scientific fields or attorneys, have prepared these comments. An overarching request is that the EIR be drafted in a manner that will be accessible to lay readers.

SBCAN requests that the EIR have detailed analysis as well as objective and systematic discussion on the following important issues.

A. In particular, we are asking the County to provide data and balanced perspective on a key EIR issue that has routinely been inadequately covered.

Background: EIRs cover myriad aspects of a project so decision makers can make objective, balanced, informed decisions. Over time, the public and decision makers have been made aware of various issues. As a result of public awareness and growing concern there is usually a direct relationship to the detail of coverage of that issue in the EIR.

For example, consider the issue of air pollution and its health effects as well as local and global impacts. As awareness and science increased, more information has been provided in EIRs with detailed analysis, documentation, charts, appendixes, etc. Literally hundreds of pages of information on this topic are included in the planning documents and project EIRs.

Not always the case: However, there is another topic of high priority to decision makers that is consistently inadequately analyzed in oil project EIRs and given only a scant few paragraphs of repeated boilerplate text, containing claims that lack support or substantial evidence in the record. We refer to project economics: specifically property tax income, project economic impact

due to new project employment, and economic benefit related to domestic oil and gas production.

Please expand the analyses of these aspects of the project, especially since the local oil industry has recently spent millions of dollars to educate the public on their perspective of oil project economic benefits. If the industry has spent millions of dollars lobbying on this topic, the county should not skimp on expenditures to thoroughly analyze the economic benefits of this project.

B. Project property tax income.

1. Past EIR statements of these topics have been considered "illusory and not based on any evidence in the record" according to a correspondence to the county of October 28, 2016 by the Environmental Defense Center (EDC).
2. The EDC also concluded "Economic benefit to the County is uncertain at best and future tax revenue cannot be predicted or relied upon, according to the County Accessory."
3. The EIR should use EDC's simple mathematics to explain how this "unknown amount of property tax" would be less than a fraction of one percent of the County's property tax revenue".

C. Project new employment.

1. Please expand the County's use of back-up studies used to substantiate the applicant's job claims.
2. Please provide a breakdown of new construction jobs, one for Phase 1 and another for Phase 2. Indicate which are new direct Aera part-time and full-time positions. Also indicate which are for drilling, cementing, earthwork/roads, facility construction, etc., and what the likelihood is of local employment in each category. What is the history of local oil projects using Santa Barbara County drilling and cement companies? How many weeks would these jobs last?
3. Provide a breakdown on production jobs for Phase 1 and 2. Show which Aera direct benefit permanent jobs are full-time or part-time positions. Show all projected contractor jobs as either full-time or part-time and how many estimated weeks a year of employment for each. Are any of these jobs directly related to the project and new? Show if any of these jobs are direct permanent jobs. Estimate the number of local county residents having employment from all contractors' jobs, based on the experience of past projects.
4. Provide job salary information.

D. Economic benefit related to domestic oil and gas production.

1. If a project benefit is to "contribute to domestic oil and gas production in an effort to meet the State's demand for fossil fuels," please address the conflict with the County's continued search for strategies to reduce its carbon footprint. Analyze thoroughly any suggestion that this proposed multi-million dollar investment in fossil fuels, and all the environmental damage that results, is necessary to help California ultimately reduce its carbon footprint.
2. Clarify how a single Santa Barbara County oil production project significantly factors into the US and global oil production, since Santa Barbara County on-shore oil provides only from 1 to 8% of California's 5.86% contribution of US oil production.

3. Discuss how the project's exceedingly "dirty" high sulfur oil can ever be considered an efficient way to provide a clean fuel source for California or the country.

E. Analysis of long-term and short-term project impacts on nearby residents of Cat Canyon, Long Canyon, Sisquoc, Garey, Los Alamos, Orcutt and Santa Maria.

1. There should be a comprehensive study of overall health impacts, surface and ground water impacts, traffic impacts, increased flood risk (especially to Sisquoc), noise issues, odor impacts, and specific air pollution related health impacts from diesel exhaust toxic chemicals, H₂S, methane and other appropriate toxics from the project, rather than just the criteria pollutants monitored by the APCD. Study Porter Ranch methane leak follow up health assessments for current information on health effects of methane long-term exposure.

2. Analyze the project implications for Sisquoc, which is 1.25 miles from the project, and Garey, which is 2.5 miles away. Also include the rural residents within three miles of the project in the analysis. Identify that Santa Maria and Orcutt and Los Alamos are nearby and evaluate project impacts. Provide maps with "wind roses" showing prevailing breezes for these nearby residential areas.

3. Analyze how residents within three miles of the project will be impacted by their proximity, as compared to residents in Santa Maria, Orcutt, and Los Alamos.

F. Provide new EIR perspective.

This EIR should equally address the ecological impacts both of oil and produced water spills, leaks, releases, accidents, etc. Produced water is approximately 95% of the product generated by the project. Please include a comprehensive discussion of project-produced water and its air pollution impacts, radioactivity, effect on plant habitat and wildlife species, human health impacts, etc. There have been recent incidents of produced water fires, and the produced water from this project should be evaluated for flammability. Past EIRs have focused only on environmental impacts from oil.

G. Project compatibility with goals of the County General Plan and other pertinent agencies' plans.

Review the project for County General Plan compliance for community health goals including reduction of greenhouse gases, protection of water resources, protection of biological resources, protection of people from harmful pollutants, and all other relevant County policies.

H. Seismic hazard and risk estimates to be addressed by a qualified seismologist.

1. Please analyze the over 1,000% recent increase in the North County earthquake rate, its causes and implications for the project. This should be background information for a first order site-specific seismic hazard estimate using a Probabilistic Seismic Hazard Analysis (PSHA) or comparable project study analysis.

2. The EIR should analyze how the project's wastewater injection program in 14 injections wells might increase earthquake rates or cause a quake incident. Detail how many wastewater injection wells are currently pumping in the Cat Canyon Oil Field and how many total barrels are injected each year. The EIR should specify how many barrels of wastewater would be injected each year when the project is built out. Specify what percentage increase in Cat Canyon Oil Field wastewater injection the project will cause and evaluate the seismic implications.

3. We request a review of peer-reviewed published science on this topic. In this review, please include the 145 scientific papers on this specific topic in the Induced Earthquake Bibliography sub-section on "Injection Induced Earthquake References" at: <http://www.inducedearthquake.com/iis.html>
4. Wastewater would be injected under pressure into disposal wells drilled into sandstone or other permeable formations. This can cause pressure changes in the formation that can upset the equilibrium around a fault zone, causing an earthquake as the fault slips. How does this process increase seismicity risks of the project?
5. Please analyze all the cumulative seismological effects of all current wastewater wells, the 14 wells planned in this project, and future wastewater injection wells currently in the planning process in the Cat Canyon Oil Field. Discuss if this is an acceptable level of seismic risk.
6. The NOP indicated that you will also address claims about that steam injection pressure could potentially induce seismic activity. We request that process include a comprehensive discussion of international scientific papers on how pressurized cyclic steaming and pattern steam flooding could induce quakes, including papers from Canada and China.
7. Have a qualified seismologist address the chances of a major quake during the 30-year project period. Seismic activity in the area has increased 1,000% since 2012. Consider in the EIR that there are currently over 20 quakes per year in the 30-mile radius of the project. Study the implications that there is a 72.86% chance of a 5.0 point quake on the Richter Scale in the next 50 years in the project area, and 7.99% chance of a 7.0 point quake according to the USGS data base on this website: homefacts.com. Discuss project implications of recent oil-induced quakes in Oklahoma that have reached over 5.0 on the Richter scale.
8. Impacts of a major quake: Over 10 types of potential quake damage have been identified in project planning documents. Detail how project management would contend with the multiple problems that could likely co-exist on the project site simultaneously after a large quake. State the minimum number of night shift staff, after construction and drilling are completed, who would be on site to deal with required earthquake follow through. Explain how they would contend with just three scenarios detailed in project documents: 1. A well blow out (at the fresh water aquifer level). 2. The Sour Gas Treatment Plant releasing its 2,000,000 cubic feet of produced gas, which is 10% toxic mol H₂S. 3. A major storage tank fire and boil over, with fire spreading to wild lands and reaching residential structures.
9. The EIR should include a map showing faults in the area surrounding the project site.
10. Analyze the seismic implications when a hot product is extracted from the earth in the project area and a cold product replaces it through wastewater injection. What are the seismic implications from the geology associated with the project being depressurized to some extent and cooled, causing some shrinking/contraction from both of these processes?
11. Consider the impact of any project-related seismic activity on the nearby Twitchell Reservoir and related flood situation for Santa Maria should the reservoir again contain its full capacity of water.
12. Please address the issue of project-related seismic activity increasing radon levels for nearby residents.
13. Please review and consider the implications of the package of seismic-related data submitted by Jane Baxter to the County Board of Supervisors' at its last hearing on the PCEC project.

I. Additions to EIR fire-risk assessment.

1. The EIR should address quake-related fire risk in the EIR section on project related fire risks, and analyze the risk of these fires becoming wild lands fires.
2. Consider the increased risk of fire from lightening striking project facilities.

J. Project air quality impacts.

1. Since health impacts differ from one air pollutant to another, the EIR should not study air emissions only by generalized categories of Greenhouse Gas Emissions (GHGs), Volatile Organic Compounds (VOCs), Hazardous Air Pollutants, and Particulate Matter. Please identify the source, collect baseline community data, estimate all of the project emissions in pounds per year, and assess nearby community health impacts from each of the pollutants in these categories generated by the project. Estimate the local and regional impacts of the emissions. Do not rely on the narrow APCD criteria pollutants category to tell the whole story of project air emission impacts. For instance are there additional particulate matter other than PM2.5 and PM10 that will be produced and should be tracked?
2. Please address knowledge gaps: How do emissions of Hazardous Air Pollutants impact local and regional air quality and community health? Can California and Santa Barbara County's regulatory practices minimize potential negative impacts from this project to acceptable levels? Can current control technologies mitigate these individual emissions to safe levels? How high are current and future emissions of all of these potential dangerous substances levels in a 3-5 mile radius of the project?
3. Please review the following document published by the U.S. EPA and incorporate relevant information and mitigations in the EIR: http://www.epa.gov/air/community/details/oil-gas_addl_info.html

K. Company history of compliance.

1. Compile a comprehensive company history of all past violations, spills, accidents, any staff cover-ups in all areas the company has historically operated. Also please analyze the company performance history of all legal entities involved in the LLC.
2. Compile a history of all lawsuits brought against Aera and entities involved in the LLC related to safety or environmental issues.

L. Study alternative, less environmentally impactful methods of energy production/oil extraction from the project site.

1. Evaluate solar, wind, conventional drilling, microwave technology, and radio frequency heating technology as alternative approaches to the project.
2. Compare the cumulative environmental impacts of 30 years of cyclic steaming/pattern steam flooding with these alternative processes.

M. Monitoring that the applicant should be required to fund.

1. Water monitoring: Analyze installation of perimeter wells around the project area for water quality and aquifer-level data collection. Preferably these stations should be automated and provide real-time monitoring of water levels and key water pollutants indicating migration of project fluids into the fresh water aquifer such as methane, H₂S, bubbles from natural gas releases, etc. Attorney John Dorwin will hopefully provide more data on his monitoring concept.
2. Air pollution monitoring stations: A minimum of two stations should be constructed and monitored, with one near Sisquoc and the other in the Cat Canyon/Long Canyon area close to residential homes. Monitor for more than the APCD criteria pollutants, including various diesel components and H₂S, VOCs, NO_x, etc.
3. Post-quake monitoring: After earthquakes, water levels of the fresh water aquifer could rise if new fractures or damaged wells provide a pathway for fluids and gases from the oil bearing levels. An automated water level monitoring program could detect unexpected increased water levels after a quake and trigger water quality analysis and any remedial actions possible. John Dorwin should provide more information on this topic.
4. Local community health monitoring programs should be designed, base line data collected, and on going monitoring conducted since community members in Sisquoc feel there are already and unusually high incidents of cancer as well as concerns like multiple organ failure without known cause. The EIR should disclose how these health impacts would be monitored. Please review the following comprehensive study of community health impacts from oil production: A Public Health Review of High Volume Hydraulic Fracturing for Shale Gas Development, by the New York State Department, December 2014. Fracking chemicals used in New York are likely not relevant to the Aera project, but many other components analyzed in the study are relevant.
5. Methane monitoring: Abandoned wells should be monitored periodically for methane leaks, since studies have shown a high rate of methane leakage in abandoned wells. Drilling operations and other project activities should be monitored for fugitive methane. The EIR should disclose how methane leakage would be monitored.
6. Traffic monitoring: There should be ongoing monitoring of project traffic, accident rates and other safety issues. Road conditions should be monitored and needed repairs assessed on an ongoing basis during the project. Aera should be assessed for their portion of road wear and repair.
7. Biological monitoring: Monitor for ongoing mitigation projects and new ongoing project environmental impacts. The EIR should identify all natural communities of special concern within the project site and define monitoring programs to cover all of these communities.
8. Determine who would best supervise these monitoring programs.

N. Biological mitigation.

1. Clarify how the EIR will avoid CEQA's prohibition of uncertain, deferred and speculative future mitigation plans. The EIR must contain full analysis of the effectiveness of proposed mitigation measures and must contain clearly enforceable project conditions.

2. Clarify the criteria used to select the acreage chosen for mitigation and why it is the best choice for mitigation.
3. How does the proposed mitigation area compare ecologically to other on- or off-project site options for maximum plant community regeneration and sensitive species recovery in terms of soils, exposure, water availability, public access, existing compatible habitat, etc.?
4. The EIR should explain in lay terms how much earth would be cut and filled. The volume of dirt to be cut would, for example, cover a football field with a pile of dirt about 4/10 of a mile high. The same volume would be filled in. Large areas of natural communities will be stripped away and other large natural areas will be buried. The impacts and necessary mitigations need to be thoroughly explained.

O. Special analyses of diesel exhaust generated by the project.

1. Since this project is so diesel intensive, please identify the sources and amount of diesel exhaust air pollution related to this project and then monitor specifically for its individual toxic components parts. This is necessary because long-term exposure to diesel exhaust for local residents can cause chronic respiratory symptoms such as persistent cough and mucous, bronchitis, reduced lung capacity and may cause lung cancer and other lung damage.
2. For people who have asthma, emphysema, heart disease, or allergies, exposure to diesel exhaust can worsen those symptoms.
3. Since diesel exhaust is a mixture of gases and tiny particles and contains carbon dioxide, carbon monoxide, nitrogen oxides, sulfur compounds, formaldehyde, benzene, volatile organic compounds, persistent organic pollutants (POPs), methanol, and other gases, an increase in these chemicals should be monitored for in the project vicinity.
4. Please address how the project would impact the school program where children with respiratory issues are bussed into Sisquoc for school because of the better air quality. How, specifically, would the increased project diesel traffic exhaust and other project air pollution components impact these at-risk children.

P. Project heat generation and the global greenhouse effect.

1. Please identify the broader environmental effect of all the project heat generated by the total number of internal combustion engines involved in this project and the heat radiated into the atmosphere from the steam generators, steam delivery system, flaring and other heat-generating processes.
2. Mitigation measures for greenhouse gas emissions must not be vague and deferred to the future. A commitment to buy credits is insufficient unless backed up by clearly stated and available credits.

Q. Flaring.

1. What percentage of produced gas will be flared?
2. The EIR should state the number of hours of flare operation anticipated per year and quantify how much pollution will be generated.
3. The EIR should evaluate the flare noise problems for nearby neighbors. Will it be operated at night?

R. Carbon footprint analysis for the project.

1. Analyze production for all diesel used for drilling, cementing, reworking of wells, transportation of oil to and from the site, misc. equipment operation, well abandonment and employee use of personal diesel vehicles.
2. Analyze production of electricity used to operate well pumps and other project equipment through the life of the project.
3. Analyze off-site imported natural gas production refinement and transportation to the site as well as burning gas in steam generation and other project equipment.
4. Analyze on-site natural gas production, refinement, and burning in steam generation and other equipment.
5. Analyze flaring of natural gas into the local environment.
6. Analyze methane leakage from old wells, drilling, gas leaks and other project phases.
7. Consider the carbon-storing implications of removal of 1,500 oak trees, other tree species, and other vegetation communities.
8. Analyze the footprint from the refining of the blended product, transporting the refined product and by products to market, and the end result of burning of all finished petroleum products and refinery by-products like pet coke.
9. Factor in the heat generated by the project and how that heat will contribute to the greenhouse effect.
10. Analyze if these petroleum resources could be used in a more environmentally efficient manner in the future, when better and safer technology is available, and the project would be better aligned with the County General Plan goals.

S. Project aquifer issues.

1. The EIR needs a qualified hydrologist/water engineer to analyze the issues associated with the fact the project sits atop the Santa Maria Valley Groundwater Basin (SMVGB) in the Santa Maria Valley Management Area (SMVMA). The analysis should consider that and all 296 or more project wells will penetrate that important fresh water source supplying water to two counties and that each well will create new potential pollution pathways to the aquifer.
2. A comprehensive risk assessment: A qualified hydrologist should assess risks of the project polluting the SMVGB in the project area and make that study available in the EIR. Consider the risk from existing wellbores creating pollution pathways from 1,600 nearby Cat Canyon active and idle wells, as well as an unknown number of abandoned wells with casings with some degree of corrosion. Discuss these existing wells as potential fluid conduits into the fresh water aquifer in the general area of the project. Analyze the baseline existing, pre-project, risk of pollution to the SMVGB from existing wells and how that risk could be increased by the project.

3. Experts should provide a comprehensive discussion of these issues raised in the NOP:

"Nearby wells could be impacted if oil seeps or spills to the ground contaminate stream channels and groundwater recharge areas. In addition, fresh aquifers could be contaminated if steam injection results in steam-oil-water mixtures following geological pathways or leak from damaged oil well casings and seals."

4. Cumulative effects from all nearby projects: Please analyze the cumulative water quality and water quality impacts on the aquifer from this project as well as ERG's activity and other nearby oil extraction projects in the Cat Canyon Oil Field.

5. The EIR should also discuss, in detail, how the Santa Maria Valley Groundwater Basin under the project site is hydrologically separated and protected from the lower oil-bearing strata and how the project might put this barrier in jeopardy.

6. Provide data on how fractured existing geological strata are between the aquifer and the oil-producing reservoir. Do they provide an existing pathway for fluid migration into the SMVGB?

7. The EIR should also clarify the project's use of any exempt or non-exempt aquifer and show the location of the current Cat Canyon Oil Field improperly permitted non-exempt aquifer being used by oil companies.

8. Document that this is an important potable water source for household water for over 200,000 residents, numerous businesses in two counties, and for what number of acres of agricultural land.

9. The EIR should include easily read cross-section maps showing geographic layers of the project area, location of Underground Drinking Water Source (UDWS), the location of aquifers containing the brackish water used for steam generation, the location of the illegally permitted non-exempt Cat Canyon aquifer, and the depth of various types of project related wells.

10. Basin spill impact: Analyze the impacts to the groundwater basin from a project area blow out or casing shearing from earthquake at the fresh water aquifer level. Determine how long would it take to drill a "rescue" well, if needed, to stop the flow of oil, should blowout prevention valves fail. Determine how extensive the pollution would be throughout the entire water basin, considering the natural flow to the sea or in other words how pollution of this upper end of the Santa Maria Valley Groundwater Basin would impact other lower areas of the SMVGB and the other Management Areas of the basin.

11. Determine how we would know if there is a problem from fluids escaping into the aquifer from idle or abandoned wells on the project site.

12. Analyze how the project's groundwater pollution risks are increased due to the fact that all project watersheds drain into Cat Canyon Creek where all potential spills and runoff toxics will be concentrated from all drainage coming off the project area close to key area fresh water wells.

13. Detail a program for collection of baseline data on the chemical make up of project's produced water, brackish water, oil, and gas so we would know what we are dealing with and need to test for in case of a spill or well failure polluting the aquifer. Substances of concern are methane, H₂S, SO₂ and NO_x, Polycyclic Hydrocarbons (PAH), heavy metals, and radon-laced natural gas.

14. Analyze the implication of withdrawal of project fresh water on water availability in the Sisquoc Valley portion of the SMVGB and impacts on the Golden State water source in Sisquoc (which supplies area residents), and agricultural wells for Rancho Sisquoc and area cattle ranchers.
15. Address what issues will exist during the fall of the year when water levels are at their lowest and agricultural needs might be at their height.
16. Consider that, in the current drought, groundwater recharge in the project area is below normal. Analyze project water withdrawal considering the following statement in the April 2016 Report by Luhdorff and Scalmanini, Consulting Engineers for the SMVMA portion of the SMVGB:

"groundwater levels in the SMVMA have gradually declined overall since about 2002 (with substantial recovery in 2011 temporarily interrupting the decline)and they remain in 2015 above the lowest recorded levels in the great majority of the SMVMA. Also of note during this dry period are the greatly reduced stream flows in the Sisquoc River".
17. What are the project implications of the public comment made by staff of Luhdorff and Scalmanini that the current withdrawal from the aquifer is more than recharge and that basin levels continue to decline. Assess the project implications of already declining water levels in the basin and specifically in the project area.
18. Assess the project implications from the most current Groundwater Elevation Contours created by Luhdorff and Scalmanini for the area near the project, taken at various times of the year. What is the estimated depth of the aquifer from project planning documents and how does that relate to data in the 2016 Annual Report by Luhdorff and Scalmanini?
19. When assessing potential groundwater pollution scenarios involving contamination from surface runoff or spills, please use the time period of late winter/spring, when water levels are highest and closest to the surface and the fresh water sources are most at risk of contamination from above.
20. What are the project implications for ground water pollution since Luhdorff and Scalmanini's 2016 Annual Report of the Santa Maria Management Area of the SMVGB shows that the Sisquoc Valley Recharge area is the shallowest of all the SMMA "recharge areas", with ground water levels being less than 30 feet below ground level. In contrast, the Municipal Well Field has areas of water levels starting at depths of over 200 feet. With the groundwater level being so shallow, please address what the project implications are for ground water pollution from non-visible pollutants listed in the project documents or petroleum- laced sands being washed down Cat Canyon Creek and into the Sisquoc River or leaks of oil or produced water traveling down watersheds. Please refer to Figure 2.1-2 in the Annual Report.
21. Address how permeable the creek beds are and how easily pollutants could travel down the 10-40 feet to the groundwater level from the creek bottoms.
22. Assess existing fissures or cracks already existing in creek bed topography that could act as pathways for pollutants related to the project reaching groundwater.
23. Disclose if there are DOGGR records referencing any past over-pressurization events in the project area that could have caused fracturing, leaving that area of the SMVGB more susceptible to pollution intrusion.

T. Project radiation issues and handling of Technically Enhanced Normally Occurring Radioactive Material (TENORM).

1. Since the project site is in the region of California's high radon levels (Santa Barbara County being identified as the one county with high radon levels), working with DOGGR and using the existing monitoring wells, evaluate project produced water and oil for radioactivity levels and project gas for radon. Examine any available well core samples for radioactivity. Thoroughly assess the project geology for radioactivity.
2. Detail how project drilling muds, produced water, project wastes, filtration silts, used project pipes and casings would be handled, stored and transported if radioactivity is found. Detail how dust control procedures would change if radioactivity were found.
3. Assess if project pressurization could create new pathways for radon gas to reach local residences.
4. Address the new legal decision that makes transporting TNORM more restrictive and how that could affect the project if radioactivity is present in the project.

U. Produced water environmental impacts.

1. The EIR must address the environmental impacts of both produced water and oil spills.
2. Address that 95% of fluids produced from the project production wells is produced water and additional brackish produced water will also be pumped for steam generators. A spill of produced water could be more likely than oil and the environmental impacts of such a spill must be addressed.
3. Please detail specific environmental impacts of produced water/waste water spills on vegetation communities, wildlife, ground and surface water, and air quality.
4. Map the infrastructure for project produced water and wastewater and indicate areas of highest risk for spills.

V. Fresh water drilling requirements.

1. In light of water scarcity concerns in this area, the EIR should explain in detail how the fresh water drilling requirements were calculated.
2. The NOP indicates each of the 296 project wells will require 10,500 gallons of water for drilling. In the PCEC project the EDC computed 1.8 million gallons of water would be required for drilling 144 wells, which computes out at 12,500 gallons per well. The EIR should clarify this difference by making the calculations transparent.

W. The number of wastewater injection wells.

1. Please clarify the percentage of the total produced water from production wells that will not be treated and reused and would be injected in wastewater injection wells.

2. Provide a detailed explanation as to why the project requires 14 injection wells. This project has a ratio of 14 injection wells to 141 production wells. Show how that ratio compares with other oil projects in North County. Detail how many wastewater injection wells are currently operating in the Cat Canyon Oil Field to provide perspective.

X. No reactivation in this project.

Please clarify that there will be no reactivation of abandoned wells in this project and under this permit.

Y. Aera's financial resources.

1. Evaluate Aera's ability to pay for all cleanup costs for a worst-case scenario with:
 - a. A well blow out (at the fresh water aquifer level).
 - b. The Sour Gas Treatment Plant releasing its 2,000,000 cubic feet of produced gas, which is 10% toxic mol H₂S.
 - c. Major storage tank fire and boil over, with fire spreading to wild lands and reaching residential structures.
2. Show how the County will be protected from being required to fund costs related to project closure, environmental accident clean up, etc.
3. Clarify who the interests are that stand behind the LLC structure and their financial responsibility, if any.
4. Determine if the LLC Corporate Structure for this project, like the Hunter Family used in the Casmalia landfill, is a good corporate structure to protect the County/public/other government agencies from absorbing potentially huge cleanup costs.

Z. Well completion safety.

1. Explain how DOGGR will protect geological strata associated with the project from fracturing during the well-pressurization phase.
2. Explain how wells be brought up to "just below fracking pressures" without the risk of exceeding them.
3. Please compile a listing of North County oil projects that are documented as having caused fracturing of geological resources during well completion.

AA. Runoff and flooding issues.

1. Please provide an easily understood analysis of the percentage of increased flood risk from new and existing roads, the total Roaded Equivalent Acres (REAs) of support infrastructures such as rooftops and any surrounding hardscape, ancillary facilities, the REAs of 40 x 100 work areas around electrical poles and easements, the oil transport facility, fresh water and oil storage tanks, the natural gas pipeline compaction area, well pads, etc.
2. Please provide site diagrams showing the community of Sisquoc and the existing floodplain and the expanded floodplain with project run off.

BB. Traffic issues.

1. Lay people have had difficulty understanding the traffic components of past EIRs. Please make this section friendlier to lay readers.
2. To reduce employee traffic and local air pollution, the EIR should evaluate the potential for off-site parking near Highway 101 with shuttle service operated by Aera. The regular 12-hour shift schedule should lend itself to this type of service. This concept could also possibly reduce the fire hazard risk associated with operation of vehicles on the project site with catalytic converters.
3. NOP on page 20 discusses loss of public on street parking in Orcutt. It is unclear how this would be the case.

CC. Registration of project drilling rigs.

The EIR should specify that all project well drilling rigs need to be registered with CA Air Resources Board.

DD. Address the partial recovery of existing roads and well pads.

The project site roads and well pads have healed to some degree since being retired, with improved habitat and hydrological qualities. They are not currently 100% disturbed and should not be factored in analysis as such. For the project, they will be re-graded and widened and will sustain negative impacts that need to be considered in the EIR.

EE. Environmental setting.

Please include a discussion of the Garey and Sisquoc communities, rural residential homes in Cat Canyon and Long Canyon, the local elementary school and its program for children with respiratory challenges, nearby oil projects that add to cumulative effects, nearby fresh water wells, viticulture, and nearby tourism along the local wine trails.

FF. The EIR needs to address Hydrogen Sulfide Gas (H₂S) since, at existing levels, it is already a community health problem of concern.

1. Please assess baseline levels of H₂S in Sisquoc, Garey, Cat and Long Canyon, and Los Alamos for study of cumulative effects during times of odor. Please specify how many pounds of H₂S would be added from the project annually.
2. Please analyze this project as adding to an existing community H₂S health issue. People usually can smell hydrogen sulfide at low concentrations in air, ranging from 0.0005 to 0.3 parts per million (ppm) (0.0005-0.3 parts of hydrogen sulfide in 1 million parts of air). Consider that at high concentrations, a person might lose their ability to smell it. This is important because a person might falsely think that hydrogen sulfide is no longer present; this may increase their exposure risk to air levels that may cause serious health effects. Analyze how this concept would impact nearby neighbors.

<https://www.atsdr.cdc.gov/PHS/PHS.asp?id=387&tid=67> Center for Disease Control, Agency for Toxic Substances and Diseases Registry

3. Please address the following background issues: Hydrogen sulfide can be released into the air, water, and soil at places where it is produced or used. Hydrogen sulfide remains in the atmosphere for approximately 1- 42 days, depending on the season (additional health effects) and sulfates in the air.

Hydrogen sulfide can enter soil through atmospheric deposition or from spills. Hydrogen sulfide enters your body primarily through the air you breathe. Much smaller amounts can enter your body through the skin. Hydrogen sulfide is a gas, so you would not likely be exposed to it by ingestion. When you breathe air containing hydrogen sulfide or when hydrogen sulfide comes into contact with skin, it is absorbed into the blood stream and distributed throughout the body. Studies in workers, communities living near industrial sources of hydrogen sulfide, and volunteers suggest that the respiratory tract and nervous system are the most sensitive targets of hydrogen sulfide toxicity. EPA has determined that data for hydrogen sulfide are inadequate for carcinogenic assessment.

Hydrogen sulfide concentrations in surface water are usually very low because it readily evaporates from water. It can also be present in groundwater

<https://www.atsdr.cdc.gov/PHS/PHS.asp?id=387&tid=67> Center for Disease Control, Agency for Toxic Substances and Diseases Registry

4. Please identify health impacts of H₂S: Hydrogen sulfide is one of the most common toxic air pollutants. “Public health scientists now recognize that hydrogen sulfide is a potent neurotoxin, and that chronic exposure to even low ambient levels causes irreversible damage to the brain and central nervous system. Children are among the most susceptible to this poison gas.” Neil Carman, Ph.D.

“H₂S poisons the brain, and the poisoning is irreversible” Kaye Kilburn, Ph.D., University of Southern California School of Medicine. Recent medical research reveals that permanent central nervous system damage may occur at levels of H₂S exposure found at common industrial facilities such as intensive livestock operations and asphalt industry sites.

Dr. Neil Carman, former Texas environmental official and clean air director for the Lone Star Chapter of the Sierra Club, states that hydrogen sulfide is similar to cyanide in toxicity. He cites studies that found that H₂S interferes with a cell’s ability to use oxygen.

5. Low concentrations of hydrogen sulfide can cause lasting damage: Lower levels of hydrogen sulfide are now known to cause serious health effects. The NC Scientific Advisory Board reports that “symptoms such as headache, nausea and eye and throat irritation” are found in communities with ambient levels “as low as 7 to 10 parts per billion” associated with periodic fluctuations at higher levels. The province of Alberta, Canada has adopted a 10 parts per billion (ppb) standard for hydrogen sulfide. California evaluated hydrogen sulfide effects on children and found that that state’s one-hour standard of 30 parts per billion was too high. They found chronic exposure to 8 ppb caused observable effects on sensitive body tissues. California’s experts concluded, “Neither of these two benchmark levels should be exceeded by the properly averaged concentration.”

6. The danger to children from exposure to hydrogen sulfide: “The effects of toxic pollution such as H₂S on growing children is recognized by experts as particularly severe.

“Children are more vulnerable than adults to hydrogen sulfide, first because they breathe more rapidly, taking in significantly more pollution per pound of body weight than do adults. A resting infant, for example, inhales twice as much, relative to its size, as does a resting adult. Second, national data show

that children spend an average of about 50% more time outdoors than adults. Third, children are three times more active while outdoors than, engaged in sports and other vigorous activities; this increased activity raises breathing rates and significantly increases inhalation and in some cases swallowing of pollutants. Fourth, children are particularly to toxic substances because their bodies are immature and rapidly growing. Fifth, children are in their prime learning years and H₂S exposure causes brain damage. The impairment of mental faculties in a child amounts to a lifetime of harm.” Neil Carman, Ph.D.

7. Assess the merits of project property line H₂S limits.
8. Assess the merits of Aera providing concerned neighbors with H₂S monitors.
9. Please review these and other studies of human health impacts of H₂S:

References 1. Schliesser, S., Engineering Assessment of Hydrogen Sulfide Issues, NC DAQ, February 12, 2003. 2. NC DAQ Air Toxics Analytical Support Team Investigation No. 01007 and 01008, April 30, 2002 3. Legator, Marvin S, and Chantele Singleton: 1997: Panel on Hydrogen Sulfide, American Public Health Association's annual meetings, November 11, 1997, Indianapolis, IN. 4. Carman, N. Hydrogen Sulfide and its Health Effects - from oil to hog farms 5. http://www.saboteursandbigoil.com/H2S_Health_Effects.pdf. 5. Morris, DL, and MS Legator: Hydrogen Sulfide, October 1996, privately circulated draft presentation. 6. Smith, RP, and RE Gosselin: 1979, J Occupational Medicine 21:93-7. 7. Hayward, J., Summary of the toxicity assessment of hydrogen sulfide conducted by the Secretary's Scientific Advisory Board on Toxic Air Pollutants Report, October 2, 2001. 8. Collins and Lewis, COEHHA, Hydrogen Sulfide: Evaluation of Current California Air Quality Standards With Respect to Protection of Children, September 1, 2000 <http://www.oehha.ca.gov/air/pdf/oehhah2s.pdf>, October 20, 2003, L. Zeller

GG. Also address sulfur dioxide issues in the EIR, since H₂S can change to sulfur dioxide.

1. Background information to be addressed: Hydrogen sulfide and sulfur dioxide are two sulfur-based gases that exhibit entirely different toxicological characteristics. Sulfur dioxide is a colorless gas with a suffocating odor, which is very toxic, and fatal if inhaled at high concentrations. It is corrosive to the respiratory tract. A severe, short-term exposure may cause long-term respiratory effects and cause severe skin burns and eye damage.
2. Effects of long-term (chronic) exposure should be studied for nearby residents: It may harm the respiratory system. It can irritate and inflame the airways. It may cause genetic damage based on animal information. Lung function changes have been observed in some workers exposed to 0.4 to 3.0 ppm sulfur dioxide for 20 years or more. However, these workers were also exposed to other chemicals, making it difficult to attribute their health effects to sulfur dioxide exposure alone. Additionally, exercising asthmatics are sensitive to the respiratory effects of low concentrations (0.25 ppm) of sulfur dioxide.

Studies in animals support the human data regarding respiratory effects of sulfur dioxide At low levels (less than 1 ppm) of sulfur dioxide exposure, guinea pigs displayed changes in their ability to breathe as deeply or as much air per breath More severe symptoms seen in animals exposed to high concentrations of sulfur dioxide include decreased respiration, inflammation or infection of the airways, and destruction of areas of the lung.

3. Study the impacts of sulfur dioxide on children's' breathing ability related to nearby residents and school students: Long-term studies surveying large numbers of children have indicated possible associations between sulfur dioxide pollution and respiratory symptoms or reduced breathing ability. Children who have breathed sulfur dioxide pollution may develop more breathing problems as they get older, may make more emergency room visits for treatment of wheezing fits, and may get more respiratory illnesses than is typical for children.

4. Human exposure greater in summer months: While levels of sulfur dioxide in the air are typically highest during the winter months, human exposure to sulfur dioxide has been shown to be greatest during the summer months. This result is most likely seen because people enjoy being outdoors in warm weather and often leave their household windows open for ventilation.

Source for the above four points: Center for Disease Control: Agency for Toxic Substances and Diseases Registry <https://www.atsdr.cdc.gov/PHS/PHS.asp?id=251&tid=46>

Thank you for your consideration of our comments.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ken Hough', written over a light blue rectangular background.

Ken Hough
Executive Director

cc: Jane Baxter, Primary Researcher and Author
SBCAN Board of Directors

From: Katie Davis
To: [Lehr, Kathryn](#); [Lehr, Kathryn](#)
Subject: Scoping for Draft Environmental Impact Report East Cat Canyon Oil Field Redevelopment Plan Project
Date: Friday, November 18, 2016 6:10:51 PM

Kathryn Lehr, Planner
Santa Barbara County
Planning & Development
123 East Anapamu Street
Santa Barbara, CA 93101

Re: Scoping for Draft Environmental Impact Report East Cat Canyon Oil Field Redevelopment Plan Project (Aera Energy LLC)

Dear Ms. Lehr,

The recent PCEC project EIR, a cyclic steam injection project, provides a start in terms of what to include. Here are some additional considerations for the EIR preparation:

- We have seen a worrisome trend toward piecemeal oil projects, which make it impossible for the cumulative impacts of projects to be fully understood and accounted for. We need to know the full maximum number of wells that might be drilled by AERA, and by other operators in the Santa Maria basin and cumulative impacts of full potential oil development considered in the area. For instance, SME has said they had [7700 potential drilling locations](#). What is the number for AERA, ERG and other operators in the area? What would it mean if all were approved?
- Risk of induced earthquakes from wastewater injection are well documented in and outside California and need to be included in the EIR. According to the USGS, "Seismicity can be induced at distances of 10 miles or more away from the injection point and at significantly greater depths than the injection point." The [State BLM report](#) noted a Concentration of earthquakes near wastewater injection in Santa Barbara County: "Areas of the southern San Joaquin, Ventura, Santa Clarita and Santa Maria basins, where active water disposal wells are concentrated at present, have relatively high rates of seismicity" (pg 274)
- Need to understand impact of oil development on agriculture. What are the risks to agriculture and tourism in the area? What is the economic value of agriculture and tourism in the area?
- With all the proposed road construction and trucking, what is the impact to county roads? What is the county cost of road maintenance and how will it be impacted by this project? What is the cost in county staff time spent on AERA? What is the cost of maintaining emergency services, infrastructure and other costs? Studies such as [Oil and Natural Gas Fiscal Best Practices:Lessons for State and Local Governments](#) have found that, "The costs of addressing energy impacts often exceed tax revenues." Since tax revenues will be likely considered a benefit of this project in considering the EIR's impacts, it is critical that we also fully understand the potential costs as those may be greater than potential tax revenues.
- The project seems to include drilling through potable aquifers? Since steam injection has a high well casing failure rate, please cover the risk of oil or wastewater contaminating potable aquifers.
- Please include findings from spills at other steam injection and water flood operations. For instance, In their 2014 study on the [Cold Lake oil spill](#) (unstoppable leaks that continued for years) caused by cyclic steam injection, Kevin Timoney of Treeline and Peter Lee, the former director of Global Forest Watch Canada, noted: "The method results in deformation, fracturing of bedrock and vertical heave." It is important to understand that these techniques can fracture bedrock(!) and cause underground leaks.
- 305 acres graded and 3 million cubic yards cut and fill volumes seems like a major

- disturbance. What is on all those acres that will be removed? What are the impacts?
- Would freshwater be used for drilling? How can we be certain the water used for steam is not potable?
 - How old are the 1,500 oak trees? How long has it taken them to grow?
 - Given people live in the vicinity, potential health impacts should be more fully covered. H₂S is poison, not just an smell issue. List the other possible toxins, carcinogens, natural radioactive waste, etc. and their anticipated or potential health impacts to workers and area residents.
 - Will there be air monitoring? Since our county is not fully in attainment for state ozone standards and we aren't supposed to increase ozone, how will a major new project like this not lead to an increase in air pollution?
 - Please include a "no project" alternative for consideration.

Thanks for considering these issues, as well as issues raised in the scoping feedback you've received from others.

Regards,

Katie Davis
Chair, Santa Barbara Sierra Club



Freddie Romero
Cultural Preservation Consultant

PO Box 365
Santa Ynez, CA 93460
(805) 688-7997 Office
(805) 403-2873 Cell
freddyromero1959@yahoo.com
www.santaynezchumash.org

SANTA YNEZ BAND OF MISSION INDIANS Elders Council

October 26, 2016

Kathryn Lehr, Planner
S.B. County Planning & Development
123 E. Anapamu St.
Santa Barbara, California 93101

Re: East Cat Canyon Oilfield Redevelopment

Ms. Lehr,

The SYBCI Elders Council has received and reviewed the NOP for the DEIR and would like to share our concerns with this project.

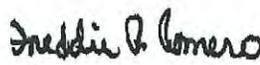
In the project description, it states the following;

- Construction or restoration of 72 well pads
- Development of up to 296 new wells
- 9 miles of new roads
- 14 miles of new gas line
- 0.3 of new power line (approx. 1600ft)
- New processing facility, consisting of approx. 14 acres of disturbance (existing disturbance accounts for 43% of this total area)

With the amount of wells proposed and other infrastructure there will be quite a bit of ground disturbance associated with this project. The fact that this land has been held in private ownership for so long and has had very little, if any, subsurface archaeology work completed, the Elders Council is concerned with the adverse impacts to cultural material that may be associated with this project.

Therefore the Council would like to request a meeting with our representative Freddie Romero, he can be reached at 688-7997 to discuss our concerns.

Sincerely,

 signed on behalf of Tonie Flores

Tonie Flores, Chairperson
SYBCI Elders Council

RECEIVED
OCT 28 2016
S B COUNTY
PLANNING & DEVELOPMENT

From: pete hagopian
To: [Lehr, Kathryn](#)
Subject: Cat Canyon oil proposal
Date: Sunday, November 20, 2016 12:09:20 PM

In the long run Santa Barbara County would stand to lose millions in property tax revenues from this project at the current price of oil. Area Energy plans on using steam injection wells to extract the oil from the ground. This grade of oil is thicker and harder to refine lowering its value.

Sent from [Mail](#) for Windows 10

From: Susan deWit
To: [Lehr, Kathryn](#)
Subject: Cat Canyon Project
Date: Sunday, November 20, 2016 3:56:55 PM

Dear Ms. Lehr,

I am a Los Alamos resident. I very much dislike the idea of trucking oil up Highway 101. Although the project says it will not be using fresh water, which is dwindling rapidly from our basin, I would adamantly object if their used water from the wells is to be put in catch basins or injected into the ground. It should be carted off, treated, and used for irrigation purposes. I believe that this should be a high priority. It would be disastrous if contamination of our ground water occurs.

Sincerely,

Susan deWit

Susan C. deWit
P. O. Box 834
Los Alamos CA 93440
Cell: 805-254-4080
Home: 805-344-2252
s.dewit2@verizon.net

From: Kathleen M Sharum
To: [Lehr, Kathryn](#)
Subject: Comments Concerning Aera East Cat Canyon Project
Date: Monday, November 21, 2016 4:46:29 PM

Dear Ms. Lehr;

I only recently became aware of this project and consequently was unaware of the scoping meeting held on November 15, 2016. What follows are my comments and concerns regarding environmental issues of the project and are a result of my best efforts to cover the document(s). Thank you for the opportunity to express and submit my thoughts.

My overall opinion is that the project should not be approved. Much of the county's open space has already been converted to vineyards, development and agriculture.

There have been listed plant and animal species identified as being impacted by the project and while I applaud the proposed measures by Aera Energy LLC to minimize environmental impacts I feel there are additional measures that could and should be taken should the project be approved. Though they have stated that approximately 86% of the original field will be left intact, 72 well pads, nine miles of roads and up to 296 wells resulting in the removal of nearly 1500 oak trees is remarkable in its scope. Wildlife have been using this area now with little disturbance since the 1980s and with activities associated with the proposed project, the impacts will have long-term effects. Birds and roosting bats using the oak trees and/or shrubs that are destined to be removed, will have no trees to return to as they had each year prior. The disruption, noise and artificial lights will cause temporary disturbance but there will most certainly be direct mortality from the grading, road-building, pipe installation and removal of trees and habitat. The fragmentation of habitat will also be a major interruption to normal foraging and reproductive activities.

More of an effort should be made to allow the oak trees to remain and to minimize the permanent impacts as described in the Biological Services Resource Report for vegetation. In addition to the impacts described there seemed to be little mention of the invertebrate communities other than those species that are listed as special status. Trees and large shrubs not only provide cover for larger animals such as birds and small mammals but they are also food for huge numbers of invertebrates and are pollinated by many of them. The invertebrates in turn provide food for the larger animals. More thorough invertebrate surveys should be completed to identify important pollinators or other insects.

The use of cover boards to attract all reptiles shortly before construction activities is not sufficient. A qualified herpetologist should determine what is there at the appropriate time of year.

I was unable to find any mention of the use of bright lights either during the construction phases or during normal day-to-day activities. Night lighting should be avoided to reduce further impacts to both diurnal and nocturnal animals and the visual impacts to the human environment.

Finally, biological monitors should be required to be on site during the construction phases of the project and post monitoring reports provided to ensure that Aera Energy is implementing all avoidance and minimization measures.

Once again, my overall opinion is to deny approval of the project. However, please consider my comments in providing the appropriate protections for the flora and fauna that would be greatly impacted by the project.

Thank you,
Kathleen Sharum
416 E Hermosa St
Santa Maria, CA 93454
805-828-2305

Sent from my iPad

From: jlburch@cox.net
To: Lehr, Kathryn
Subject: Fwd: cat canyon
Date: Monday, November 21, 2016 5:08:16 PM

> Date: Mon, 21 Nov 2016 17:05:02 -0800
> From: <jlburch@cox.net>
> To: kathryn@countyofsb.org
> Subject: cat canyon
>
> Kathryn,
>
> Here is my letter:
> To my mind ANY risk is too much risk for the environment.
>
> Although the city's claim is that this is not fracking, it appears to be just semantics to me.
> Additionally, when there are documented cases all over the world of associated seepage, explosions, spills, leaks and exponentially increases seismic activity, this seems to be a no-brainer to not do this massive project.
>
> And that is just part of the problem. Locally we would be risking the Santa Maria groundwater basin in the midst of a major water crisis.
>
> The claims at the meeting that this provides jobs is a meager fighting point. Why not create the same max 115 jobs with green energy like solar, wind or geothermal?
>
> Break our dependency on fossil fuels. Climate change is real and it caused by human behavior such as this.
>
> Judy Burch
> 1650 E Clark #234
> Orcutt, Ca 93455
> To my mind ANY risk is too much risk for the environment.
>
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*ALSO Admitted in Colorado
**ALSO Admitted in Texas

November 21, 2016

VIA HAND DELIVERY AND ELECTRONIC MAIL

Kathryn Lehr, Planner
County of Santa Barbara
123 E. Anapamu Street
Santa Barbara, CA 93101

Re: Environmental Impact Scoping Comments for East Cat Canyon Oil Field Redevelopment Plan Project: Aera Energy, LLC. Case No: 15PPP-00000-00001

Dear Ms. Lehr:

This firm represents Michael A. Brand, an owner of properties on Foxen Canyon Road and Long Canyon Road adjacent to the project area. Mr. Brand is the developer of the EDRN East of this proposed project and has developed substantial road and water supply infrastructure in the upper Cat Canyon, including a creek crossing connecting Cat Canyon Road to Long Canyon Road, as well as several private water systems.

PROJECT ALTERNATIVE ANALYSIS:

Under CEQA, the EIR must consider feasible alternatives to steam flood/injection. The current alternatives, which must be studied include:

1. **The Pressure Cooker Proposal:**

The project proposal may be compared to a steam pressure cooker being used in the melting and mobilization of the heavy tar like crude oil in the existing geologic formations, which have been penetrated by past extraction efforts for both oil and gas. The problem is the cap rock of hopefully abandoned wells, now resembles a geologic colander. There is no assurance the steam will behave as predicted if given an alternative pathway to the surface or groundwater other than

the proposed extraction wells. Once the formation is repressurized the oil and water mixture may not actually be contained to the existing reservoir formation at all.

2. The Crock Pot Proposal:

In situ heating of heavy oil deposits is a well documented efficient local means of production using resistance electrical heating techniques. This slow heating of the entire formation using electrical heating elements may be compared to the slow cooking “crock pot” method dissolving fats and meats in a kitchen. The process is conducted at a low temperature and pressure, but over a longer time than steam injection. This is newer technology than steam injection with less environmental impacts potentially.

3. The Microwave Proposal:

The most modern extraction techniques use microwave energy and ultrasound emissions to dissolve the oil from deposit without any external solvents. This may be the most efficient and cost effective method from a thermodynamic standpoint , i.e. energy in energy out.

4. The “Green” Soft of Organic Stimulation Proposal:

Experimental technology for oil well extraction should be addressed in the EIR given the potential of this technology to reduce the risks and footprint of the oil mobilization from an industrial scale process to a chemical reaction using surfactant/detergent solvents and microbes which will attack the heavy crude chemical bonds, at oil reservoir temperatures. In such a situation, given correct chemistry the injection of the reactive mixture into the formation could dissolve the oil into a new boundary layer between the existing water and the heavy tars for extraction and treatment/refining at the surface. This technology is under development but should be considered for the EIR alternative analysis as a superior alternative with fewer direct environmental impacts if the oil is broken down within the formation by biological agents, which essentially reverses the process by which the oil was created in the first place from organic substrates. Several texts on petroleum microbiology discuss these techniques to mobilize the heavy crude oil for extraction.

5. Additional Analysis:

The EIR should contain a detailed chemical analysis of exactly the materials, which the project is targeting by molecular weight, chemical characteristics, and physical properties. Sample analysis should be included to include any other materials in the oil reservoir and their chemical composition as well for purposes of alternative project proposal analysis. A discussion of how such materials have been extracted in other locations using alternative technologies should be included in the EIR along with relative cost/impact analysis. This should all be addressed in a chemical annex to the EIR. The decision maker should be informed exactly

what the target oil component is to be able to evaluate alternative extraction technologies.

PRODUCTION WATER INJECTION PERMITTING AND TESTING FOR CONTAMINANT TRACKING AND EVALUATION AS TO GROUND WATER IMPACTS AND MONITORING:

The production water injection, as tested, should be clearly identified by chemical and isotope ratio qualities (fingerprinting) such that the steam injection can be monitored so as to remain on site. If the production water migrates offsite there needs to be a mechanism to respond to any plume and curtail operations and model the possible level of groundwater, surface water, or air contamination. The monitoring program needs to be comprehensive as to both existing reservoirs and reservoirs to be created by the steam injection process. To the extent possible, the monitoring and response program should be automated to respond to any threat to local groundwater supplies by remote sensors and shut off valves.

JURISDICTIONAL REVIEW BY THE WATER BASIN MANAGER:

Although the County of Santa Barbara is the lead agency for the permit environmental review and the planning for the proposed project, the primary agency for public health and safety under the Sustainable Ground Water Management Act of 2014 appears to be the City of Santa Maria as the groundwater basin manager of the adjudicated Santa Maria groundwater basin.

The Santa Maria City's 2014 Annual Report of Hydrogeological Conditions by Luhdorff & Scalmanini Consulting Engineers and Hydrologists puts the entire Cat Canyon area within the City's groundwater basin management area. This proposed project will need to comply with whatever conditions are developed as part of the City's basin plan by the City as the Groundwater Sustainability Agency under the newly enacted Water and Government Code provisions. This issue needs to be addressed in the EIR that the Basin Plan and its monitoring and water quality objectives lies outside the current CEQA review process. The Basin Management Plan is under the control of an Agency other than the County of Santa Barbara as to permitting, regulation, and enforcement of groundwater quality protection and preservation. This police power issue should be addressed in the EIR preparation process and discussed in detail given the new changes in the State Water Code.

PERIMETER MONITORING FOR BOTH WATER QUALITY, AIR QUALITY, AND EXISTING BASE LINE WATER SOURCE ANALYSIS TO INCLUDE ISOTOPE RATIO STUDIES:

The proposed steam injection will not be contained to the project site given the deteriorated geologic formations and deformations associated with a 100 year old oil field that has been repeatedly re-drilled and stimulated for production using various historic techniques. A comprehensive water, air, and seismic monitoring system must adopt an onsite 360° perimeter approach to automated monitoring above, in, and below the project area to prevent migration of any plumes or accidental releases of hazardous materials into the environment.

The first step in this analysis of adequate monitoring, using best available technology, should be a baseline study of the air and water resources with isotope ratio testing to

“fingerprint”: the existing groundwater wells and sources together with testing of production water proposed to be injected and extracted for contamination/identification purposes. The ability exists to identify the unique groundwater isotope ratios and any contaminants once a comprehensive sampling and monitoring well system exists both on and off site to evaluate the enter water basin within Cat Canyon. Any existing contaminants from historic operations should be noted as background/baseline levels in the EIR.

HEALTH RISK ASSESSMENTS:

The project will utilize a large number of diesel engines to power construction heavy earth moving equipment for the substantial grading involved, powering drill rigs, and transporting crude.

Based upon large sample studies involving U.S. based operations, diesel engine emissions are now rated as a primary carcinogen by the World Health Organization at the same level as second hand cigarette smoke.

A complete Air Monitoring and Modeling Study should be undertaken to fully assess and quantify the new diesel emissions risk at ground level for both the oil field workers and nearby residents.

Given the recent published studies, these impacts are not ones that can be dismissed as either insignificant or below the need for an updated Health Risk Assessment for both the employees and the local residents. Studies that should be utilized include:

(1) Attfield, M.D., P.L. Scheiff, et al. (2012) 1 Natl Cancer Inst 104(11):869-883. The Diesel Exhaust in Miners Study: A Cohort Morality Study With Emphasis on Lung Cancer.

(2) Silverman, D.T., C.M. Samanic, et al. (2012) 1 Natl Cancer Inst 104(11): 855-868. The Diesel Exhaust in Miners Study: A Nested Case-Control Study of Lung Cancer and Diesel Exhaust.

The County's guidelines. Environmental Thresholds and Guidelines Manual (revised May 25, 2010), Article V-Initial Evaluation of Projects, F. 3. (3) states :

Change of Scientific Basis and Criteria

"The underlying basis of threshold criteria may change with discovery of new data or theories about relationships between environmental change and environmental quality. When data from scientific publications, reports, or conference proceedings, etc., suggests the need for such a change, the County shall review such data and determine the justification for threshold revisions."

The recent revisions to the Modeling Guidelines for Health Risk Assessments (August, 2014) provide a new and clear methodology for dispersion analysis for diesel sources sources in Section 2.2.3 at page 4. The new data on cancer risks for diesel emissions appears to trigger a required Health Risk Assessment under Section 3.3 of the revised APCD guidelines. Recent European studies suggest that up to 1.3% of cancer cases identified as being associated with

diesel emissions were for persons living near emission sources. The revised residential receptor criteria on page 8, Section 2.8.3 of these guidelines is within the 2 kilometers of the proposed site.

GREENHOUSE GAS IMPACTS:

The project has the unfortunate feature of consuming two relatively “clean” energy sources (natural gas and electricity) to produce a very dirty energy source. This dirty energy source then gets transported a long distance by a dirty energy source. This situation gives rise to a variety of Green House Gas (“GHG”) issues that must be considered under Sec. 21083 of the Public Resources Code and the California Code of Regulations.

They include:

1. Consumption of clean energy sources that could otherwise be utilized as sources of clean energy for business and consumers.

Utilization of the substantial diesel power referred to above in constructing and operating the oil field and transporting the crude oil to facilities over 130 miles away. The impacts of the release of the carbon dioxide, methane and other gases that will occur during oil field construction and operation.

The impact of removing over 1,000 trees and hundreds of acres of vegetation that left undisturbed would help absorb carbon dioxide and produce oxygen.

CONCLUSIONS:

The scoping of the EIR should consider the state of the art as to:

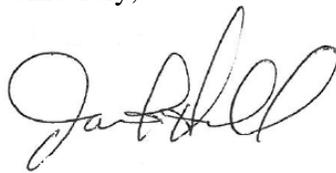
1. Feasible extraction technologies other than steam injection, e.g. direct heating, microwave stimulation, microbial and surfactant stimulation.
2. Baseline water and air quality evaluation to include isotope ratio analysis of existing groundwater supplies, and their sources.
3. Comprehensive monitoring and testing of groundwater and air using the best state of the art technologies for automated monitoring and plume detection within, and on-site 360° perimeter of the project area to include fire and H₂S warning and appropriate evacuation planning.
4. An analysis of the jurisdictional issues presented in the proposed production water injection under the provisions of the 2014 California Groundwater Sustainability Act.
5. Potential seismic and subsidence evaluation and monitoring related to the use of production water steam injection and the removal of the subsurface materials which may disrupt current drainage, watersheds, water wells, or roadways and structures adjacent to the project area.

6. The installation of automatic remote sensors and shut off valves in the event of seismic or reservoir rupture to prevent or reduce offsite contamination from broken pipes and tanks.
7. An analysis and inventory of all existing water sources, wells, and water delivery systems within Cat Canyon for agricultural and domestic use, as well as mitigation measures to protect such facilities from potential project impacts, especially in the event of any seismic event or accidental discharge.
8. Health risk assessments relating to diesel emissions.
9. Green House Gas issues.

If the preceding steps are taken in the Draft EIR preparation, all decision makers, to include the City of Santa Maria, should be fully informed as to the potential risks and benefits of this project as well as the potential alternatives to the steam injection proposal, which may adversely impact groundwater quality and air resources.

Please call me if you have any questions regarding the above matters.

Sincerely,

A handwritten signature in black ink, appearing to read "Jamie T. Hall". The signature is fluid and cursive, with the first name "Jamie" being the most prominent part.

Jamie T. Hall

cc:
Mike Brand,
David Farrar
John Dorwin,

Earl W. Purper and Emiko C. Asai
P. O. Box 1164
Santa Maria, CA 93456

November 18, 2016

Kathryn Lehr, Planner
Santa Barbara County Planning & Development
123 East Anapamu St
Santa Barbara, CA 93101

RE: East Cat Canyon Oil Field Redevelopment Plan Project

Dear Ms. Lehr:

As property owners on Foxen Canyon Road we are greatly concerned by the certain environmental degradation connected with this proposed project that will surely impact the value of our home and the quality of life.

Our objections to this project could fill a book but the absurdity of using water to force low quality oil out of the ground during a period of sustained drought while simultaneously threatening our ground water defies logic.

The county tried to take away our fire station; and our law enforcement Sheriff and Highway Patrol are virtually non-existent. Who is going to patrol our roads and community? Has the likely rise in crime and vehicular accidents (mostly drug and alcohol related) been factored in to your decision-making concerning this project? Are tourists going to flock to Santa Barbara County to view another environmental wasteland?

Absolutely Opposed.

From: blueiis551@frontier.com
To: [Lehr, Kathryn](#)
Subject: Oil Drilling Plans
Date: Sunday, November 20, 2016 10:11:29 PM

I strongly oppose the reopening of the oil wells in Cat Canyon. We don't need the air pollution that will be produced. I also think the trucking of the oil up 101 will add to the already heavy traffic on that highway and create the danger of oil spills and injuries to other motorists. We should be thinking about the health of our children and our environment, not about big profits for the oil companies.

Sincerely,

Patricia Furtado
516 East Grant Street
Santa Maria, CA 93454

Date 11/21/2016

Comment-
letter

Aera Energy
Fast Cat Canyon

①

From Kathryn Deputy / Resident of Cat Canyon / Lang Canyon
7010 Lang Cyn. Rd
Santa Maria Ca. 93454

Encl Kalkow@SBCF.org
Ph. 9372760

This is a High risk dangerous
Project to all residents and Cat Canyon / Lang Canyon
and surrounding areas, and animal life.

This is a Essive impact on are Environment
Critical Habitat for neighboring wildlife and Sensitive
Species, and Health of are environment

Steam Flooding is a high risk Intensive
High pressure, High Volume of chemicals and water
Used to Flood Fractured, zones in the Sierrita
Mentery Shale, to Trip and release the thick
Vicinity low grade crude oil. The casing gas
and all gas that will be released from the
blowing down of well Heads, processing of the
oil and production of the Crude is a high
H₂S Hydrogen Sulfide dangerous
gas. There has been people sicked by the
Gas many times on this lease in the past!

RECEIVED

NOV 22 2016

SB COUNTY
over PLANNING & DEVELOPMENT



I worked for Texaco oil in the 70's & 80's
They had a steam flood project on the Cantin lease
which is also a very high concentrate of H₂S gas
We had a well blow its valve off at
the well head from the high pressure, it blew
oil 200+ feet in the air and did that for
a week they could get it to stop they had
to pump drilling mud down after well's
by it for a week to finally come it down
enough to get it repaired. They ruined the
whole area then because that was the only way
they could get a handle on it! Luckily it
never started on fire! I know first hand
what steam flooding lease can do.

letting on these companies do all these
steam projects is creating a time bomb
in an area!

its pollution

From the injection, chemicals,
the H₂S gas, the hazardous solids
that the process creates.

I could go on and on but are any of you actually
listening?

① There is a problem with Has gas in the Cat Canyon long Canyon area already! From Ely oil Co and others. I have asked for maintaining gas stations to be put up. and the APCD ignores the request and problem. on 11/16/16 a gas releaser was done look up records on how many times they have been called and 911 calls in the last year. We don't handle call any one anymore because the county won't do any thing about the problem.

② Cat Canyon and Dominion Rd are all pot Hole narrow roads and can't handle the traffic they have now from oil construction projects, you're endangering the lives of the residents and all people who drive on these roads. look up wrecks on 911 calls from oil workers and trucks from last 2 yrs.

③ Fires - ERG has had 3 fires this year, some last year. Weres the water coming from to fight these fires and who paid for the resources. the county put in to fighting these fires. are safety is being threaten by these oil field projects, for who gain? mineral owners oil company Santa Barbara County

④ How are they getting a permit to build a gas treatment plant? ← and a water treatment plant? ← were the tests from the water can it even be treated enough or cleaned?

⑤ # 1500 old growth oak trees to be cut down were do you people think your air comes from. this project should be shut down on this note alone,

⑥ Truck and construction traffic / were not in a emergency oil crises, why should this much oil high risk an are public road ways heavy high risk, who going to pay for that / we all already pay at the pumps. were this money to repair the roads?

⑦ to repair the roads? their all ready was a proposed permit years ago to clean million yards of waste from this area energy property with was never done! it next case

⑦ continued, - The Hazardous waste was supposed to be cleaned, so what now you going to let the push the dirt around and pollute the air more in are area. Have any of you seen the old oil spills ~~on~~ left on the ground on this property that has never been cleaned. ③

⑧ They already lied on the permit for Test Well they drilled, they said one was going to be put on a old disturbed locator it about the bulldozed a beautiful hill ~~to~~ side Down for a locator. In a area see by Cat Canyon Rd. Witch is a historical road and be keep aesthetically pleasing. Nat

⑨ Long Canyon / Olivera lease is a historical lease and should Nat be treated or mentind as a Fast cat Canyon area. oil lease. This is wrong information that the petroleum people of Santa Maria Santa Barbara are going to the State. Dept.!

Turn page over
more



Signed
Kathy J. Aguter
resident - Long Canyon Rd.
Santa Maria

10. ^{Lights} Noise - it is Quiet and
 pleasing place where we live
 in Cat Canyon on Long Canyon
 Road. Why should our way of
 life be interrupted by air construction
 What about our rights, and
 property values, check property
 values where we live, IRG
 and then sell's bought a
 property with a house on it
 where we live just a few
 years ago for 1 million dollars
 check property values where we
 live. their high.

11. We are all down wind
 from this project. Who gives
 them the right to pollute the
 air over our property?