County of Ventura • Resource Management Agency • Planning Division
800 S. Victoria Avenue, Ventura, CA 93009-1740 • (805) 654-2478 • ventura.org/rma/planning

MINOR MODIFICATION TO RENAISSANCE PETROLEUM PROJECT CONDITIONAL USE PERMIT NO. 4384 CASE NO. PL14-0103

This Addendum is prepared as a supplemental environmental document to the December 19, 1986 Mitigated Negative Declaration adopted for the oil and gas facility authorized by CUP 4384.

A. BACKGROUND INFORMATION AND PROJECT DESCRIPTION

1. **Entitlement:** Modification of existing Conditional Use Permit (CUP) 4384 to authorize the continued operation and expansion of an existing oil and gas production facility (Case No. PL14-0103) for an additional 12-year term, to allow installation of four new oil and gas wells, and to modify existing ancillary equipment at the existing Naumann drill site.

2. **Applicant:** Renaissance Petroleum, LLC, P.O. Box 20456, Bakersfield, CA 93390

3. **Property Owner:** Richard Naumann, 714 3rd Street, Woodland, CA 95695

4. **Location:** The 1-acre project site is located at 3214 Etting Road, about one-third of a mile southeast of the City of Oxnard and the intersection of Pleasant Valley Road and State Route 1.

5. **Assessor's Parcel Number:** 232-0-062-030

6. **Lot Size:** 26.87 acres

7. **General Plan Land Use Designation:** Agricultural

8. **Zoning Designation:** AE-40 ac (Agricultural Excusive, 40-acre minimum lot size)

9. **Project Description:** The Applicant requests that a modified CUP be granted to authorize the continued use and expansion of an existing oil and gas facility.

   The existing facility is comprised of one active oil and gas well, gathering pipelines, and storage and processing equipment. The proposed project includes the addition of four new oil and gas wells, and the relocation of various pieces of

equipment on the approximately 1-acre drill site in order to facilitate the placement of the new wells. The project also includes the replacement of three oil and produced water storage tanks with larger tanks. The proposed project includes the following components:

a) Installation, testing, operation, reworking, and maintenance of a total of five oil and gas wells (i.e., one existing well and four proposed wells).

   The existing oil and gas well is designated as Naumann No. 1 (API No. 11121431) with the coordinates (NAD83): 34.1603, -119.131007. The four proposed oil and gas wells and pumping units will be designated as Naumann Nos. 2 through 5 and will be located on the existing drilling pad. All of the drilling, completion, and production operations will be conducted in accordance with the rules and regulations of the California Department of Conservation, Division of Oil and Gas and Geothermal Resources (DOGGR).

b) The operation of equipment such as pumps, heaters, and refrigeration systems, and compressors for the separation of natural gas and produced water from crude oil, the separation of natural gas liquids from produced natural gas, and the processing of the natural gas to the specifications established by the Southern California Gas Company (SCGC) for the introduction of the natural gas into the SCGC distribution pipeline system for sale to local customers.

c) The operation of equipment such as pumps and compressors to inject produced water into a well or wells for disposal purposes, the on-site injection of natural gas into a well or wells for the purpose of reservoir pressure maintenance, and to inject natural gas for gas lifting of liquids from productive zones. Any injection activities will only involve water or gas produced at the subject Naumann drill site or the Rosenmund drill site (authorized under CUP 5252) that is also operated by the Applicant. Fluids and gas produced at the separately permitted Rosenmund oil and gas facility are currently conveyed by existing pipelines to the Naumann facility.

d) The transport of gas, natural gas liquids, crude oil, and produced water from the site. Produced water may either be conveyed by pipeline to the Rosenmund drill site for injection into an existing well or transported by truck to a permitted commercial facility for disposal.

e) The installation and operation of equipment and structures associated with the storage, processing, and transporting of oil, gas, natural gas liquids, and water, as shown on site plans (Exhibit 3).

f) Implementation of a fluid truck transport limit. No more than 10 truckloads (20 one-way trips) of produced fluids may depart from the Naumann facility per

day. Additionally, no more than 3 of the 10 truckloads (6 one-way trips) may depart within any one hour. Truck transport of fluids will be further limited to no more than 2 truckloads (4 one-way trips) departing from the facility during peak traffic hours (6-8 a.m. and 4-6 p.m., Monday-Friday).

g) Extension of the hours of fluid transport (trucking) to 24 hours per day, 7 days per week from the currently authorized 7:30 a.m. to 6:30 p.m., Monday through Saturday schedule.

h) Modifications of the ancillary equipment used at the facility as follows:

1. Removal of two existing 500-barrel crude oil storage tanks;

2. Removal of one existing 500-barrel produced water storage tank;

3. Installation of two new 1,000-barrel crude oil storage tanks;

4. Installation of one new 1,000-barrel produced water storage tank;

5. Relocation of one existing 500-barrel fire water storage tank;

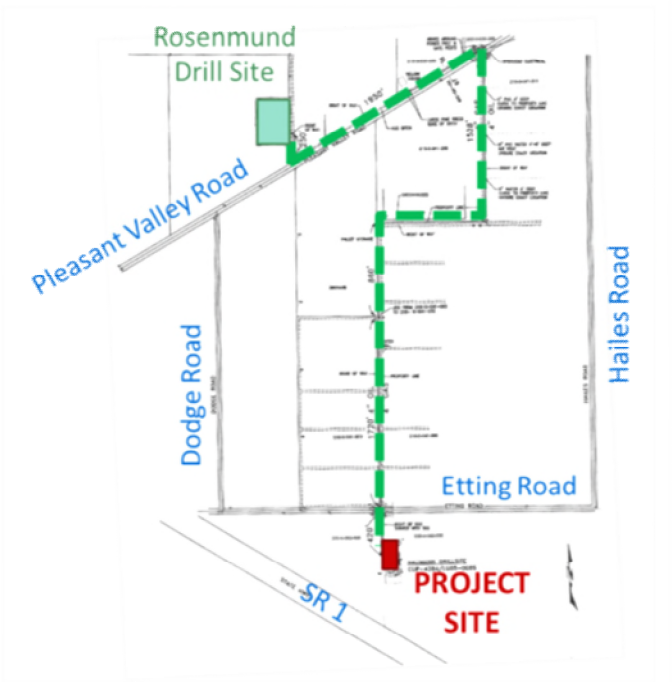
6. Relocation of one existing 20-foot tall light post; and,

7. Relocation of one existing emergency gas flare.

Each of the three proposed new tanks is 21 feet in diameter and 16 feet in height.

The oil and gas facility at the Naumann drill site is connected by two existing pipelines to the separately permitted Rosenmund drill site (Attachment 1). The Rosenmund facility is also operated by Renaissance Petroleum and is located approximately 0.75 miles (3,960 feet) north of the Naumann drill site at 2797 East Pleasant Valley Road. The facilities and activities at the Rosenmund drill site are authorized by CUP 5252. Oil, gas and water produced at the Rosenmund drill site are currently conveyed by existing pipelines to the processing and storage facilities on the Naumann drill site as shown in Figure 1, below.

Figure 1 – Existing Pipeline Routes between Rosenmund Drill Site and Naumann Oil and Gas Facility



No additional grading or expansion of the existing Naumann drill site is proposed. The Applicant also requests that the permit expiration date be extended from the year 2037 to the year 2049 (i.e., 12 additional years).

The proposed project involves the production of oil and gas from reservoirs located more than 3,000 feet below the ground surface. Steam injection methods used to recover heavy oil will not be utilized as part of the project.

Hydraulic fracturing, acid well stimulation and other "well stimulation treatments", as defined in Public Resources Code Section 3157, are not included in the proposed project. The use of any such well stimulation treatment as part of the project would require a subsequent discretionary modification of the CUP, additional environmental review under CEQA, and a public hearing.

B. EXISTING ENVIRONMENTAL SETTING

As indicated in Attachment 13, there are currently 29 actively producing oil fields located within Ventura County, and nearly 4,000 active oil and gas wells. Approximately 250 of these wells are located on the Oxnard plain. The proposed project consists of the continued operation, maintenance of one oil and gas well, and the installation and operation of four new oil and gas wells, as well as modifications to existing ancillary equipment at the Naumann drill site.

The 1-acre project site is part of a 26.87-acre parcel located at 3214 Etting Road, about one-third of a mile southeast of the City of Oxnard and the intersection of Pleasant Valley Road and State Route 1. The subject parcel is located in an area of predominately agricultural uses that currently include the cultivation of row crops (predominately strawberries) and orchids. The subject parcel is used for the production of various row crops (e.g., cabbage and celery). The nearest residential development to the site consists of two single-family homes, located approximately 580 feet to the west of the proposed project site (the Tanaka residence), and 2,000 feet to the east of the site. The next nearest residential development to the west, the Oxnard Pacific Mobile Estates, lies within the city of Oxnard, approximately 1,670 feet west of the project site.

The existing oil and gas well is designated as Naumann No. 1 (API No. 11121431) with the coordinates (NAD83): 34.1603, -119.131007. The four proposed oil and gas wells and pumping units will be designated as Naumann No. 2, No. 3, No. 4, and No. 5, and will be located on the existing drill pad. All of the drilling, completion, and production operations will be conducted in accordance with the rules and regulations of DOGGR.

Oil exploration and production activities have occurred on the property subject to the current permit application since 1986. On December 19, 1986, the Planning Director granted CUP 4384 to authorize the installation, operation and maintenance of one exploratory oil and gas well and associated facilities. As part of this action, a Mitigated Negative Declaration (MND) was adopted. The processing operations permitted at the Naumann site under CUP 4384 include the separation of produced water and natural gas from crude oil and those processing operations required for injection purposes and for the transportation of production products from the site. Thus, the existing setting of the project site consists of the operation of one well oil and gas well and related production equipment.

C. STATEMENT OF ENVIRONMENTAL FINDINGS

Pursuant to the California Environmental Quality Act (“CEQA”, Public Resources Code § 21000 et seq.) and the CEQA Guidelines (Title 14, California Code or Regulations, Division 6, Chapter 3, § 15000 et seq.), the subject application involves a “project” that is subject to environmental review.

On December 19, 1986, the Planning Director granted CUP 4384 to authorize the installation, operation and maintenance of one exploratory oil and gas well and associated facilities. The processing operations permitted at the well site under CUP 4384 include the separation of produced water and natural gas from crude oil and those processing operations required for injection purposes and for the transportation of production products from the site. The CUP was granted for a

period of 20 years with an expiration date on December 23, 2006. As part of this action, a MND was adopted.

The 1986 MND (Attachment 3) identified only one potentially significant impact from the development of oil and gas facilities on the project site. The potential impact was on agricultural resources due to the proposed loss of approximately two acres (87,120 square feet) of the then-existing citrus (lemon) orchard on the property to create the drill site. At the time, the land owner was conducting farming operations under a Land Conservation Act ("LCA." Gov. Code §§ 51200 et seq.) contract. Such a contract limits the use of the affected land to agricultural or open space for 10 years in exchange for preferential property tax treatment. In addressing this potential impact, the MND recommended limiting the area of the graded drillsite to 28,000 square feet (0.64 acres) in area, replanting of trees of the same variety when well abandonment occurred, and minimizing dust along access roads. There is no longer any LCA contract in effect for the subject site.

On May 21, 2007, the Planning Director granted a modification of CUP 4384 (Case No. LU05-0086) to authorize the drilling of an additional oil and gas well and construction of two gathering pipelines connecting the Naumann drill site to the nearby Rosenmund drill site. The installation of the gathering lines allowed for the consolidation of processing and production activities in accordance with section 8107-5.5.4 of the County Non-Coastal Zoning Ordinance (NCZO). The approved site plan included an expansion of the existing drilling pad to 41,300-square feet [0.94 acres (140-feet by 295-feet)]. This development was determined to be categorically exempt from CEQA review pursuant to CEQA Guidelines sections 15302 and 15303, which allows for the replacement or reconstruction of existing structures and facilities, and the construction of (new) small structures. The gathering lines were installed and placed into service. However, the additional well was not drilled prior to the May 31, 2012 deadline established in the CUP and is no longer authorized.

The proposed project involves the continued use of the existing, disturbed Naumann drill site for oil and gas activities, with the addition of four new oil and gas wells for a 30-year term beginning on the effective date of the requested modified permit. The project also involves the replacement of fluid storage tanks and other equipment. No expansion of the drill site is proposed. The additional oil and gas wells are anticipated to result in minor increases in truck traffic and air emissions.

CEQA Guidelines section 15164(b) states that the lead agency shall prepare an addendum to an adopted MND if (1) minor changes or additions are necessary but (2) none of the conditions described in CEQA Guidelines section 15162 calling for the preparation of a subsequent environmental impact report (EIR) or negative declaration (ND) have occurred. This MND Addendum includes a description of the changes or additions that are necessary to the MND and a discussion of why none of the conditions described in the CEQA Guidelines exist which require the preparation of an EIR or subsequent ND or MND.

The conditions described in Section 15162 of the CEQA Guidelines which require the preparation of an EIR or subsequent ND or MND are provided below, along with a discussion as to why a subsequent CEQA document is not required:

1. **Substantial changes are proposed in the project which will require major revisions of the previous ND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects [§ 15162(a)(1)].**

The proposed project involves the continued use of an existing, disturbed drill site for oil and gas activities, including the addition of four new oil and gas wells. No expansion of the drill site boundaries is proposed. Although the addition of four more oil and gas wells is anticipated to result in minor increases in noise, truck traffic, water use, and air emissions, these increases are minimal and do not exceed any applicable thresholds of significance. In addition, the visual character of the site will be slightly altered with the addition of four new oil and gas wells and ancillary equipment. However, this impact is also expected to be minimal. In sum, no new significant environmental effects have been identified that would result from the proposed project changes: there would be no new disturbance of land, no loss of agricultural soils, and a minor increase in air pollutants, truck traffic, and visible oil development-related equipment. The key issue areas are discussed below.

Water Resources (Quantity)

Threshold of Significance:

With regard to groundwater quantity, the County's Initial Study Assessment Guidelines (ISAGs) state:

> *"…any land use or project which would result in 1.0 acre-feet, or less, of net annual increase in groundwater extraction is not considered to have a significant project or cumulative impact on groundwater quantity."*

Evaluation of impacts:

Approximately 3,500 barrels (147,000 gallons) of water will be required to drill each of the four proposed wells. In addition, about 476 barrels (20,000 gallons) of water will be temporarily stored on the site for fire suppression purposes during drilling operations. Thus, a total of 14,476 barrels (607,992 gallons or 1.87 acre-feet) of water will be consumed during well installation. However, the operation of the proposed oil wells, once installed, will not result in any additional, ongoing demand for water. Averaged over the 30-year life of the project, the short-term water use would be equivalent to a "net annual increase" of 0.06 acre-feet per year of water demand.

The short-term use of water during drilling operations is not considered a significant impact under the ISAGs. In any case, the annual increase in water demand would be less than the applicable threshold of significance. Therefore, impacts on water resources (quantity) would be less than significant.

Water Resources (Quality)

Threshold of Significance:

The criteria for determining if a land use or project activity has the potential to cause a significant adverse impact upon groundwater quality are set forth in the ISAGs as follows:

1. *Any land use or project proposal that will individually or cumulatively degrade the quality of groundwater and cause groundwater to exceed groundwater quality objectives set by the Basin Plan shall be considered to have a significant impact.*

2. *A land use or project shall be considered to have a significant impact on groundwater quality where there is evidence that the proposed land use or project could cause the quality of groundwater to fail to meet the groundwater quality objectives set by the Basin Plan. This finding of a potential significant groundwater quality impact shall remain until such time as reliable studies determine otherwise.*

Evaluation of Impacts:

Protection of groundwater resources is a primary design feature of all oil and gas wells drilled in California. All wells must be constructed in accordance with established engineering standards enforced by DOGGR, which include periodic testing of well integrity. These standards have long been successfully employed to prevent leakage from wells, cross-contamination of geologic zones, and degradation of groundwater resources.

To date, over 12,000 oil and gas wells have been drilled in the Ventura Basin. In addition, there are several hundred miles of pipelines and hundreds of tanks and processing facilities. No substantial evidence of contamination of groundwater supplies due to these oil and gas activities has been identified within the County. As indicated in the Topical *Response to Comment* prepared for the DCOR oil and gas project (PL13-0046) (Attachment 4), and letter presented to the Ventura County Board of Supervisors at its February 7, 2017 meeting item regarding pipeline safety (Attachment 5), the level of oil spillage over the past 20 years has been very low given the extensive oil and gas facilities that exist throughout the County.

Vaca Tar Sands Drilling Moratorium:

Preliminary results of a recent and ongoing study of groundwater quality in the Oxnard Plain conducted by the U.S. Geological Survey (USGS) have been recently reported. A report abstract authored by Celia Rosecrans and others provided to the County staff states:

> *"The collected groundwater samples had no detections of petroleum hydrocarbons, inorganic constituents, isotopes, or other dissolved constituents that indicate mixing of oil field water in groundwater overlying the field has occurred. However, thermogenic methane, in some cases mixed with microbial methane, was detected in 3 wells with concentrations ranging from 0.25 mg/L to 9.1 mg/L. We used multiple lines of evidence including the analysis of methane isotopes of carbon ($\delta^{13}C\text{-}CH_4$) and hydrogen ($\delta^{2}H\text{-}CH_4$) and ratios of methane to heavier hydrocarbon gases to discern the source of methane as naturally occurring microbial methane, thermogenic methane associated with hydrocarbon reserves, or mixtures of these sources. The detected thermogenic gases occurred in deep groundwater wells, with the highest concentration associated with relatively high density of oil wells, large injection volumes of water disposal, and shallow oil development."*

The above preliminary report refers to the fresh water aquifers located above a series of 'heavy' oil deposits, known as the Vaca Tar Sands, that are present at relatively shallow depths (2,000 to 2,500 feet) beneath within the Oxnard Plain. These shallow deposits are typically exploited through the drilling of a high number of tightly clustered wells and implementation of cyclic steaming, a technique where steam is injected into the reservoir to warm the tar and lower its viscosity, making it easier to pump out of the ground.

On April 23, 2019, the Board of Supervisors voted to place an emergency, temporary moratorium (Interim Urgency Ordinance 4542) on new wells drilled within the area designated by DOGGR as representing the commercially viable area of the Vaca Tar Sands deposits. In June, the Board voted to extend this moratorium for an additional six-month period.

The Naumann #1 well was drilled to a depth of 7,340 feet and produces oil from zones that are more than 7,000 feet below ground surface. Thus, the USGS study does not provide any substantial evidence that the proposed project, including the four new wells, will result in a significant impact on water quality.

Based on the above discussion, impacts on water quality will be less than significant.

Noise

Thresholds of Significance:

The adopted threshold of significance for noise impacts is found in Policy 2.16.2 of the County General Plan. The relevant sections of this policy are reproduced below.

(4) Noise generators, proposed to be located near any noise sensitive use, shall incorporate noise control measures so that ongoing outdoor noise levels received by the noise sensitive receptor, measured at the exterior wall of the building, does not exceed any of the following standards:

a. Leq1H of 55dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 6:00 a.m. to 7:00 p.m.
b. Leq1H of 50dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 7:00 p.m. to 10:00 p.m.
c. Leq1H of 45dB(A) or ambient noise level plus 3dB(A), whichever is greater, during any hour from 10:00 p.m. to 6:00 a.m.

(5) Construction noise shall be evaluated and, if necessary, mitigated in accordance with the County Construction Noise Threshold Criteria and Control Plan.

The *County Construction Noise Threshold Criteria and Control Plan* establishes the following threshold limits for construction noise (Table 1).

Table 1 – Construction Noise Thresholds of Significance

Activity	**Thresholds**		
Daytime Construction Activity		Noise threshold shall be the greater of these noise levels at the nearest receptor area or 10 feet from the nearest noise-sensitive building	
	Duration	Fixed Leq(h), dBA	Hourly equivalent Noise Level (Leq), dBA
	0 to 3 days	75	Ambient Leq(h) + 3 dB
	4 to 7 days	70	Ambient Leq(h) + 3 dB
	1 to 2 weeks	65	Ambient Leq(h) + 3 dB
	2 to 8 weeks	60	Ambient Leq(h) + 3 dB
	Longer than 8 weeks	55	Ambient Leq(h) + 3 dB
Evening Construction Activity	Residential Receptor Location	50	Ambient Leq(h) + 3 dB

Activity	Thresholds		
Nighttime Construction Activity	Resident, Live-in Institutional Receptor Locations	45	Ambient Leq(h) + 3 dB

Evaluation of Impacts:

The proposed project is comprised of the continued operation of, and changes to, an existing oil and gas facility that is located approximately 500 feet north of State Route 1. Traffic on this highway contributes to the ambient noise in the area, and the subject facility is not considered a noise-sensitive use. The proposed additional oil and gas activities would be similar to the existing permitted activities. Noise generation is expected to occur from construction activities (well and ancillary equipment installation), operation of pumping units, and from truck traffic. The potential noise generation from each of these three sources is discussed below.

Well construction:

According to a Noise Impact Assessment Report (Attachment 16; Sespe Consultants, June 2013), the anticipated short-term noise due to drilling operations is estimated to be 85 dBA at 50 feet from the drilling rig. This figure was obtained from the Environmental Impact Report for the Whittier Main Oil Field Project (Whittier EIR, 2011). This figure is conservative (high) and consistent with other studies that estimated noise to be from 75 to 83 dBA at 50 feet from the rig. These studies include the *Draft RMPA/EIS for Federal Fluid Minerals Leasing and Development in Sierra and Otero Counties (BLM 2001)* and *Inglewood Oil Field Noise Impact Study (Arup Acoustics, 2004)*.

Without intervening topography or vegetation, noise will attenuate (i.e. drop in volume) by 6 dBA with each doubling of distance (County Construction Noise Threshold Criteria, 2010). In this case, there are intervening buildings located between the drillsite and the sensitive receptors. These include the agricultural building immediately northwest of the drillsite and a several agricultural buildings located north and south of Etting Road. The estimated drilling noise would be as listed in Table 2, below, for the nearest sensitive receptors.

Receptor	Noise at 50 feet from source (dBA)	Distance from drillsite (feet)	Estimated noise (dBA)	Terrain Attenuation (dBA)	Adjusted estimated noise (dBA)
Tanaka Residence	85	580	64.3	0	**64.3**
Oxnard Pacific Mobile Estates	85	1670	54.8	10	**44.8**

Although noise would only be partially blocked at the nearby Tanaka residence, the existing buildings would block a direct path of noise to the Oxnard Pacific Mobile Estates. Thus, the project-related noise due to drilling activities at that site would be attenuated by at least 10 dBA.

Each oil well would require 2 to 3 weeks to install. Thus, over the 30-year life of the project, an estimated 12 weeks of drilling activity would occur. As the drilling is proposed to occur on a 24-hour basis, the nighttime threshold of significance for Construction Noise (45 dBA) as established in the adopted *County Construction Noise Criteria and Control Plan* would apply to the proposed project. As indicated above, the threshold would be exceeded at the nearest residence. This potentially significant construction (drilling) noise impact is mitigated through the installation of temporary noise insulation as required by section 8107-5.6.16 of the Non-Coastal Zoning Ordinance (NCZO) for drilling activity within 1,600 feet of an occupied sensitive receptor. The condition of approval set forth below implements this ordinance requirement and will be incorporated into the requested CUP. However, this requirement will not be in effect in the event that the occupant of the nearby Tanaka residence signs a waiver in accordance with section 8107-5.6.25 of the NCZO.

Drilling Noise Reduction Condition:

Purpose: In order to comply with § 8107-5.6.16, § 8107-5.6.17 and §8107-5.6.18 of the *Ventura County Non-Coastal Zoning Ordinance* and to reduce project-related noise at sensitive receptors, temporary noise attenuation barriers shall be installed unless a waiver is granted pursuant to § 8107-5.6.25.

Requirement: Prior to initiating well drilling operations, the Permittee shall erect a sound barrier around the drilling rigs. Such soundproofing shall include any or all of the following: acoustical blanket coverings, sound walls, or other soundproofing materials or methods which ensure that operations

meet the applicable noise standard. The sound barrier shall be in place for the entire duration of drilling rig activities. The sound barrier must be sufficiently tall and situated in order to break the line of site between the primary drilling rig noise sources and the nearby residences. The primary drilling rig noise sources are assumed to be located between ground level (0 feet) and the drilling rig floor (about 20 feet).

All acoustical blankets or panels used for required soundproofing shall be of fireproof materials and shall comply with California Industrial Safety Standards and shall be approved by the Ventura County Fire Protection District prior to installation.

This requirement shall not apply if the Permittee obtains a waiver in accordance with Section 8107-5.6.25 of the Non-Coastal Zoning Ordinance.

Documentation: The Permittee shall submit photo-documentation, that the soundproofing is installed.

Timing: The Permittee shall install soundproofing prior to the commencement of drilling operations, and shall maintain the soundproofing, until the operations are complete. The Permittee shall provide photo evidence that the sound proofing is in place prior to the commencement of drilling. In addition, the Permittee shall arrange for a site inspection by County staff to confirm that the soundproofing has been installed in accordance with the requirements of this condition. Drilling may not commence until the County has confirmed in writing that the terms of this condition have been satisfied.

Monitoring and Reporting: The Planning Division shall maintain in the project file the photo evidence that the soundproofing was installed. The Planning Division has the authority to conduct periodic site inspections to ensure ongoing compliance with this condition pursuant to the requirements of § 8114-3 of the *Ventura County Non-Coastal Zoning Ordinance*.

With implementation of the above NCZO-required measure, construction (drilling) noise impacts will be less than significant (Class II).

Operation of new oil wells:

The installation of four new oil wells (i.e. four new pumping units) would incrementally add to the noise generated by existing facility operations. The existing pumping unit on the Naumann #1 well is electrically operated and produces minimal noise. The four new wells would similarly be powered with electric motors and are also expected to generate minimal noise. The noise generated by up to five pumping units upon full development of the proposed project would not be audible from the

nearest sensitive receptor located 580 feet to the west. Furthermore, the minimal level of noise generated by pumping units would be subsumed in the ambient noise of the adjacent State Route 1 traffic.

Based on the above discussion, noise impacts resulting from the operation of new pumping units would be less than significant.

Fluid Hauling Operations:

Based on the 5-year production record of the Rosenmund and Naumann sites operated by Renaissance Petroleum, the installation and operation of the four proposed new wells at the Naumann site will potentially increase truck traffic by an average of approximately 2.18 one-way trips (1.1 truckloads) per day (4.9 trips/9 wells x 4 wells = 2.18 trips). The historic truck traffic data and estimates of future traffic volumes are outlined in Table 5 in the Traffic section of this document.

The additional 2.18 truck trips per day would represent a negligible contribution to area noise. The haul route (Etting Road to Dodge Road to Pleasant Valley Road) is approximately 4,405 feet long. Thus, a single fluid hauling truck would only spend about 2 minutes along this route when traveling at 25 miles per hour [(4,405/5,280 feet/mile x 60 minutes/25 miles = 2 minutes]. Thus, the estimated 2.18 truck trips per day would involve only 4.4 minutes per day of additional truck noise experienced at any point along the trucking route. This 4.4 minutes per day of truck noise does not have the potential to cause an exceedance of the 1-hour standards specified in the ISAGs and County policy. Noise impacts due to truck traffic would be less than significant.

Based on the above discussion, noise impacts will be less than significant.

Visual (Scenic) Resources

Threshold of Significance:

A project has the potential to create a significant impact to scenic resources if it:

a. Is located within an area that has a scenic resource that is visible from a public viewing location; and,

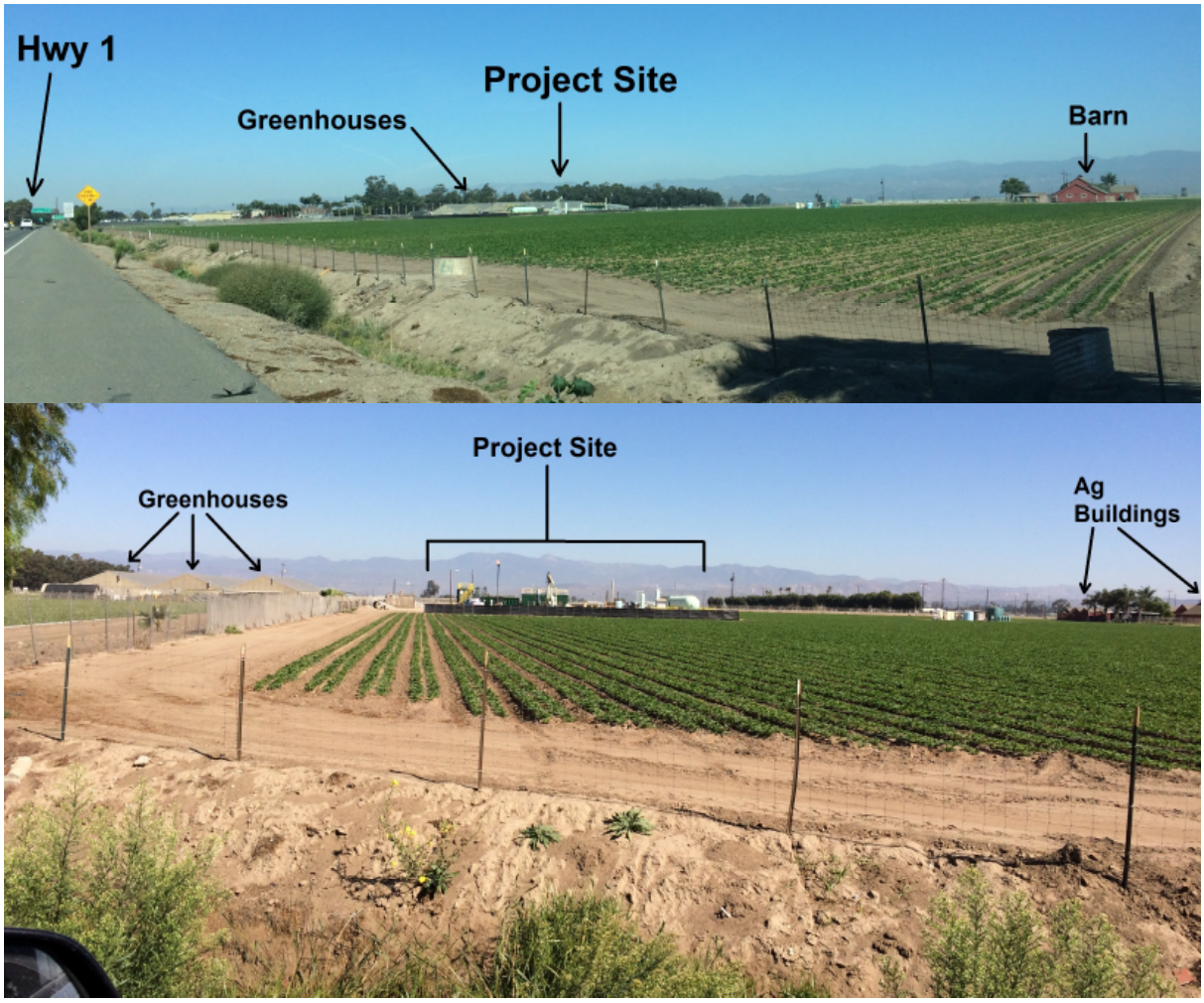
b. Would physically alter the scenic resource either individually or cumulatively when combined with recently approved, current, and reasonably foreseeable future projects; or

c. Would substantially obstruct, degrade, or obscure the scenic vista, either individually or cumulatively when combined with recently approved, current, and reasonably foreseeable future projects.

Evaluation of Impacts:

The Naumann oil and gas facility occupies a one-acre site that is located approximately 500 feet north of State Route 1. Although visible from the northbound lanes of the highway, the views of this facility available to motorists on State Route 1 are fleeting and will not substantially change with the implementation of the proposed project. Specifically, this facility is not prominently visible or noticeable to passing motorists because of its distance from the roadway, the preponderance of nearby agricultural buildings, and other development, the topographical profile of the land, and the tan and green coloration of the facility (Figure 2).

Figure 2 – Views of Naumann Oil and Gas Facility from northbound Hwy 1



The additional equipment and wells, and the reconfiguration of the existing onsite equipment, will not substantially change the visual character of the site as viewed from the surrounding area. Therefore, a scenic resource or scenic view would not be

substantially altered, degraded or obscured as a result of the implementation of the proposed project.

Based on the above discussion, impacts on scenic resources will be less than significant.

Traffic Impacts

Thresholds of Significance:

The ISAGs establish thresholds of significance for impacts on traffic circulation based on minimum acceptable Level of Service (LOS) for roadway segments and for intersections as described in Table 2 below.

Table 2 – Minimum Acceptable Level of Service (LOS) for Roadway Segments and Intersections

Minimum LOS	County of Ventura - Description
C	All County-maintained local roads.
D	All County thoroughfares and State highways within the unincorporated area of the County, except as provided below.
E	1. State Route 33 between the end of the Ojai freeway and the City of Ojai. 2. State Route 118 between Santa Clara Avenue and the City of Moorpark. 3. State Route 34 (Somis Road) north of the City of Camarillo. 4. Santa Rosa Road between the Camarillo city limit line and the Thousand Oaks city limit line. 5. Moorpark Road north of Santa Rosa Road to the Moorpark city limit line.
Varies	The LOS prescribed by the applicable city for all State highways, city thoroughfares, and city maintained local roads located within that city, if the city has formally adopted General Plan policies, ordinances, or a reciprocal agreement with the County, pertaining to development in the city that would individually or cumulatively affect the LOS of State highways, County thoroughfares and County-maintained local roads in the unincorporated area of the County.
	County LOS standards are applicable for any city that has not adopted its own standards or has not executed a reciprocal agreement with the County pertaining to impacts to County roads.
At any intersection between two roads, each of which has a prescribed minimum acceptable LOS, the less stringent LOS of the two shall be the minimum acceptable LOS of that intersection.	

Thresholds of Significance for Roadway Segments:

Project-Specific Impacts:

A potentially significant adverse project-specific traffic impact is assumed to occur on any road segment if any one of the following results from implementation of the project:

a. *If the project would cause the existing LOS on a roadway segment to fall to an unacceptable level as defined in Table 2.*

b. *If the project will add one or more Peak Hour Trip (PHT) to a roadway segment that is currently operating at an unacceptable LOS as defined in Table 2.*

Cumulative Impacts:

A potentially significant adverse cumulative traffic impact is assumed to occur on any road segment if any one of the following results from implementation of the project:

a. *If the project will add one or more PHT to a roadway segment that is part of the regional road network and the roadway segment is currently operating at an unacceptable LOS as defined in Table 2.*

b. *If the project will add 10 or more PHT to a roadway segment which is part of the regional road network and is projected to reach an unacceptable LOS as defined in Table 2 by the year 2020.*

Thresholds of Significance for Intersections:

Project-Specific Impacts:

A potentially significant adverse project-specific traffic impact is assumed to occur at any intersection on the regional road network if implementation of the project will result in an exceedance of the thresholds identified in Table 3.

Table 3 – Thresholds of Significance for Changes in LOS at Intersections

Intersection LOS (Existing)	Increase in V/C or Trips greater than
A	0.20
B	0.15
C	0.10
D	10 PHTs*
E	5 PHTs*
F	1 PHT*
*to critical movements. These are the highest combination of left and opposing through/right-turn peak hour turning movements (PHTM).	

(VC = Volume/Capacity ratio; PHT = Peak Hour Trip)

Cumulative Impacts:

A potentially significant adverse cumulative traffic impact is assumed to occur at any intersection if any one of the following results from implementation of the project:

a. *If the project will add one or more PHT to the critical movements at an intersection that is part of the regional road network and which is currently operating at an unacceptable LOS as defined in Table 3.*

b. *If the project will add 10 or more PHT to an intersection that is part of the regional road network, which is projected to operate at an unacceptable LOS as defined in Table 3 by the year 2020.*

Evaluation of Impacts:

The proposed addition of four new oil wells will result in an increase in the amount of fluids (oil, natural gas, natural gas liquids, and produced water) generated from the site. Although most natural gas is delivered straight into the SCGC distribution system via an onsite metering station, oil, produced water, and limited amounts of natural gas liquids, are trucked from the site. Development of the proposed project will therefore result in additional trucking of fluids from the Naumann facility.

The primary access point for project-related trucks to enter the regional road network is the nearby intersection of Dodge Road and Pleasant Valley Road. Although comments received in previous public testimony on the proposed project expressed concern about the potential safety of using Dodge Road, this road meets all established design standards, and is regularly utilized by truck and car traffic from other nearby business operations. Additionally, the intersection is fully signalized and has a dedicated left turn lane. To access this intersection, trucks travel west for 0.3 miles

along Etting Road to Dodge Road, and then proceed north approximately half a mile. Trucks may also connect with the regional road network via Hailes Road at Pleasant Valley Road, or at Etting and Wood Roads, although these intersections lack signalization, and may be less efficient from the standpoint of emissions generation. The nearby intersection at Hailes Road and Pleasant Valley Road also has less favorable visibility.

Under the existing permit conditions, truck traffic to and from the Naumann facility is not limited, except that the number of daily truck trips that may go "through residential streets" is capped at two truckloads per day, unless otherwise authorized by the Planning Director.

No residential streets have been identified that would be utilized by project-related traffic. Although Dodge Road borders the Oxnard Pacific Mobile Estates mobile home park and is located within the City of Oxnard, it is not considered a "residential street" because no residential driveways connect this roadway to the mobile homes or to any other residentially zoned property.

Table 4 describes the existing traffic circulation conditions on the public roadways in the vicinity of the project site. As seen in the table, none of the roadways is currently below the minimum acceptable LOS.

Table 4 – Existing Conditions along Roadways in the Project Vicinity:

Road	Road Class (Lanes)	Acceptable LOS	Capacity (ADT) at acceptable LOS	Current (2015) Traffic Volume (ADT)	Current LOS	Part of the Regional Road Network
Etting Road	I (2)	C	10,000	2,700	B	No
SR 1	Freeway (4)	D	82,000	12,000	A	Yes
Rice Road	I (4)	D	47,000	31,700	C	No
Pleasant Valley Road	I (2)	D	16,000	15,900	D	Yes
Wood Road	I (2)	C	10,000	1,200	A	No
Hueneme Road	I (2)	D	16,000	10,500	D	Yes
Wooley Road	I (2)	C	10,000	9,700	C	No

To establish a baseline for truck traffic associated with the project, County staff compiled fluid production data available from DOGGR for the nine oil wells currently connected to the Naumann facility for the 5-year period from 2010-2014 (Attachment 6) This data was used in combination with actual truck trip data provided by the Applicant for a one-year period in 2013-14 to calculate the historic volume of truck traffic

associated with activities at the Naumann facility. This data is also the best available information upon which to estimate the fluid production and truck traffic volume associated with the future installation of new wells at other locations within the Cabrillo Oil Field.

During the 5-year period evaluated, truck traffic associated with the Naumann facility averaged 4.9 one-way truck trips (2.45 truckloads) per day. Based on the 5-year production record, the installation and operation of the four proposed new wells at the Naumann site will potentially increase truck traffic by an average of approximately 2.18 one-way trips (1.1 truckloads) per day (4.9 trips/9 wells x 4 wells = 2.18 trips). The historic truck traffic data and estimates of future traffic volumes are outlined in Table 5.

Table 5 – Truck Traffic Associated with the Naumann Facility

Traffic Source	**Baseline Traffic Volume** (calculated from 2010-2014 DOGGR production data)		**Estimated Future Traffic Volumes**	
	Average Daily One-way Truck Trips	Peak Month One-way Truck Trips per day	Increase in Average Daily One-way Truck Trips	Increase in Peak Month One-way Truck Trips per day
Existing Production Levels*	**4.9**	**9.8**	NA	NA
Proposed Project (4 new wells)	NA	NA	**2.2**	4.4
Additional wells still to be completed at Rosenmund drill site (7 wells)	*NA*	*NA*	***3.8***	*7.6*
Total			**6.0**	12.0

*Encompasses production from both the existing well at the Naumann drill site and the 8 existing wells at the Rosenmund drill site.

Under the recommended conditions of approval for the proposed project, future trucking will be limited to no more than 10 truckloads (20 one-way truck trips) per day. The proposed conditions of approval will further restrict truck traffic emanating from the project site to no more than 3 truckloads (6 one-way trips) of produced fluids per hour, and no more than 2 truckloads (4 one-way truck trips) during the peak traffic hours of 6-8 a.m. and 4-6 p.m., Monday through Friday. Implementation of these conditions will further reduce the potential impacts of any increase in truck traffic by ensuring that truck traffic is minimized during peak “commuter” traffic times and is spread out through the course of the day rather than concentrated during any one time period. The proposed expansion of the allowable trucking hours to 24 hours per day will likewise facilitate the distribution of the truck traffic associated with the project over a longer time period.

Thus, only a fraction (less than one trip) of the expected daily increase in truck traffic would be expected to occur during peak traffic hours. Regardless, even if all of the estimated new truck trips occurred during peak traffic hours, none of the thresholds of significance identified above would be exceeded. In short, the minor increase in average truck traffic volume that would result from implementation of the proposed project will not have a substantial effect on traffic circulation or safety in the project vicinity.

In addition to the four wells that are part of the proposed project at the Naumann site, there are seven additional wells previously permitted under CUP 5252 at the nearby Rosenmund drill site that have not yet been drilled. Although not a part of the proposed project that is under review, the development of these wells will also contribute to potential future increases in fluid production and resultant associated tanker truck traffic from the Naumann facility because the production from the Rosemund site is sent to the Naumann site via an existing pipeline that allows for the consolidation of production from both sites. Based on the 4.9 one-way truck trip per day historic average, the installation and operation of seven more wells at the Rosenmund site can be expected to result in an additional 3.8 one-way truck trips per day (4.9 trips/9 wells x 7 wells = 3.8 trips). Thus, the foreseeable future increases in truck traffic emanating from the Naumann facility due to the seven additional wells already authorized at the Rosenmund site and the four proposed wells at the Naumann site would be six one-way trips per day (3.8 + 2.2 = 6.0).

As stated previously, these truck trips would be authorized to occur on a 24-hour basis. Thus, only a fraction (less than two trips) of the six trips per day would be expected to occur during peak traffic hours. In fact, even if all the estimated future increase in truck trips occurred during peak traffic hours, none of the above thresholds of significance would be exceeded. Therefore, the minor potential increase in truck traffic of up to six one-way trips per day due to the potential development of 11 new wells will not substantially affect traffic circulation or safety in the project vicinity.

The 5-year production record was also used to establish the historic peak monthly truck traffic generated from the Naumann facility. The peak monthly truck traffic during the 5-year period of record was 9.8 one-way trips (4.9 truckloads) per day, which was achieved in October and November of 2010. Based on this record, the peak monthly number of truck trips that would be expected with the addition of the proposed four new wells at the Naumann site would be 4.4 one-way trips (2.2 truckloads) per day (9.8 trips/9 wells x 4 wells = 4.4 trips). Similarly, the peak monthly number of truck trips associated with the installation of the seven already permitted wells at the Rosenmund drill site would be 7.6 trips one-way trips (3.8 truckloads) per day (9.8 trips/9 x 7 wells = 7.6 trips). Thus, the future peak monthly increase in truck traffic due to the development of the seven permitted wells at the Rosenmund site and the four proposed wells at the Naumann site is estimated to be 12 one-way trips (6 truckloads) per day.

The estimate of peak month traffic (a temporary condition) is presented in this document for informational purposes only, as the adopted thresholds of significance for impacts on traffic circulation apply only to long-term averages of daily and peak hour traffic volumes. In any case, the future combined (cumulative) increase of 12 one-way trips per day would still not exceed any of the adopted thresholds given that they would not be concentrated during peak traffic periods. Specifically, the recommended conditions of approval limit truck traffic emanating from the project site to no more than than 2 truckloads (4 one-way truck trips) during the peak traffic hours of 6-8 a.m. and 4-6 p.m., Monday through Friday. In summary, the combined increase in peak month truck traffic is minor and would not result in a significant impact on traffic circulation or safety in the project vicinity.

A review of traffic data on the surrounding roadways indicates that the cumulative contribution to impacts on traffic and safety from implementation of the proposed project is likewise negligible as the access roads to the Naumann facility (Etting Road, Dodge Road, Pleasant Valley Road, Rice Road and State Highway 1) all meet established road design standards. Additionally, in 2008, the Southern California Association of Governments (SCAG) and the Cities of Port Hueneme and Oxnard commissioned a Truck Traffic Study to analyze existing traffic conditions in the Hueneme/Oxnard area, and to identify impacts and congestion generated by truck trips traveling on local arterial roadways (Attachment 7, Cities of Port Hueneme/Oxnard Truck Traffic Study, June 2008).

Three of the recognized/preferred truck routes for the area - SR 1, Pleasant Valley Road, and Rice Road - intersect approximately one mile west of the project site.

In 2008, approximately 30,000 daily vehicle trips, including 2,000 heavy truck trips, occurred each day on Rice Avenue in the vicinity of the proposed project. Additional heavy trucks trips occur on Pleasant Valley Road and State Route 1. The comparative increase in truck traffic that would result from implementation of the proposed project would be 2.18 one-way truck trips per day. This represents a 0.1 percent increase in truck traffic (and 0.007 percent increase in overall traffic).

Similarly, the cumulative increase in traffic (6 one-way trips per day) due to the four proposed wells at the Naumann site plus the seven already-permitted wells at the Rosenmund drill site represents a 0.3 percent increase in truck traffic and a 0.02 percent increase in overall traffic. *[Note: The 0.02 percent increase is equivalent to a numerical increase in traffic volume of 0.0002. This would result in an increase the Traffic Volume to Capacity (VC) ratio on any roadway or intersection by less than 0.10 Threshold for operations at LOS C or better as presented in Table 3 above.]*.

In terms of the adopted thresholds of significance, implementation of the proposed project would not result in:

- The LOS of a roadway segment falling to an unacceptable level of service;
- The addition of one or more PHT to a roadway segment operating at an unacceptable LOS;
- The addition of 10 PHT or more to any roadway segment;
- The addition of 10 PHT or more to any intersection;
- The addition of PHTs to an intersection operating at an unacceptable LOS (there are no such intersections in the project vicinity);
- An increase in VC ratio of 0.10 or greater.

Based on the above discussion, impacts on traffic circulation and safety due to implementation of the proposed project will be less than significant.

Potential reduction in truck traffic from utilization of injection well:

Approximately two-thirds of the fluid produced from the existing Cabrillo Oil Field wells is produced water, a by-product consisting of water that is trapped in the reservoir rock and brought up along with oil and gas during production. It subsists under high pressures and temperatures, and usually contains hydrocarbons and metals. Disposal of produced water comprises a substantial portion of the trucking-related traffic associated with the Naumann facility operations.

On March 16, 2017, DOGGR approved the conversion of the existing Rosenmund No. 4 well (API#11121934) to an injection well for disposal of wastewater produced from the wells at both the Rosenmund and Naumann drill sites. This action is authorized by CUP 5252, which governs activity at the Rosenmund site. This wastewater is being injected into a geologic unit located approximately 4,000 feet below the ground surface.

According to the Applicant, all wastewater produced from both the Rosenmund and Naumann drill sites has been disposed of via this injection well since August 14, 2017. Although testing of this well for its suitability for long-term wastewater disposal in compliance with DOGGR standards remains ongoing at this time, the use of the injection well for fluid disposal will potentially reduce the estimated 2.18 one-way truck trips per day for the proposed project to approximately 0.7 one-way truck trips per day.

In fact, the use of the injection well could reduce the total truck traffic volume associated with the Naumann facility to a volume below the historic baseline level, even when accounting for the future contribution of the seven already permitted wells at the Rosenmund drill site.

Air Quality

Thresholds of Significance:

The Ventura County Air Pollution Control District (VCAPCD) Air Quality Assessment Guidelines (AQAGs) identify thresholds of significance pertaining to various air quality parameters, including criteria pollutants (e.g., ozone), fugitive dust, toxic air contaminants, and odors. Additionally, to provide information on the cumulative air pollutant emissions in Ventura County, the VCAPCD has provided a September 6, 2017 memorandum (Attachment 11). This memorandum provides emissions inventory data from the adopted 2016 Ventura County Air Management Plan. In particular, the cumulative emissions due to onshore oil and gas production are provided on page 2 of the VCAPCD memorandum. Projections of emissions to the Year 2035 are also provided.

The AQAGs list thresholds of significance for reactive organic compounds (ROCs) of 25 pounds/day and oxides of nitrogen (NOx) of 25 pounds/day.

The AQAGs also state that:

> *The Guidelines are not applicable to equipment or operations required to have Ventura County APCD permits (Authority to Construct or Permit to Operate). Moreover, the emissions from equipment or operations requiring APCD permits are not counted towards the air quality thresholds. This is for two reasons: First, such equipment or processes are subject to the District's New Source Review permit system, which is designed to produce a net air quality improvement. Second, such facilities are required to mitigate emissions from equipment or processes subject to APCD permit by using emission offsets and by installing Best Available Control Technology (BACT) on the process or equipment.*

Regarding criteria pollutants in general, the AQAGs state:

> *"…any project that may cause an exceedance of any ambient air quality standard (state or federal), or may make a substantial contribution on an existing exceedance of an air quality standard will have a significant adverse air quality impact."*

With regard to assessing cumulative impacts from ozone, the AQAGs state:

> *"A project with emissions of two pounds per day or greater of ROC, or two pounds per day or greater of NOx that is found to be inconsistent with the Air Quality Management Plan (AQMP) will have a significant cumulative adverse air quality impact."*

Regarding fugitive dust emissions and odors, the AQAGs state that projects that may reasonably be expected to produce emissions,

> *"in such quantities as to cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which may endanger the comfort, repose, health, or safety of any such person or the public, or which may cause, or have a tendency to cause injury or damage to business or property will have a significant air quality impact."*

Finally, regarding toxic air contaminants, the AQAGs recommend the following significance thresholds*:*

a. *"Lifetime probability of contracting cancer is greater than 10 in one million…"*
b. *Ground-level concentrations of non-carcinogenic toxic air pollutants would result in a Hazard Index of greater than 1.*

Evaluation of Impacts:

The proposed operation of four additional oil wells and the additional trucking of produced fluids will result in increased emissions of the criteria pollutants nitrous oxides (NOx) and reactive organic compounds (ROC).

According to the VCAPCD, each new oil well will result in an additional 2 pounds/day of ROC emissions (See Attachment 8). Thus, project implementation will result in a total increase in ROC emissions of 8 pounds/day.

When the seven previously permitted, but not yet constructed, wells at the Rosenmund site are considered together with the four proposed wells at the Naumann site, ROC emissions will be expected to increase over existing levels by 22 pounds/day (11 wells x 2 pounds/day/well = 22 pounds/day ROC).[1]

Although the proposed project will result in emissions of greater than two pounds per day of ROC, and greater than two pounds per day of NOx, VCAPCD-permitted facilities that are in compliance with all VCAPCD rules and regulations are consistent

[1] The seven wells that may be installed at the Rosenmund drill site are separately permitted under CUP 5252, are not part of the proposed project involving the Naumann drill site, and are thus not counted towards the 25 pounds per day numeric threshold of significance established for project specific and cumulative ROC and NOx emissions pursuant to the AQAGs. Moreover, because these emissions are subject to VCAPCD's permitting and regulatory programs, they are also not counted towards the aforementioned threshold of significance for this reason. The inclusion of emissions data regarding the Rosenmund drill site within this Addendum is for informational purposes only.

with the Air Quality Management Plan (AQMP) and will not have a significant cumulative adverse air quality impact.

The installation of the four proposed new oil and gas wells will also result in increased gas production and an associated increase in gas flaring. As indicated in the NOx Flaring Emissions Calculation Spreadsheet for 2006-2016 (Attachment 9), NOx emissions from the flare at the Naumann facility averaged 2.4 pounds/day over the 11-year period from 2006 to 2016. These emissions were the result of the combined gas production from the nine existing wells at the Rosenmund and Naumann drill sites that are processed at the Naumann facility. Therefore, the NOx flaring factor per well for the Naumann facility is approximately 0.27 pounds/per day (2.4/9 = 0.27).

With the proposed addition of four new wells at the Naumann site, NOx emissions due to flaring are estimated to proportionately increase to 3.47 pounds/day (2.4 x 13/9 = 3.47). This is an increase of 1.07 pounds/day due to implementation of the proposed project (3.47 – 2.4 = 1.07).

When the seven additional wells at the Rosenmund site are ultimately installed and operated, NOx emissions from flaring at the Naumann facility are estimated to increase to a total of approximately 5.33 pounds/day (2.4 x 20/9 = 5.33). This represents a cumulative increase of 2.93 pounds/day (5.33 – 2.4 = 2.93), while the estimated increase in NOx emissions due to already-permitted activities at the Rosenmund drill site alone is 1.87 pounds/day [(2.4 x 16/9) – 2.4 = 1.87].

The potential additional oil and waste water trucking trips resulting from implementation of the proposed project will likewise result in a slight increase in NOx emissions. However, as indicated in the GHG Emissions Estimates Spreadsheet (Attachment 8), the NOx emissions generated by the proposed traffic increase are estimated to be approximately 3 pounds/day (0.3714 tons/year + 0.1751 tons/year = 0.5465 tons/year [2.994 pounds/day]). A more detailed break-down of the projected NOx emissions from the increased trucking traffic associated with implementation of the proposed project was prepared by VCAPCD in January 2018 (Attachment 10, NOx Off-site Mobile Sources Emissions Calculation Spreadsheet). These calculations incorporate the expected trip lengths for produced water trucking versus oil trucking. Even with the inclusion of the permitted wells at the Rosenmund site, cumulative NOx emissions due to trucking would increase by only 8.5 pounds/day (Attachment 10).

The VCAPCD also provided an estimate of the temporary emissions that would occur during well installation (drilling) activities (Attachment 11). Emissions would occur from both drilling and the increased commuting activities of employees during drilling operations. Commuting activities during drilling activities would result in approximately 0.06 lbs /day of NOx and approximately 0.06 lbs/day of ROC. Drilling rigs themselves generate both NOx and diesel particulate matter emissions and would be expected to add approximately 90lbs/day of NOx + ROC. It is conservatively estimated that the drilling of each well would take 60 days.

In California, drilling rig engines are regulated through registration with the California Air Resources Board (ARB) Portable Equipment Registration Program (PERP), and are, therefore, exempt from VCAPCD permits. Whereas, existing drilling rig engines must comply with the California ARB Airborne Toxic Control Measure for Portable Diesel Engines, a PERP-registered drilling rig engine may operate throughout California without a permit from local air districts. New PERP-registered engines must meet the most stringent (Tier 4-final) standards for diesel engines. Fleets of portable diesel drilling rig engines must meet current and future "fleet averages". This regulation basically requires a fleet of existing engines to be replaced with newer and cleaner engines over time. This reduction of emissions over time is significant and includes both NOx and diesel particulate matter emissions (such as PM_{10}).

The emissions related to the proposed changes at the Naumann facility and the already-permitted activities at the Rosenmund drill site are summarized in Table 6 (below). As indicated in the table, even if the future emissions due to the previously permitted wells at the Rosenmund drill site are counted, the project-related emissions of NOx would be less than the 25 pounds/day threshold of significance established in the AQAGs. Similarly, the project-related emissions of ROC would also be less than the 25 pounds/day threshold of significance established in the adopted AQAGs. Thus, impacts on air quality will be less than significant.

Table 6 – Emissions Summary

Emission Source		**Emission type**		**Generation Factor**	**Total (lbs)**	**30-year Daily Average (lbs/day)**	
		NOx	**ROC**			**NOx**	**ROC**
Temporary drilling activities (60 days/well)	Proposed Project (4 new wells)	X		90.06 lbs/day	21,614	**1.97**	NA
	Rosenmund (7 additional wells)	X			37,825	**3.45**	NA
Employee commuting during drilling	Proposed Project	X		0.06 lbs/day	14.4	**0.001**	**0.001**
			X				
	Rosenmund	X			25.2	**0.002**	**0.002**
			X				
Well Operation	Proposed Project		X	2 lbs/day (per well)	8	NA	**8**
	Rosenmund		X		14	NA	**14**
Flaring	Proposed Project	X		0.27 lbs/day	1.07	**1.07**	NA
	Rosenmund	X			1.87	**1.87**	NA
Truck traffic	Proposed Project	X		0.75 lbs/day	3	**3**	NA
	Rosenmund	X			5.25	**5.25**	NA
Total =						**16.61**	**22**

As indicated in the above table, the estimated NOx and ROC emissions are less than the established 25 pounds/day threshold of significance. Thus, the impact on air quality

will be less than significant. As discussed below, however, the air pollutant emissions of oil and gas facilities subject to the VCAPCD permitting program are not counted toward the threshold of significance.

VCAPCD Permitting Program:

The VCAPCD implements a permitting program for oil and gas facilities as part of the overall air quality program of the district. Oil and gas facilities operate in accordance with ministerial permits issued by the VCAPCD. The current VCAPCD Permit to Operate No. 01383 (Attachment 15) for the existing Naumann Lease facility operated by the applicant is attached to this Addendum. This permit limits the pollutant emissions generated by this facility. The permitting program allows the VCAPCD to monitor and reduce facility pollutant emissions as necessary to meet established state and federal air quality standards. By requiring the use of Best Available Control Technology (BACT) and emission offsets to be obtained by the generators of larger volumes of pollutants, the overall pollutant load due to stationary sources can be reduced. The effectiveness of these measures is ensured by annual VCAPCD inspections of permitted facilities and continued monitoring of local and regional air quality by the VCAPCD.

The emission offset mitigation program is implemented in accordance with VCAPCD Rule 26.2, “New Source Review – Requirement.” This rule establishes specific annual volumes of pollutant emissions that trigger the requirement for an operator to obtain emission offsets prior to the issuance of a VCAPCD permit. In the current case, the applicant will be required to obtain emission offsets for ROC emissions as the project-related emissions of ROC will exceed 5.0 tons/year. However, emission offsets for NOx, PM_{10}, and SO_X (sulfur oxides) will not be required as the project-related emissions of these pollutants will remain below the applicable offset trigger volumes of 5.0, 15.0, and 15.0 tons/year. For projects that require emission offsets, the volume to be offset is greater than the anticipated emissions. This assessment of mitigation requirements at greater than a 1:1 ratio accounts for the smaller pollutant generators for which emission offsets are not required.

In summary, the VCAPCD permitting program serves to mitigate the air pollutant emissions from permitted facilities throughout the County of Ventura. This is among the reasons that the emissions from APCD-permitted facilities are not counted toward the CEQA Thresholds of Significance pursuant to the adopted AGAGs.

Cumulative Air Pollutant Emissions

To provide information on the cumulative air pollutant emissions in Ventura County, the VCAPCD has provided a September 5, 2017 memorandum (Attachment 14, AQMP Emissions Inventory). This memorandum provides emissions inventory data from the adopted 2016 Ventura County Air Management Plan. In particular, the cumulative emissions due to onshore oil and gas production are provided on page 2 of the memorandum. Projections of emissions to the year 2035 are also provided.

Based on the above discussion, the proposed project does not include any substantial changes to the existing permitted facility which would require major revisions to the previous MND due to the involvement of new, significant effects or an increase in severity of a previously identified significant effect with regard to the generation of criteria air pollutants (i.e. NOx and ROC).

Health Risk

The VCAPCD reviews the air toxic emissions from existing and new permitted facilities using the following methods:

1. Air Toxic "Hot Spots" Program (AB 2588)
2. VCAPCD Policy: Air Toxics Review During Permit Renewal
3. VCAPCD Policy: Air Toxic Review of Permit Applications

Threshold of Significance:

According to the VCAPCD AQAGs, the level of significance for air toxics contaminants is a lifetime cancer risk of greater than 10 in one million, or an acute or chronic Hazard Index of greater than 1.

Evaluation of impacts:

The potential for adverse health effects on individuals residing in the vicinity of the proposed project due to project-related emissions has been evaluated by the VCAPCD.

The VCAPCD has prepared the following memoranda to address the issue of health risk posed by the proposed project:

- October 3, 2018: Health Risk Assessment for the Naumann Drill Site
- October 4, 2018: Summary of Health Risk Representation and Health Risk Assessment for Renaissance Petroleum LLC-Naumann Drill Site

The above-listed memoranda are included in Attachment 12. These two memoranda evaluate whether the proposed changes in the Naumann oil and gas facility have the

potential to result in a significant health risk. The analysis presented in the 2018 VCAPCD memoranda is based on the potential health risk of the facility with the proposed physical changes in equipment (4 new wells and the installation of larger tanks) and the operation of the facility at the maximum allowed flare throughput (365,000 barrels of oil per year [BOPY] and 50.2 MMCF of gas per year [MMCF/Y]) specified in the APCD Permit to Operate No. 01383.

The health risk analysis provided by the VCAPCD was prepared in accordance with VCAPCD-adopted procedures as part of the implementation of the New Source Review permitting program. This type of analysis is normally performed by VCAPCD as part of the issuance of ministerial permits for new facilities. In this instance, however, the analysis was performed at the request of the County Planning Division to augment the evaluation of the potential environmental effects of the proposed expansion of the Renaissance Petroleum project at the Naumann drill site which is currently under discretionary review.

The values and conclusions presented in the VCAPCD 2018 memoranda reflect the limits of emissions allowed by the existing ministerial permit previously issued by the VCAPCD for the Naumann facility. These limits exceed actual historic oil and gas production levels (as reported in the DOGGR records, see Attachment 6). For example, the VCAPCD permit limits production from the facility to 365,000 barrels of oil per year (BOPY). However, DOGGR records indicate that the actual production from this facility averaged only 46,300 BOPY from 2007-2016, with a peak year production of 91,187 BOPY occurring in 2011. During the 5-year period from 2012-2016 (when all nine of the existing wells had been installed), oil production averaged 32,827 BOPY and gas production averaged 116.9 MMCF/Y. Similarly, the APCD permit limit of 50.2 MMCF of gas throughput to the flare has never been reached as the volume of flared gas (9% of the total gas production) has averaged only 11.4 MMCF/Y from 2006-2016, and more recently, only 10.5 MMCF/Y from 2012-2016. The peak year volume of flared gas (32 MMCF) occurred in 2011. The production record of the existing wells (included in Attachment 6) constitutes the best available information from which the production of future wells can be estimated.

The average level of production handled at the Naumann site would be expected to increase proportionately (i.e. by 44% of the 5-year average of 32,827 BOPY and 116.9 MMCF/Y) from current (2016) levels (19,911 BOPY, 7.2 MMCF/Y) with the addition of four new wells. Thus, average annual oil production would be anticipated to be 34,501 BOPY [19,911 + (4/9 x 32,827) = 34,501]. Total gas production would similarly increase from 47.99 MMCF in 2016 to 100 MMCF/Y [47.99 + (4/9 x 116.9) = 100 MMCF/Y]. However, only 9% of the new gas production (or 4.7 MMCF/Y) would be flared because approximately of 91% of the gas produced at the Naumann facility is sold to the Southern California Gas Company. The estimated volume of flared gas would be 12 MMCF/Y (7.3 existing + 4.7 new = 12). Thus, the results of the APCD analysis overstate the potential health risk posed by the proposed changes to the Naumann facility.

Although not a part of the current discretionary project under review, CUP 5252 authorizes an additional seven wells to be installed in the future at the nearby Rosenmund drill site. This would bring the total number of existing, permitted, and currently proposed wells within the Cabrillo Oil Field to 20. As with the 4 proposed new wells currently under review at the Naumann facility, the future production of the seven permitted but not yet developed wells at the Rosenmund site has been estimated based on the historic production from the existing wells.

The following table lists the oil and gas production for the existing wells, proposed new wells, and permitted future oil and gas wells at both locations that are connected to the consolidated production facility at the Naumann site.

Table 7 – Cabrillo Oil Field, Average Production Estimates

Well Status	Well Location	Number of wells	Oil Production (BOPY)	Gas Production (MMCF)	Gas Volume flared (MMCF)
Existing wells	Naumann	1	19,911[1]	48[1]	7.3[1]
	Rosenmund	8			
Proposed wells	Naumann	4	14,590[2]	52[3]	4.7[4]
Permitted, but not yet developed	Rosenmund	7	25,532[2]	90.9[3]	8.2[4]
Total =		**20**	**60,033**	190.9	**20.2**

Notes:
1. 2016 production from the 9 existing wells
2. Based on 2012-2016 average annual oil production from the 9 existing wells.
3. Based on 2012-2016 average annual gas production from the 9 existing wells
4. Figure calculated from average 9% of gas production flared from 2006-2016.

As indicated above, oil and gas production upon full buildout of the existing, permitted, and currently proposed wells in the Cabrillo Oil Field that are (or would be) connected to the consolidated Naumann storage and processing facility is not expected to reach the levels specified in the VCAPCD Permit To Operate #1383 and used in the analysis of health risk prepared by the VCAPCD. Thus, the results of the APCD analysis overstates the health risk posed by the combination of the proposed changes at the Naumann site and the already permitted future buildout of the Rosenmund site. Despite this overestimate of potential health risk, the October 3, 2018 and October 4, 2018 VCAPCD memoranda conclude:

> *"The calculated risk impact due to the proposed project does not exceed the Ventura County Air Quality Assessment Guideline (AQAG) significance*

thresholds for cancer or non-cancer risk. Therefore, based on the above results, the toxics emissions resulted from this project would not result in a significant impact." (October 3, 2018)

"The HRA [Health Risk Assessment] provides results showing the maximum cancer risk is 0.903 in a million (well below the significance threshold of 10 in a million) and the maximum non-cancer hazard index (acute) is 0.123 (well below the significance threshold of 1.0)." October 4, 2018

Comments received in public testimony on the project have expressed concern about the potential health risk or health effects due to chemical use in the cultivated agricultural fields that surround the project site and border the City of Oxnard.

Potential air quality and health risk impacts associated with agricultural spraying in the area depend on a variety of factors, including the type and amount of material sprayed, the method and frequency of application, the distance of the facility from areas being sprayed, and wind direction and speed. As discussed below, state regulations prohibit the overspray of agricultural chemicals onto offsite land.

The California Department of Pesticide Regulation (DPR) is vested with primary authority through the U.S. Environmental Protection Agency to enforce federal and state laws pertaining to the proper and safe use of pesticides. DPR's enforcement of pesticide use is largely carried out at the local level by the County Agricultural Commissioner. Growers must obtain site-specific permits from the Agricultural Commissioner to purchase and use many agricultural chemicals. The Agricultural Commissioner evaluates the proposed use to determine if the pesticide can be applied safely, particularly in sensitive locations, such as near schools, residential areas, and assembly uses. Based on this evaluation, the Agricultural Commissioner may deny a permit, or may place conditions on the permit to reduce any potential hazards. The primary requirement of pesticide use is that it be applied in a manner that precludes overspray onto offsite property. Any deviation from permit conditions, federal or state laws, or pesticide label requirements, constitutes a violation and could result in the revocation or suspension of a license or civil and criminal penalties.

Based on the above discussion, no substantial changes are proposed in the project which will require major revisions of the previous MND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects.

1. Substantial changes occur with respect to the circumstances under which the project is undertaken which will require major revisions of the previous MND due to the involvement of new significant environmental effects or a substantial increase in the severity of previously identified significant effects [§ 15162(a)(2)].

There have been no substantial changes in the circumstances under which the original project was analyzed which would require revisions in the adopted MND. The character and use of the surrounding agricultural lands have not changed substantially since the project was initially approved.

2. New information of substantial importance, which was not known and could not have been known with the exercise of reasonable diligence at the time the Planning Director adopted the previous MND, shows any of the following:

a. The project will have one or more significant effects not discussed in the previous MND [§ 15162(a)(3)(A)].

There is no new information of substantial importance that indicates the project will have any new, significant effects not discussed in the previous MND.

Greenhouse Gas Emissions

Since the project was originally reviewed and the MND adopted, the role of greenhouse gas (GHG) emissions and their potential contribution to global climate change has become an important and widely debated scientific, economic and political issue. However, estimated GHG emissions associated with implementation of the proposed project are only seven percent of the 10,000 metric tons of carbon dioxide equivalent per year (MTCO2e/year) threshold of significance cited by the VCAPCD. Specifically, the potential GHG emissions for the operation of the four proposed new wells and associated additional truck transport of produced fluids are estimated to be 737.5 MTCO2e. This amount includes fugitive methane emissions from the wells as well as projected combustion emissions from the emergency flare (Attachment 8, VCAPCD GHG Emissions Estimates Spreadsheet for PL14-0103).

The installation (drilling) of the proposed four wells will result in temporary emissions of criteria pollutants and GHGs. As indicated in Table 6 above, the 30-year average of NOx emissions due to drilling activities is estimated to be 1.97 pounds per day. According to the VCAPCD (Attachment 17), this level of NOx emissions will result in the average annual generation of approximately 82 MTCO2e/year of GHG emissions. This figure reflects the temporary emission of 2,460 MTCO2e for the drilling of four wells over the 30-year permit term (i.e. 2450 MTCO2e / 30 years = 82 MTCO2e/year). Thus, total annual GHG emissions resulting from the proposed project is estimated to be 819.5 MTCOe2/year.

Therefore, the potential impact on climate change due to increased GHG emissions associated with implementation of the proposed project will be less than significant.

(Note: The gas sold to the SCGC for consumptive use conserves energy and proportionately reduces air pollutant emissions from the level that would be emitted if all the produced gas were flared.)

Threshold of Significance:

The 10,000 MTCO2e/yr threshold of significance applied to the project by VCAPCD has been adopted by multiple agencies within the broader southern California region for use in evaluating discretionary projects involving stationary sources, including the South Coast Air Quality Management District (SQAQMD) [adopted by the SCAQMD Governing Board; December 5, 2008], San Diego County, and the Santa Barbara Air Pollution Control District (Santa Barbara County APCD CEQA Guidelines, adopted April 30, 2015). The SCAQMD exercises jurisdiction over 10,743 square miles and a population of 15 million people, and includes the entirety of Orange County, and substantially developed portions of Los Angeles, San Bernardino, and Riverside Counties. San Diego County Air Pollution Control District exercises jurisdiction over 4,300 square miles, 3,064,436 inhabitants (2009). In comparison, Ventura County, at 2,200 square miles, is less than half the size of San Diego County, and has a population of approximately 850,500 (2015), as well as having far fewer commercial and industrial land uses than any of its southern neighbors.

The 10,000 MTCO2e/year threshold is designed to capture at least 90 percent of the GHG emissions from stationary sources. SCAQMD staff originally developed this threshold by compiling the reported annual natural gas consumption for 1,297 permitted facilities for 2006 through 2007, and rank-ordering the facilities to estimate the 90th percentile of the cumulative natural gas usage for all permitted facilities. The data set was deemed to be the best information available at the time. Within the dataset, approximately 10 percent of the facilities evaluated comprise more than 90 percent of the total natural gas consumption, which corresponds to 10,000 (MTCO2e/yr) (the majority of combustion emissions are comprised of CO2).

Most GHG emissions from industrial facilities are generated from stationary sources, while a relatively small percent is generated by traffic, water usage, etc. Therefore, although the GHG significance threshold was derived without considering offsite, indirect GHG emissions, the use of a 10,000 MTCO2e/year threshold for stationary source projects such as the Renaissance Petroleum project is appropriate because it captures 90 percent or more of the GHG emissions from industrial projects located within the southern California region.

As a result of the ongoing implementation of AB 32 requirements and additional local initiatives, other GHG emission inventories and data sets have been developed over the past decade. These more recent inventories may include combustion emissions from natural gas combustion, additional fuel types, indirect GHG emissions from electricity, mobile source emissions, and GHGs from fugitive methane releases. However, some of these more recent inventories, such as the California Air Resources Board Mandatory Reporting Regulation (MRR) emissions, are less robust in that they do not include smaller sources (less than 25,000 MTCO2e/year or less than 10,000 MTCO2e/year).

The 10,000 MTCO2e/year threshold adopted by SCAQMD is both low enough to capture a substantial amount of future industrial/stationary-source projects, while still high enough to intentionally exclude small projects that, in aggregate, will contribute only a relatively small amount to cumulative regional and statewide GHG emissions. The use of a threshold of 10,000 MTCO2e is also more appropriate than a zero threshold, because the former will assure that all feasible GHG mitigation will be implemented for a large majority of emissions, while not resulting in substantial administrative requirements for projects that individually produce only a nominal contribution towards cumulative regional and statewide GHG emissions.

Finally, the fact the Ventura County's GHG emissions base is so small compared to the greater southern California region suggests that the application of a higher capture rate threshold (greater than 90%) is not appropriate here. For comparison, if the GHG emissions from Ventura County were folded into an inventory for the larger SCAQMD and/or San Diego County APCD regions, the additional data would have no appreciable effect on the percentage of GHG emissions captured by a 10,000 MTCO2e/year threshold for stationary-source projects in that larger region. Therefore, the VCAPCD and the County Planning Division consider a 10,000 MTCO2e/year threshold, as applied by both the SCAQMD and San Diego County, to be a reasonable numeric threshold of significance for GHG emissions emitted from stationary sources such as the subject Renaissance Petroleum oil and gas project.

It should be noted that the County of Santa Barbara (i.e. not the Santa Barbara County APCD) adopted a lower GHG threshold of significance than was recommended or adopted by the various air pollution agencies cited above. On May 19, 2015, the County of Santa Barbara adopted an even more stringent 1,000 MTCO2e threshold of significance for GHG emissions for oil and gas projects. The Santa Barbara County Planning Commission voted 3-2 to recommend adoption of a 1,000 MTCO2e/year bright-line threshold, which would capture an even higher rate (99 percent) of future GHG gas emissions than the 10,000 MTCO2e/year threshold (90 percent), despite the fact that the 10,000 MTCO2e/year threshold was recommended by Santa Barbara Planning and Development staff. Thus, the County of Santa Barbara's decision to select a more stringent capture rate for oil and gas projects reflects a discretionary policy decision.

Evaluation of Impacts:

As indicated above, the proposed project would generate annual GHG emissions of 819.5 MTCO2e/year. This is less than any adopted Threshold.

Geologic Hazards

County General Plan Policy 2.9.2.1 states:

> *Potential subsidence shall be evaluated prior to approval of new oil, gas, water or other extraction well drilling permits.*

The major cause of land subsidence is groundwater withdrawal from shallow unconfined aquifers that are comprised of unconsolidated sediments. As the water table elevation falls, unconsolidated sands and silts that are no longer saturated with water will compress and cause a lowering of the overlying ground surface. This condition has been recognized to occur since the 1930's over most of the Oxnard Plain, including the vicinity of the proposed project. The ground surface has dropped in elevation by as much as approximately 3 feet in some places. The Fox Canyon Groundwater Management Agency (FCGMA) was formed in 1988 to limit the overdraft of the aquifers that underly the Oxnard Plain. This overdraft has resulted in both land subsidence and seawater intrusion into the freshwater aquifers located within 1,500 feet of the ground surface.

Oil and gas extraction can also cause land subsidence. As much as 29 feet of subsidence occurred in the City of Long Beach from the 1940s to the 1960s due to the extraction of more than 3 billion barrels of oil from the giant Wilmington Oil Field. This subsidence was stopped through injection of fluid (wastewater) to re-pressurize the oil zones and replace the extracted fluid.

The proposed project involves the drilling and operation of four new oil and gas production wells. These wells will extract oil, gas and water (brine) from a reservoir located approximately 7,000 feet below ground according to the California Division of Oil and Gas and Geothermal Resources (DOGGR). According to California Certified Hydrogeologist Brian R. Baca (CHG 398), it is not reasonably foreseeable that the extraction of oil from the four proposed wells will result in measurable or significant subsidence of the ground surface. This conclusion is based on several factors including:

- The consolidated nature of the earth materials at the depth (7,000 feet) of the oil reservoir.
- The relatively limited amount of fluid production anticipated based on the performance of existing wells.
- The natural inflow of water (brine) into the oil zone during fluid extraction.
- The continuous re-injection of produced water back into the subsurface. (The produced water comprises about two-thirds of total fluid production.)

- The limited thickness (about 200 feet) of the productive zone.

- The lack of any evidence of subsidence resulting from the operation of the existing wells in the Oxnard Oil Field.

In 1977, a subsidence study of the Oxnard Oil Field was prepared by DOGGR that focused largely on the anticipated impacts from the potential development of the heavy oil deposits found in the Vaca Tar Sands of the central Oxnard Plain. The DOGGR report concluded that full development of the Vaca Tar Sands could result in as much as 2 feet of subsidence over a 22-year period.

Included in this study are a list of factors that need to be present to induce surface land subsidence due to a depletion of reservoir pressure. These factors include:

- *A significant reduction in reservoir pressure.*
- *Production is effected from a large vertical interval.*
- *Oil and gas, or both, are contained in loose or weakly cemented rock.*
- *The reservoirs have a rather shallow depth.*

Three of the above physical factors would not apply to the proposed project. The fourth factor, a significant reduction in reservoir pressure, would not by itself lead to measurable subsidence without the other necessary conditions.

Based on the above discussion, the potential for measurable or significant subsidence due to the operation of the four proposed new oil wells is less than significant. Furthermore, any minor subsidence effect due to project-related oil and gas operations would not be discernible given the decades-long and continuing subsidence resulting from overdraft of the shallow aquifers regulated by the FCGMA.

Conclusion

Based on the information provided above, there is no substantial evidence to warrant the preparation of a subsequent ND or MND, or of an EIR, pursuant to CEQA Guidelines section 15162. The decision-making body shall consider this Addendum to the 1986 MND prior to making a decision on the project.

D. PUBLIC REVIEW

Pursuant to the CEQA Guidelines section 15164(c), this Addendum to the 1986 MND does not need to be circulated for public review, and shall be included in, or attached to, the 1986 MND.

Prepared by:

Bonnie Luke, Case Planner
Commercial & Industrial Permit Section
Ventura County Planning Division

Reviewed by:

Brian R. Baca, Interim Manager
Commercial & Industrial Permit Section
Ventura County Planning Division

The Planning Director finds that this Addendum has been completed in compliance with the California Environmental Quality Act.

Dave Ward, Director
Ventura County Planning Division

Date

Attachments:

1. Existing Gathering Pipelines Map, Cabrillo Oil Field
2. Project plans
3. 1986 Mitigated Negative Declaration
4. Topical Response to Comment for DCOR Project_PL13-0046
5. BOS Letter_170207 Response to Grand Jury Report on Oil Pipelines
6. Fluid Production data for wells connected to the Naumann facility_2007-2016
7. 2008 Port Hueneme/Oxnard Truck Traffic Study
8. VCAPCD GHG Emissions Estimates Spreadsheet_PL14-0103
9. NOx Flaring Emissions Spreadsheet for 2006-2016
10. NOx Off-site Mobile Sources Emissions Spreadsheet
11. 9-6-17 VCAPCD Memorandum (Estimate of Drilling Emissions)
12. 10-3-18 APCD Memorandum on Health Risk Assessment
    10-4-18 APCD Summary memo. on Health Risk Representation and HRA
13. Ventura County Oil Fields – 2014 Annual Production, Well Statistics (provided by DOGGR)
14. 9-5-17 APCD Memorandum (AQMP Emissions Inventory)
15. APCD Permit to Operate No. 01383
16. Noise Impact Assessment, Sespe Consulting Report dated June 20, 2013
17. 5-21-19 VCAPCD GHG emission estimate for temporary drilling activities