



**Santa Barbara County
Air Pollution Control District**

JUN 27 2008

Mr. Gerardo Rios
USEPA – Permits Office (AIR 3)
75 Hawthorne Street
San Francisco, CA 94105

FID: 00028
Permit: PM 7904-02
SSID: 01063

Re: Proposed Minor Permit Modifications to Venoco Inc.'s Ellwood Onshore Facility Part 70/APCD PTO 7904-R7

Dear Mr. Rios:

This letter transmits Proposed Minor Permit Modification Permit to Operate (PTO) 7904 02 for modifications to Part 70/APCD PTO 7904-R7. Included with the proposed permit is a copy of the application submitted by the applicant for this modification. We plan to issue this minor permit modification as final after August 18, 2008 provided your office has not objected to such issuance during this time interval.

If you have any questions, please contact Ben Ellenberger of my staff at (805) 961-8879.

Sincerely,



Michael Goldman, Manager
Engineering & Compliance Division

enc: Proposed PTO Mod 7904 02
Application forms for Minor Modifications to Venoco's Ellwood Onshore Facility

cc: Ellwood Onshore Facility 00028 Project File SC
ECD Chron File
Brian Shafritz (Cover letter only)



**Santa Barbara County
Air Pollution Control District**

Post Office Box 6447
Santa Barbara, CA 93160-6447

Invoice: PM 07904 - 02

Date: JUN 27 2008

Terms: Net 30 Days

300500/6600

INVOICE

BILL TO:

Accounts Payable
Venoco, Inc.
370 17th Street, Suite 2950
Denver, CO 80202

FACILITY:

Ellwood Onshore Facility
00028
7979 Hollister Avenue
Goleta

Permit: Permit to Operate (PTO) No. 07904 - 02

Fee Type: Permit Evaluation Fee (see the Fee Statement in your permit for a breakdown of the fees)

Amount Due: \$ 354

REMIT PAYMENTS TO THE ABOVE ADDRESS

Please indicate the invoice number PM 07904 - 02
on your remittance.

IF YOU HAVE ANY QUESTIONS REGARDING YOUR INVOICE PLEASE CONTACT
OUR ADMINISTRATION DIVISION AT (805) 961-8800

The APCD charges \$25 for returned checks. Other penalties/fees may be incurred as a result of returned checks and late payment (see APCD Rule 210). Failure to pay this Invoice may result in the cancellation or suspension of your permit. Please notify the APCD regarding any changes to the above information



Permit to Operate Mod Number 7904 02
and
Part 70 Minor Modification Number 7904 02
Page 1 of 8

EQUIPMENT OWNER:

Venoco, Inc

300500

EQUIPMENT OPERATOR:

Venoco, Inc.

EQUIPMENT LOCATION:

7979 Hollister Avenue; Goleta, CA 93117

STATIONARY SOURCE/FACILITY:

Venoco Ellwood Stationary Source
Ellwood Onshore Facility

SSID: 01063
FID: 00028

AUTHORIZED MODIFICATION:

This Permit to Operate Modification (PTO) requires a decrease in the maximum permitted non-CO₂ gas volume combusted in thermal oxidizers H-205, H-206 and H-207 from 201,663 Mscf/year (16.805 Mscf/month) to 196,920 Mscf/year (16.41 Mscf/month) on a non-CO₂ basis. This PTO Mod also allows an increase of the CO₂ content of the gas coming into the facility to 17%. This reduction in flaring volume is being made to ensure continued compliance with District Rule 359 Section D.3.b. Section D.3.b limits planned flaring to no more than 5% by volume on a non-CO₂ basis of the total amount of gas handled at the source. This limit is calculated on a monthly basis. There will be no change of the hourly or daily flow limits to the flares.

The maximum amount of gas handled by the Venoco Ellwood Onshore Facility (EOF) is 13 MMscf. Historically the CO₂ fraction of the gas has been less than 15% by volume. The CO₂ content of the gas handled at the facility has been increasing however, and Venoco has requested that the permit limit be raised to 17% CO₂ by volume. Since the total volume of gas handled by the facility will not increase, the volume of non-CO₂ gas will decrease. Therefore the volume of gas flared must be decreased to stay under the Rule 359 5% limit.

This PTO Mod does not authorize any physical changes to the facility.

EQUIPMENT DESCRIPTION:

The equipment categories affected by modifications in this permit are the following:

- Flare System - The flare system consists of three thermal oxidizers (H-205, H-206 and H-207). The permeate gas from the "Grace" CO₂ removal unit is collected and routed to the fuel system for the process heater (H-204). The gas volume in excess of the process heater firing demand is incinerated in one of the three thermal oxidizers listed above.

Refer to the Equipment List section for a complete listing of devices associated with this project.

PROJECT/PROCESS DESCRIPTION:

Plant Process Description: A complete process description of the EOF operations may be found in the Part 70/APCD Permit to Operate 7904-R7 (December 2005), and the APCD permit ATC 11579 (July 2005) as well as in the APCD's administrative files.

CONDITIONS:

9.A Standard Administrative Conditions

The following federally-enforceable administrative permit conditions apply to the EOF:

A.1 Compliance with Permit Conditions.

- (a) The permittee shall comply with all permit conditions in Sections 9.A, 9.B and 9.C.
- (b) This permit does not convey property rights or exclusive privilege of any sort.
- (c) Any permit noncompliance with sections 9.A, 9.B, or 9.C constitutes a violation of the Clean Air Act and is grounds for enforcement action; for permit termination, revocation and re-issuance, or modification; or for denial of a permit renewal application.
- (d) It shall not be a defense for the permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- (e) A pending permit action or notification of anticipated noncompliance does not stay any permit condition.
- (f) Within a reasonable time period, the permittee shall furnish any information requested by the Control Officer, in writing, for the purpose of determining:
 - (i) compliance with the permit, or
 - (ii) whether or not cause exists to modify, revoke and reissue, or terminate a permit or for an enforcement action.
- (g) In the event that any condition herein is determined to be in conflict with any other condition contained herein, then, if principles of law do not provide to the contrary, the condition most protective of air quality and public health and safety shall prevail to the extent feasible.

[Re: 40 CFR Part 70.6.(a)(6), APCD Rules 1303.D.1]

- A.2 Emergency Provisions.** The permittee shall comply with the requirements of the APCD, Rule 505 (Upset/Breakdown rule) and/or APCD Rule 1303.F, whichever is applicable to the emergency situation. In order to maintain an affirmative defense under Rule 1303.F, the permittee shall provide the APCD, in writing, a "notice of emergency" within 2 working days of the emergency. The "notice of emergency" shall contain the information/documentation listed in Sections (1) through (5) of Rule 1303.F.9 [Re: 40 CFR 70.6(g), APCD Rule 1303.F]

A.3 Compliance Plan.

- (a) The permittee shall comply with all federally-enforceable requirements that become applicable during the permit term in a timely manner.
- (b) For all applicable equipment, the permittee shall implement and comply with any specific compliance plan required under any federally-enforceable rules or standards.

[Re: *APCD Rule 1302.D.2*]

A.4 Right of Entry. The Regional Administrator of USEPA, the Control Officer, or their authorized representatives, upon the presentation of credentials, shall be permitted to enter upon the premises where a Part 70 Source is located or where records must be kept:

- (a) To inspect the stationary source, including monitoring and control equipment, work practices, operations, and emission-related activity;
- (b) To inspect and duplicate, at reasonable times, records required by this Permit to Operate;
- (c) To sample substances or monitor emissions from the source or assess other parameters to assure compliance with the permit or applicable requirements, at reasonable times.

Monitoring of emissions can include source testing.

[Re: *APCD Rule 1303.D.2*]

A.5 Severability. The provisions of this Permit to Operate are severable and if any provision of this Permit to Operate is held invalid, the remainder of this Permit to Operate shall not be affected thereby. [Re: *APCD Rules 103 and 1303.D.1*]

A.6 Payment of Fees. The permittee shall reimburse the APCD for all its Part 70 permit processing and compliance expenses, including expenses associated with implementation of permit conditions incorporated pursuant to Abatement Order 99-6A, for the stationary source on a timely basis. Failure to reimburse on a timely basis shall be a violation of this permit and of applicable requirements and can result in forfeiture of the Part 70 permit. Operation without a Part 70 permit subjects the source to potential enforcement action by the APCD and the USEPA pursuant to section 502(a) of the Clean Air Act. [Re: *APCD Rules 1303.D.1 and 1304.D.11, 40 CFR 70.6(a)(7), AO 99-6A*]

A.7 Deviation from Permit Requirements. The permittee shall submit a written report to the APCD documenting each and every deviation from the requirements of this permit or any applicable federal requirements within 7 days after discovery of the violation, but not later than 180 days after the date of occurrence. The report shall clearly document 1) the probable cause and extent of the deviation 2) equipment involved 3) the quantity of excess pollutant emissions if any, and 4) actions taken to correct the deviation. The requirements of this condition shall not apply to deviations reported to APCD in accordance with Rule 505. *Breakdown Conditions*, or Rule 1303.F *Emergency Provisions*. [Re: *APCD Rule 1303.D.1, 40 CFR 70.6(a) (3)*]

A.8 Federally-enforceable Conditions. Each federally-enforceable condition in this permit shall be enforceable by the USEPA and members of the public. None of the conditions in the APCD-only enforceable section of this permit are federally enforceable or subject to the public/USEPA review. [Re: *CAAA, § 502(b)(6), 40 CFR 70.6(b)*]

A.9 Reporting Requirements/Compliance Certification. The permittee shall submit compliance certification reports to the USEPA and the Control Officer every six months. These reports shall be submitted on APCD forms and shall identify each applicable requirement/condition of the permit, the compliance status with each requirement/condition, the monitoring methods used to determine compliance, whether the compliance was continuous or intermittent, and include

detailed information on the occurrence and correction of any deviations (excluding emergency upsets) from permit requirement. The reporting periods shall be each half of the calendar year, e.g., January through June for the first half of the year. These reports shall be submitted by September 1 and March 1, respectively, each year. Supporting monitoring data shall be submitted in accordance with the "Semi-Annual Compliance Verification Report" condition in section 9.C. The permittee shall include a written statement from the responsible official, which certifies the truth, accuracy, and completeness of the reports. [Re: APCD Rules 1303.D.1, 1302.D.3, 1303.2.c]

A.10 Recordkeeping Requirements. The permittee shall maintain records of required monitoring information that include the following:

- (a) The date, place as defined in the permit, and time of sampling or measurements;
- (b) The date(s) analyses were performed;
- (c) The company or entity that performed the analyses;
- (d) The analytical techniques or methods used;
- (e) The results of such analyses; and
- (f) The operating conditions as existing at the time of sampling or measurement;

The records, as well as all supporting information including calibration and maintenance records, shall be maintained for a minimum of five (5) years from date of initial entry by the permittee and shall be made available to the APCD upon request.

[Re: APCD Rule 1303.D.1.f, 40 CFR 70.6(a)(3)(ii)(A)]

A.11 Conditions for Permit Reopening. The permit shall be reopened and revised for cause under any of the following circumstances:

- (a) Additional Requirements: If additional applicable requirements (e.g., NSPS or MACT) become applicable to the source which has an unexpired permit term of three (3) or more years, the permit shall be reopened. Such a reopening shall be completed no later than 18 months after promulgation of the applicable requirement. However, no such reopening is required if the effective date of the requirement is later than the date on which the permit is due to expire, unless the original permit or any of its terms and conditions has been extended. All such re-openings shall be initiated only after a 30 day notice of intent to reopen the permit has been provided to the permittee, except that a shorter notice may be given in case of an emergency.
- (b) Inaccurate Permit Provisions: If the APCD or the USEPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emission standards or other terms or conditions of the permit, the permit shall be reopened. Such re-openings shall be made as soon as practicable.
- (c) Applicable Requirement: If the APCD or the USEPA determines that the permit must be revised or revoked to assure compliance with any applicable requirement including a federally-enforceable requirement, the permit shall be reopened. Such re-openings shall be made as soon as practicable.

Administrative procedures to reopen a permit shall follow the same procedures as apply to initial permit issuance. Re-openings shall affect only those parts of the permit for which causes to reopen exist. If the permit is reopened, and revised, it will be reissued with the expiration date that was listed in the permit before the re-opening. [Re: 40 CFR 70.7(f), 40 CFR 70.6(a)]

9.B Generic Conditions

The generic conditions listed below apply to all emission units, regardless of their category or emission rates. These conditions are federally enforceable. Compliance with these requirements is discussed in Section 3. In case of a discrepancy between the wording of a condition and the applicable federal or APCD rule(s), the wording of the rule shall control.

- B.1 Circumvention (Rule 301).** A person shall not build, erect, install, or use any article, machine, equipment or other contrivance, the use of which, without resulting in a reduction in the total release of air contaminants to the atmosphere, reduces or conceals an emission which would otherwise constitute a violation of Division 26 (Air Resources) of the Health and Safety Code of the State of California or of these Rules and Regulations. This Rule shall not apply to cases in which the only violation involved is of Section 41700 of the Health and Safety Code of the State of California, or of APCD Rule 303. [*Re: APCD Rule 301*]
- B.2 Visible Emissions (Rule 302):** Venoco shall not discharge into the atmosphere from any single source of emission any air contaminants for a period or periods aggregating more than three minutes in any one hour which is:
- (a) As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
 - (b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection B.2.(a) above.
- For those sources listed in Condition 9.C.24, Venoco shall be in compliance with the requirements of this Rule in accordance with the monitoring and compliance recordkeeping procedures in Condition 9.C.26. [*Re: APCD Rule 302*]. .
- B.3 Nuisance (Rule 303).** No pollutant emissions from any source at Venoco shall create nuisance conditions. No operations shall endanger health, safety or comfort, nor shall they damage any property or business. [*Re: APCD Rule 303*]
- B.4 PM Concentration - South Zone (Rule 305).** Venoco shall not discharge into the atmosphere, from any source, particulate matter in excess of the concentrations listed in Table 305(a) of Rule 305. [*Re: APCD Rule 305*]
- B.5 Specific Contaminants (Rule 309).** Venoco shall not discharge into the atmosphere from any single source sulfur compounds, carbon monoxide and combustion contaminants in excess of the applicable standards listed in Sections A, E and G of Rule 309. [*Re: APCD Rule 309*].
- B.6 Sulfur Content of Fuels (Rule 311).** Venoco shall not burn fuels with a sulfur content in excess of 0.5% (by weight) for liquid fuels and 239 ppmvd or 15 gr/100 scf (calculated as H₂S) for gaseous fuel (most gaseous fuel burning equipment at EOF is subject to more stringent sulfur content limits). Compliance with the requirements pertaining to gaseous fuels shall be based on measurements of the in-plant fuel gas using continuous analyzers, sulfur detection tubes, ASTM, or other APCD-approved methods; and, compliance with the requirements pertaining to liquid fuels shall be based on diesel fuel billing records or other data showing the certified sulfur content for each shipment. [*Re: APCD Rule 311*]

9.C Equipment-Specific Conditions

NOTE: The conditions below revise the existing permit conditions and tables 5.1-5.3, 10.2-4 and 10.2-5 in Part 70/APCD PTO 7904-R7 for EOF (issued December 2005) and tables 5.1-5.3, 10.2-4 and 10.2-5 in PTO 11579 (dated May 27, 2008). All conditions and tables in the Part 70/APCD PTO 7904-R7 for EOF not addressed by PTO 11579 or this PTO Mod 7904 02, remain intact and in full force.

C.2 **Combustion: Thermal Oxidizers.** The following equipment is included in this emission category:

APCD ID No.	Venoco Equipment ID No.	Name
000288	H-205	Thermal Oxidizer, H-205 (140 MMBtu/hr)
000287	H-206	Thermal Oxidizer, H-206 (220 MMBtu/hr)
000286	H-207	Thermal Oxidizer, H-207 (9.5 MMBtu/hr)

(a) **Emission Limits:** The following equipment-specific emission limits apply to the thermal oxidizer units listed above:

- (i) *Mass Emission Rate Limits* - Mass emission rates resulting from the operation the equipment listed above shall not exceed the corresponding values listed in Table 5.1-3 and Table 5.1-4. Compliance with this condition shall be based on in-plant fuel gas and flare gas (Ref: APCD Rule 359 'definitions') usage, and analyses of total sulfur and high heating values of the in-plant fuel gas and flare gas.
- (ii) *Oxides of Nitrogen (NO_x) Mass Emission Rate Limit* - Emissions of NO_x (as NO₂) from the H-205 thermal oxidizer (at any load or in any operating condition) shall not exceed 0.070 lb/MMBtu. Compliance with this condition shall be based on source testing.
- (iii) *Reactive Organic Compound (ROC) Mass Emission Rate Limit* - Emissions of ROC from the H-205 thermal oxidizer (at any load or in any operating condition) shall not exceed 0.0030 lb/MMBtu. Compliance with this condition shall be based on source testing.

(b) **Operation Limits:** Operation of the equipment listed above shall be conducted in compliance with all data, specifications and assumptions included with the applications (and supplements thereof) as documented in the APCD project files and in the APCD's engineering analyses under which this permit is issued. As it relates to emissions, the equipment listed above shall be properly maintained in accordance with the equipment manufacturer's maintenance manual.

The following specific operational limits also apply to Units H-205, H-206 and H-207:

- (i) *Hourly Heat Input Limits* – The maximum permitted hourly heat input to each thermal oxidizer, including heat input from the pilot gas, is listed below:

Thermal Oxidizer	Pilot heat input limit (MMBtu/hr)	Flare gas heat input limit (MMBtu/hr)
H-205	0.06	34.00
H-206	0.34	20.32
H-207	1.00	8.50

Compliance with these limits shall be based on the manufacturer's rating of each flare, and the volume and HHV of gas combusted.

(ii) *Annual Heat Input Limit* – The annual heat input to all three flares combined, including heat input from the pilot gas, shall not exceed 221,749 MMbtu. Compliance with this limit shall be based on the volume and HHV of gas combusted.

(iii) *Flare Gas Volume Limits* – Planned continuous flaring in H-206 and H-207 shall not exceed 120,000 scf/day each. Planned flaring (continuous plus intermittent) from all flares at the facility combined shall not exceed 16,410,000 scf/month.

The CO₂ portion of the flare gas and the volume of LO-Cat exhaust air burned in H-205 is not counted against these limits.

(iv) *Planned/Unplanned Operations* - The definition of the words planned, unplanned, and emergency in this permit condition are based upon the definitions in Rule 359. The following operating limits shall apply to the equipment and operations described by this permit:

- a. Except for operations under condition 9.C.2.(b).(iv).c. below, the LO-Cat sulfur removal process shall not process sour gas feedstock unless the H-205 thermal oxidizer and the LO-Cat VRU (*referred to as MOAS in Section 1.4*) are operating to fully incinerate all LO-Cat Oxidizer exhaust.
- b. No more than 4,950 SCFM (basis: 10 percent more than the 4,500 SCFM nominal anticipated flow) of MOAS exhaust air may be delivered to the H-205 thermal oxidizer for incineration.
- c. During any sour gas processing by the LO-Cat sulfur removal process, if the H-205 thermal oxidizer or the Lo Cat VRU (*referred to as MOAS in Section 1.4*) shuts down or are not operating properly for any reason, the LO-Cat sulfur removal process shall also be shut down (i.e., cease sour gas processing) simultaneously. Further, Venoco shall at no time vent LO-Cat exhaust air (or other LO-Cat emission streams) directly to the atmosphere.
- d. With the exception of pilot-gas heat duties as described in Table 5.1-1 of this permit, the H-206 and H-207 thermal oxidizers shall not be operated in any other "*Planned*" continuous operating mode, unless: 1) the H-205 unit is out-of-service or fired on pilot gas only; and, 2) the LO-Cat sulfur removal process is also simultaneously not operating.
- e. Only In-plant fuel gas and gas from V-221 that does not exceed 205 ppmv total sulfur content (calculated as H₂S at standard conditions) may be incinerated in the H-205, H-206, and H-207 units for any "*Planned*" operating modes. Examples of fuel from V-221 may include, Grace Unit permeate gases, LO-Cat Vacuum Flash gases, Seep Collection gases, VRU gas from the iron sponge, and any blend thereof.

(v) *BACT Operations* - The permittee shall apply emission control and design measures that represent Best Available Control Technology (BACT) for ROC emissions to the operation of the modified odor abatement system (MOAS) utilizing the H-205 unit. BACT measures to control ROC emissions from this unit must be in place and operational at all times for the life of the project. BACT for this project is defined as:

- a. The incineration of LO-Cat unit Oxidizer exhaust by the H-205 unit thermal oxidizer, whenever the LO-Cat unit is operating. This shall be verified through operational parameters monitoring and process parameter monitoring alarms specified in Section 9.C.2.(c) of this permit.

- b. Thermal oxidation shall destroy the ROC and benzene contents of all entering air and fuel streams by a minimum 98.5 percent minimum mass destruction efficiency across the thermal oxidizer. This performance specification shall be verified through ROC and benzene emissions source testing as specified in the source testing condition listed below for the H-205 unit, and incineration at the minimum specified temperature of 1400°F using a temperature set point control.
- c. The H-205 thermal oxidizer, when incinerating LO-Cat oxidation air, shall be operated at a temperature no less than the controlled temperature demonstrated to comply with the ROC and benzene destruction efficiency source tests specified in the paragraph above. In no event shall the H-205 set-point temperature be less than 1400 °F. The actual temperature in the thermal oxidizer shall not be less than 5 percent of the applicable set-point temperature for a continuous period exceeding ten (10) minutes duration. The residence time of the combustion gas mixture inside the H-205 unit shall be a minimum of 0.62 seconds any time LO-Cat oxidation air is processed. These performance specifications shall be verified pursuant to process parameter monitoring requirements listed in Section 9.C.2.(c) and during the ROC/benzene emissions source testing required under the same section.

(vi) *Flare Gas Sulfur Limit* - The total sulfur content (calculated as H₂S at standard conditions, 60° F and 14.7 psia) of any gas combusted in each of the thermal oxidizers shall not exceed 205 ppmv.

(c) Monitoring: The following monitoring conditions shall apply to this permit:

- (i) *Source Testing* - The permittee shall conduct annual H-205 unit stack emissions compliance source testing of the air emissions and process parameters listed in Table 9-4 below. The permittee shall submit a written source test plan for to the APCD 30 days prior to the anniversary date. The anniversary source test date shall be January 1st or other date approved by the APCD. The source test plan shall be prepared consistent with the APCD's "*Source Test Procedures Manual*" (revised May 24, 1990 and updates thereof). The permittee shall obtain written APCD approval of the source test plan prior to source testing. The APCD shall be notified at least ten (10) calendar days prior to the start of source testing activity to arrange for a mutually agreeable source test date when APCD personnel may observe the test.

Table 9-4 H-205 Source Test Requirements

Device & Test Point	Pollutant or Parameter	Emission Limits or Parameter Units	Test Method ^(f)
H-205 Thermal Oxidizer Stack	ROC	Raw ppmvd; lb/hr; ROC DRE ^(a)	EPA: M-18 ^(d) , M-2 or M-19
	Benzene	Raw ppmvd; lb/hr; Benzene DRE ^(b)	EPA: M-18 ^(d) , M-2
	NO _x , raw O ₂	0.070 lb/MMBtu @ higher heating value; lb/hr	CARB: M-100
	CO, raw O ₂	Verify Table 5.1-2, H-205 <i>planned</i> use emission factor	CARB: M-100
	Oxidizer Fuel, CO ₂	Flow Rate (SCFH); ROC Content; Benzene Content	Calibrated Fuel Meter; EPA: M-25, M-18
	Stack Flow Rate	SCFH	EPA: M-2 or M-19
H-205 Thermal Oxidizer Inlet Air	ROC	Raw ppmvd, lb/hr	EPA: M-18 ^(d) , plant flowmeter
	Benzene	Raw ppmvd, lb/hr	EPA: M-18 ^(d) , plant flowmeter

Table Notes:

- (a) $ROC\ DRE = (lb/hr\ ROC_{in} - lb/hr\ ROC_{out}) / (lb/hr\ ROC_{in}) * 100\%$
- (b) $Benzene\ DRE = (lb/hr\ Benzene_{in} - lb/hr\ Benzene_{out}) / (lb/hr\ Benzene_{in}) * 100\%$
- (c) M-*** refers to applicable EPA or CARB reference test method number (refer to *APCD Source Test Procedures Manual*).
- (d) The M-18 analysis shall consist of three sequential bag samples, each drawn over a twenty-minute period simultaneously on the inlet and outlet of H-205. For ROC, analysis of the C₁ to C₆₊, and benzene shall be done by gas chromatography. CO₂ analysis shall be based on the updated 'Process Stream Sampling Plan' (see Condition 9.C.17) and any subsequent APCD-approved updates.
- (e) $TRS\ DRE = (lb/hr\ TRS_{in} - lb/hr\ TRS_{out}) / (lb/hr\ TRS_{in}) * 100\%$
- (f) Alternate test methods may be accepted by the APCD on a case-by-case basis.
- (g) If M-19 (F-factor) is used to derive stack flow rate, then higher heating value and flow rate of each gas stream) into H-205 shall be measured.

A source test for an item of equipment shall be performed on the scheduled day of testing (the test day mutually agreed to) unless circumstances beyond the control of the operator prevent completion of the test on the scheduled day. Such circumstances include mechanical malfunction of the equipment to be tested, malfunction of the source test equipment, delays in source test contractor arrival and/or set-up, or unsafe conditions on site. Except in cases of an emergency, the operator shall seek and obtain APCD approval before deferring or discontinuing a scheduled test, or performing maintenance on the equipment item on the scheduled test day. Once the sample probe has been inserted into the exhaust stream of the equipment unit to be tested (or extraction of the sample has begun), the test shall proceed in accordance with the approved source test plan. In no case shall a test run be aborted except in the case of an emergency or unless approval is first obtained from the APCD. If the test cannot be completed on the scheduled day, then the test shall be rescheduled for another time with prior authorization by the APCD. Failing to perform the source test of an equipment item on the scheduled test day without a valid reason and without APCD's prior authorization, except in the case of an emergency, shall constitute a violation of this permit. If a test is postponed due to an emergency, written documentation of the emergency event shall be submitted to the APCD by the close of the business day following the scheduled test day.

Source test results shall be submitted to the APCD within forty-five (45) calendar days following the date of source test completion and shall be consistent with the requirements approved within the source test plan. All APCD costs associated with the review and approval of all plans and reports and the witnessing of tests shall be recovered in accordance with the provisions of Rule 210. The APCD may extend any of the timelines listed above for good cause upon written request from Venoco at least three days prior to the due date.

- (ii) *Flare Gas Flow Metering* - Each thermal oxidizer shall be equipped with flare gas flow meters (see detailed diagram in Section 2.1) to measure hourly flow volumes of (a) Flare gases (Reference: # FR-080) and (b) in-plant fuel gas (Reference: # FR-081). Venoco shall record any and all flare events in accordance with APCD Rule 359.G requirements. The flare gas flow metering system shall be designed such that Venoco can measure the hourly and daily flow rate of 'flare gas' to each oxidizer, and in-plant fuel gas to H-205. Venoco shall categorize each 'flow to the oxidizer' event into one of the following categories: "Planned" (includes "Planned – Pilot Gas" and "Planned – Continuous" and "Planned – Intermittent") and "Unplanned".

All meters shall be calibrated for fuel specific gravity (sp. gravity of air = 1.0), delivery pressure and temperature, as well as in accordance with the manufacturer's specifications every six calendar months, not to exceed seven months between calibrations. All meters shall be capable of measuring instantaneous fuel consumption in units of MSCF/day, and be installed and maintained in accordance with ANSI/API 2530 and provide an overall accuracy of ± 5 percent. The clock speed for any circular-chart fuel measurement hardcopy recording device shall be set to no more than 24 hours for one chart cycle. The H-205 unit's flow metering system shall be able to measure, during its continuous operations between the equivalent of 5.0 and 40.0 MMBtu/hr, a gas flow rate that is within 10 to 90 percent of the meter's full scale reading.

The volumetric flow of LO-Cat Oxidizer exhaust airflow delivered to the H-205 unit, traceable to any hour of operation of the LO-Cat Oxidizer, shall be metered separately. Venoco shall comply with the APCD-approved *Flare Volume Minimization and Monitoring Plan* (see Condition 9.C.17) and any subsequent APCD-approved updates.

- (iii) *Flare Gas Heating Value* - The higher heating values (HHV's) of the flare gas (Reference: # FR- 080 Unit) and the in-plant fuel gas (Reference: # FR- 081 Unit) delivered to the H-205, H-206 and H-207 flare system (i.e., pilot gas, planned flare events, and unplanned flare events) shall be analyzed and recorded separately on a calendar weekly basis. The weekly analyses requirement may be waived for any calendar week during which all three thermal oxidizers, including pilots, are completely shutdown and not operating. Also, the weekly analyses requirement may be reduced to a monthly requirement, solely at the discretion of the APCD, if Venoco can demonstrate that the weekly HHV values obtained do not vary by: (a) more than 5 percent from each other during each month, and (b) by 10 percent from each other, at a maximum, during the last six months. The heating value obtained shall also be computationally adjusted to reflect a heating value (Btu/scf) minus the CO₂ content (Refer to Table 2 in Section B, Attachment 10.1). The CO₂ content shall be based on available sampling data; and all such adjusted HHV data shall be logged by Venoco.
- (iv) *Planned Continuous Flare Gas Sulfur Content* – LO-Cat exhaust shall be monitored for hydrogen sulfide on a semi-annual basis by taking measurements using sulfur detection

tubes. Venoco shall add the most recent analysis results for the non-H₂S fraction of total sulfur compounds to derive the total sulfur content.

- (v) *Intermittent Flare Event Sulfur Content* - The sulfur content during all *intermittent* flaring events (either planned or emergency events) shall be continuously monitored for hydrogen sulfide at V-221 with an H₂S monitor and permanent recording device, per its "Continuous Flare Gas H₂S Monitoring Plan" (see Condition 9.C.17) and any subsequent APCD-approved updates. Venoco shall add the most recent analysis results for the non-H₂S fraction of total sulfur compounds to derive the total sulfur content.
- (vi) *Total Sulfur Content* - The total sulfur content of gas combusted during flaring events and for pilot and LO-Cat Oxidizer Exhaust gas, shall be measured on a semi-annual basis using APCD-approved ASTM methods. The purpose of these semi-annual analyses is to determine the non-H₂S fraction of total sulfur compounds present these gases and to use these values to correct the hydrogen sulfide values measured using sulfur detection tubes. Venoco shall take the results of the testing and add it to the hydrogen sulfide test results for the subsequent 6-months to obtain an estimate of the total sulfur content of these gases. Venoco shall submit the lab analyses reports to the APCD with the Compliance Verification Reports.
- (vii) *Process Parameter Monitoring and Alarm System Operations* - The permittee shall operate and properly maintain all the process monitors and alarms listed in Table 9-5 below, and for the VRU low pressure monitor and alarm listed in the Table in Section D.23.

Table 9-5 Thermal Oxidizer Process Parameter Monitoring/Alarm Requirements

Equipment Item & Parameter	Monitored Units	Monitoring Method	Recording Method
THERMAL OXIDIZERS			
A. H-205 Combustion Chamber			
1. Temperature Controller Set point	°F	PLC/LED	Log Daily
2. Actual Temp.	°F	TC	Circular Chart ^(a)
3. Low Temp. Alarm	1400 °F	TC/Audible Alarm to alert aberrant condition	See "Actual Temp" Circular Chart specified above.
B. H-205/206/207			
1. Fuel Flows (205/206)	SCFD	Calibrated Flow Meter	Circular Chart ^(a)
2. Fuel Flow (207)	SCFD	Calibrated Flow Meter ^(b)	Circular Chart ^(a)
3. H ₂ S Concentration	H ₂ S ppmv	Continuous	Circular Chart ^(a)
LO-CAT OXIDIZER EXHAUST TO H-205 (DELIVERY LINE & SPENCER BLOWER)			
A. Blower Inlet (Suction) Pressure	Alarm Low @ -1.0 psig	PT/Audible Alarm	Circular Chart ^(a)
B. LO-Cat Exhaust Flow	SCFD	Calibrated Flow Meter	Circular Chart ^(a)
LO-CAT SULFUR REMOVAL UNIT			
A. Regeneration Air Blower Flows (Tanks 1902 & 1903)	Relative Flow Indicator	Annubar "Delta P" Indicators	Circular Chart ^(a)

Table Notes:

- TC = Thermocouple
- PLC = Programmable Logic Controller/Light emitting diode display panel value (or equivalent)
- PT = Pressure Transducer
- N/A = Not Applicable
- (a) = Or, equivalent APCD approved permanent recording method.
- (b) = New flow meter requirement for this device per ATC 9473-03.

- (viii) Flare Gas CO₂ Content - The CO₂ content of gas combusted during flaring events shall be measured on a weekly basis using APCD-approved methods. Venoco shall implement the APCD-approved *Process Stream Sampling Plan* (See also Section 4.11 and Permit Condition 9.C.17) and any subsequent APCD-approved updates. The Plan, addresses the sampling locations, the sampling mechanism, and the collection and analysis methods for the CO₂ content and the HHV of the process stream to the thermal oxidizers. The weekly analyses are required to determine the CO₂ fraction present in these gases and to use these values to correct (a) the volume flow to the thermal oxidizers on a non-CO₂ basis, and (b) to assess the heating value of these gases on a non-CO₂ basis. Venoco shall use the results of the analysis to report (a) the non- CO₂ volume flow to the thermal oxidizers on hourly, daily and annual basis, and (b) the actual heat input to the thermal oxidizers on hourly, daily and annual basis. Venoco shall submit the lab analyses reports to the APCD with the Compliance Verification Reports.

The APCD may, at its discretion, require Venoco to install automated CO₂ samplers or require more frequent sampling, if the CO₂ levels in any three of the samples obtained during any 6-month period fluctuate by more than 10 percent from its average value during that period. Also, any sample obtained during source testing and showing a significant (i.e., beyond 20 percent) deviation in the CO₂ level from the average during this period shall trigger a detailed review and more frequent sampling, if necessary (See also Section 4.3.3). If required, Venoco shall submit an 'automated sampler' Sampling Plan update for APCD approval within 30 days of written notification from the APCD. Such automated sampling shall be implemented no later than six (6) months after APCD notification. Note that the *Process Monitor Calibration and Maintenance Plan* shall also need a separate update to include any automated CO₂ sampler and their operations, if such a sampler is required by the APCD (see also Section 4.10.3). Such an update shall be provided to the APCD no later than six (6) months after the APCD notification for the sampler.

- (ix) Inlet Gas CO₂ Content - The CO₂ content of gas incoming to the EOF from Platform Holly and the Seep Device shall be measured on a monthly basis using an APCD-approved method. (see also Permit Condition 9.C.11) This method is based on the APCD-approved *Process Stream Sampling Plan* (see Condition 9.C.17). The Plan (see also Section 4.11) includes listing of the sampling locations, the sampling mechanism, and the collection and analysis methods for the CO₂ content of the incoming streams to the EOF. The purpose of the monthly analyses is (a) to determine the CO₂ fraction present in these gases, and (b) to ensure the CO₂ content of the incoming streams does not exceed 17% on a monthly basis.

- (d) Recordkeeping: The records required below shall be maintained by the permittee for a minimum period of five (5) calendar years and shall be made available to the APCD personnel upon request:

- (i) Flare Event Volumes - All flaring events shall be recorded in an APCD-approved flare log. The log shall include: date; the thermal oxidizer used (H-205, H-206, H-207); duration of flaring events (start and stop times); quantity of gas flared in units of standard cubic feet; cumulative total volume flared for all events to date through the year (by category); the H₂S

content of the gas flared; reason/cause for the flaring event; whether there were visible emissions; and, the type of event (e.g., planned continuous, planned intermittent or unplanned intermittent). This log shall include all unplanned and planned flaring events.

- (i) *Pilot Volume* - The volume (standard cubic feet) of pilot gas consumed each day and month for each thermal oxidizer shall be recorded in an APCD-approved log.
- (ii) *Flare Event Heat Input*. Venoco shall maintain records of the heat input (Btu/hr, Btu/day, Btu/year) for each thermal oxidizer based on the flow volume and higher heating value of the flared gaseous fuel.
- (iii) *LO-Cat Oxidizer Exhaust Gas Volumes* - The volume (standard cubic feet) of LO-Cat Oxidizer Exhaust gases consumed each day and each month shall be recorded in an APCD-approved log.
- (iv) *Flare Gas Heating Values* – The weekly heating value lab analysis results for the gases combusted in the thermal oxidizers. Include copies of the lab’s analysis sheets, as obtained separately for the two streams at FR-080 and FR-081; and the computed weighted ‘Btu/scf’ value of the flare gases to the thermal oxidizers. Venoco shall record (a) the HHV of the samples obtained and (b) the HHV of the non-CO₂ constituents of the samples (Refer to Table 2 in Section B, Attachment 10.1 for methodology details).
- (v) *Sulfur Content of Continuous Flare Gas Streams* - The daily H₂S sulfur detection tube readings from continuous streams (e.g., pilot, Grace Permeate gas), and semi-annually measured sulfur content data for the LO-Cat exhaust stream
- (vi) *Sulfur Content of Intermittent Flaring Events* - The data (ppmv H₂S) from the continuous H₂S monitoring system at V-221 unit.
- (vii) *Total Sulfur Content Analyses* - The results of the semi-annual analyses for the H₂S and total sulfur content gas combusted during flaring events and pilot and LO-Cat Oxidizer Exhaust gas, along with a calculation of the non-H₂S fraction of the total sulfur compounds that is used to correct the sulfur detection tube and continuous H₂S monitor readings to estimate the total sulfur of these gases for the subsequent year. Include copies of the lab’s analysis sheets.
- (viii) *CO₂ Content of Flare Gases* – (a) All monthly-obtained CO₂ content data for gases incoming to the EOF from Platform Holly and the Seep device and (b) all weekly-obtained data for CO₂ and HHV of the flare gases to the thermal oxidizers, shall be logged by Venoco for the purpose of demonstrating compliance with (a) MMscf/year limit in Table 9-3, and (b) the heat input limits specified in Section 9.C.2.(b).
- (ix) A log of all Breakdown Reports and Deviation Reports filed with the APCD for any equipment described by this permit. This log shall document the information required by APCD Rule 505.
- (x) Results of all source testing for the thermal oxidizers for the reporting period.
- (xii) Maintenance and calibration records of all flow metering, process controllers and process alarms required by this permit.

- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.
[Reference: APCD Rules 359 and 1303, ATC 9473-05, ATC 9473-06, ATC/PTO's 10941 and 11169, and 40 CFR 70.6.(c)]

C.11 **CO₂ Content of EOF Inlet Gases.** For each month, the volume fraction of CO₂ in the mix of gases, from the Platform Holly and the Seep Device, coming to the EOF for additional processing/use shall not exceed 17% of the entire incoming monthly gas volume. Results of the monthly laboratory analyses for CO₂ in the incoming gases and the monthly inlet volume flows from Holly and Seep Device shall be used to verify compliance with this condition.

C.17 **Documents Incorporated by Reference.** The documents listed below, including any APCD-approved updates thereof, are incorporated herein and shall have the full force and effect of a permit condition for this operating permit. These documents shall be implemented for the life of Onshore Facility.

- (i) Fugitive Emissions Inspection and Maintenance (I&M) Plan (Rule 331).for the Ellwood Onshore Facility, (dated 05/28/2002 and approved by the APCD on 10/11/2002) and any subsequent APCD-approved updates.
- (ii) IC Engine Particulate Matter Operation and Maintenance Plan (dated and approved 3/20/2006) and any subsequent APCD-approved updates.
- (iii) Ellwood Onshore facility Degassing Plan (Rule 343), (dated 05/21/2004 and approved by the APCD on 01/11/2005) and any subsequent APCD-approved updates.
- (i) Flare Volume Minimization and Monitoring Plan (updated 3/18/2008 and approved by the APCD in June 2008) and any subsequent APCD-approved updates.
- (ii) Emergency Episode Plan (Rule 603) (submitted on 3/15/02 and approved by the APCD on 8/02) and any subsequent APCD-approved updates.
- (vi) Complaint Response Plan (dated 05/30/2003 and approved on 04/15/2004) and any subsequent APCD-approved updates.
- (vii) Fence Line Monitor Plan (dated 12/16/2003 and approved on 12/24/2003) and any subsequent APCD-approved updates.
- (viii) Abatement Order: Odor Monitoring Implementation Plan (dated 05/21/2004 and approved on 01/11/2005) and any subsequent APCD-approved updates.
- (ix) Process Monitor Calibration and Maintenance Plan (dated and approved January 20, 2006) and any subsequent APCD-approved updates.
- (x) Flare Gas H₂S Continuous Monitoring Plan (dated 01/23/2004 and approved by the APCD on 03/08/2004) and any subsequent APCD-approved updates.
- (xi) Process Stream Sampling Plan (dated 10/08/2004 and approved on 10/11/2004).
[Re: APCD Rules 303, 317, 331, 333, 343, 359, ATC 10941, ATC 11169, Abatement Order 99-6(A)]

D. **APCD-Only Conditions**

The following section lists permit conditions that are not enforceable by the USEPA or the public. However, these conditions are enforceable by the APCD and the State of California. These conditions are issued pursuant to APCD Rule 206 (*Conditional Approval of Authority to Construct or Permit to Operate*)

- D.1 **Permit Activation.** All aspects of this permit are enforceable by the APCD and the State of California upon the issuance date stamped below. The Part 70 aspects of this permit are not final until:
- (a) The USEPA has provided written comments to the APCD and these comments require no modification to this permit. The APCD will issue a letter stating that this permit is a final Part 70 permit. The effective date that this permit will be considered a final Part 70 permit will be the date stamped on the APCD's letter.
 - (b) After the USEPA has provided the APCD written comments that require a modification to this permit, the APCD will modify this permit to address the USEPA's comments and issue the Part 70 permit as final. The re-issued permit will supersede this permit in its entirety.
- D.2 **Compliance.** Nothing contained within this permit shall be construed as allowing the violation of any local, state or federal rules, regulations, air quality standards or increments.
- D.3 **Grounds for Revocation.** Failure to abide by and faithfully comply with this permit or any Rule, Order, or Regulation may constitute grounds for revocation pursuant to California Health & Safety Code Section 42307 et seq.
- D.4 **Combustion: Thermal Oxidizers.** Condition 9.D.9 of PTO 7904-R7 is no longer valid. All permit requirements for H-205, H-206, and H-207 are contained in condition 9.C.2 of this PTO Mod.



AIR POLLUTION CONTROL OFFICER

JUN 27 2008

DATE

Attachment: Permit Evaluation for Permit to Operate Mod 7904 02

Note: Permit reevaluation due date is December 22, 2008



PERMIT EVALUATION for
Permit to Operate Mod 7904 02

Page 1 of 4

1.0 BACKGROUND

1.1 From 2001 through 2004 EOF received and processed an average of 5.42 MMscf/day of gas with an average CO₂ content of 12.4%. The permitted flaring volume limits to comply with Rule 359 were calculated based on a CO₂ content of 15%, which provided a margin for compliance. The CO₂ content of the gas is increasing, therefore Venoco is requesting an increase to 17% to allow continued compliance. This effectively reduces the allowable flare volume on a monthly and annual basis since the basis for Rule 359 flare volume limits for the Venoco process exclude CO₂ from the gas handled.

1.2 Permit History: The following permits have been issued to this facility since PTO 7904-R6 was issued in November, 2002:

ATC/PTO 10941: For installation of four additional CO₂ removal tubes to the existing Grace Unit, allowing Venoco to meet PUC-quality sales gas standards. ATC 10941 was issued in January 2003; PTO 10941 was issued on 24 August 2004.

ATC/PTO 11169: ATC 11169 was issued on 2 September 2004 to address an annual increase of heat input to H-205 unit along with establishing a revised flaring volume limit for CO₂-free flare fuel to H-205, H-206 and H-207. PTO 11169 was issued on 25 February 2005.

ATC/PTO 11579: ATC 11579 was issued on 15 September 2005 to allow the installation of additional CO₂ removal tubes to the existing Grace Unit. PTO 11579 was issued 27 May 2008.

1.3 Compliance History: The most recent Compliance Verification Report for the EOF indicates it is in compliance with all APCD Rules and Regulations. A detailed compliance review of the EOF for earlier operations can be found at the Part 70/APCD PTO 7904-R7 (December 2005).

2.0 ENGINEERING ANALYSIS

- 2.1 Thermal Oxidizer System: Venoco operates a flare gas collection and incineration system that also serves the modified odor abatement system (MOAS). The flare gas is collected at various points and scrubbed at a relief scrubber (V-221). The gases are then sent to the three thermal oxidizers (H-205, H-206 and H-207), with a rated heat input of 140 MMBtu/hr, 220 MMBtu/hr and 9.5 MMBtu/hr, respectively. The pilot gas for the oxidizers is in-plant fuel gas.

Whenever the Lo-Cat system is operating sufficient permeate gas or in-plant fuel gas must be sent to H-205 to ensure the combustion temperature is high enough to effectively destroy the odorous compounds in the Lo-Cat oxidizer exhaust.

A detailed engineering analysis of all emission units at the EOF not discussed in this ATC can be found at the Part 70/APCD PTO 7904-R7 (December 2005).

- 2.2 Emission Controls: A detailed review of emission controls for all emission units at EOF is provided at the Part 70/APCD PTO 7904-R7 (December 2005).
- 2.3 Emission Factors: Emission factors for each emission unit at EOF can be found at the Part 70/APCD PTO 7904-R7 (December 2005).
- 2.4 Reasonable Worst Case Emission Scenario: Section 5 of the Part 70/APCD PTO 7904-R7 (December 2005) defines the operational characteristics that comprise the reasonable worst case-operating scenario for all emission units addressed in this ATC.
- 2.5 Emission Calculations: This permit action affects previously permitted emissions at the facility. The hourly and daily emissions of each flare will be unchanged, but the yearly emissions of the flares will be reduced to reflect the lower allowable flare volume limits. The revised emission information for the facility is presented in detail in Attachment A. For information purposes, the facility-wide emissions to be included in the APCD's IDS emissions inventory data base are presented in Attachment A.
- 2.6 Special Calculations: The maximum allowable flare volume limit is calculated as follows:

Maximum plant inlet rate =	13 MMscfd * 365 = 4745 MMscf/year
Maximum plant CO ₂ =	17%
Maximum plant inlet non-CO ₂ =	4745 MMscf/year (1-0.17) = 3938.4 MMscf/year
Maximum flaring volume (annual) =	3938.4 MMscf/year * 5% = 196.92 MMscf/year
Maximum flaring volume (monthly) =	196.92 MMscf/year / 12 = 16.41 MMscf/month

Based on an average non-CO₂ HHV of 1,126.1 Btu/scf provided by Venoco in the ATC application, the annual heat input to the flares is:

Maximum annual heat input =	196.92 MMscf/yr * 1,126.1 Btu/scf = 221,749 MMBtu/yr
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- 2.7 BACT Analyses: Best Available Control Technology is not required for any emission unit in this ATC.
- 2.8 Enforceable Operational Limits: The total volume of gas flared is limited by permit condition.

- 2.9 Monitoring Requirements: The volume and CO₂ content of gas processed, and volume and CO₂ content of gas flared must be monitored by Venoco.
- 2.10 Recordkeeping and Reporting Requirements: The permit requires that the data which is monitored be recorded and reported to the APCD.

3.0 REGULATORY REVIEW

- 3.1 List of Applicable Rules: Please see Rules discussions in the Part 70/APCD PTO 7904-R7 (dated December 2005).

- 3.2 Rules Requiring Review: Rule 359 *Flares and Thermal Oxidizers* Section D.3.b. requires a flare minimization plan to ensure the volume of gas flared as planned flaring does not exceed 5% of the average monthly gas volume handled/produced/treated at the source. The permit limits ensure compliance with this requirement. The CO₂ portion of the gas flared is inert; since this portion of the gas flow is not combusted in the flares, and is non-hazardous, it is not counted toward the volume limit. The CO₂ portion is also excluded from the volume of gas flared when determining compliance.

Section D.5.c establishes emission standards for flares with planned continuous flaring greater than 120,000 scf/day. Flares H-206 and H-207 are limited to less than 120,000 scf/day planned continuous flaring so the emission standards of Rule 359 do not apply.

- 3.3 NEI Calculations: The net emission increase calculation is used to determine whether certain requirements must be applied to a project (e.g., offsets, AQIA, PSD, BACT). This permit requires a reduction in annual emissions, there is no change in daily emissions. ATC 11169 generated a "P1" term for an increase in annual emissions from the thermal oxidizers. The decrease in annual emissions from the thermal oxidizers due to this PTO will be recorded as a "P2" term. The decrease is calculated as follows:

Decrease in annual flaring:	$227,092 \text{ MMBtu/yr} - 221,749 \text{ MMBtu/yr} = 5,343 \text{ MMBtu/yr}$
Decrease in NO _x (tpy):	$5,343 \text{ MMBtu/yr} \times 0.070 \text{ lb/MMBtu} / 2,000 \text{ lb/ton} = 0.19 \text{ tpy}$
Decrease in ROC (tpy):	$5,343 \text{ MMBtu/yr} \times 0.003 \text{ lb/MMBtu} / 2,000 \text{ lb/ton} = 0.01 \text{ tpy}$
Decrease in CO (tpy):	$5,343 \text{ MMBtu/yr} \times 0.453 \text{ lb/MMBtu} / 2,000 \text{ lb/ton} = 1.21 \text{ tpy}$
Decrease in SO _x (tpy):	$5,343 \text{ MMBtu/yr} \times 0.031 \text{ lb/MMBtu} / 2,000 \text{ lb/ton} = 0.08 \text{ tpy}$
Decrease in PM (tpy):	$5,343 \text{ MMBtu/yr} \times 0.014 \text{ lb/MMBtu} / 2,000 \text{ lb/ton} = 0.04 \text{ tpy}$
Decrease in PM ₁₀ (tpy):	$5,343 \text{ MMBtu/yr} \times 0.014 \text{ lb/MMBtu} / 2,000 \text{ lb/ton} = 0.04 \text{ tpy}$

The change in NEI due to this permit action is shown in Tables 10.2-4 and 10.2-5 of Attachment B.

4.0 AQIA

The project is not subject to the Air Quality Impact Analysis requirements of Regulation VIII.

5.0 OFFSETS/ERCS

The stationary source ROC NEI remains below the Rule 802 offset thresholds, therefore offsets are not required.

6.0 AIR TOXICS

This project results in a decrease of emissions. An air toxics health risk assessment is not required for this permitting action.

7.0 CEQA / LEAD AGENCY

The APCD is the lead agency for this project, since the City of Goleta did not require a land use permit for this project. The modification authorized under this permit is exempt from the California Environmental Quality Act ("CEQA"). The exemptions are authorized per Appendix A, Section 1 (*APCD Projects Exempt from CEQA*), since there is no increase in emissions due to this project.

8.0 SCHOOL NOTIFICATION

A school notice pursuant to the requirements of H&SC §42301.6 was not required.

9.0 PUBLIC and AGENCY NOTIFICATION PROCESS/ COMMENTS ON DRAFT PERMIT

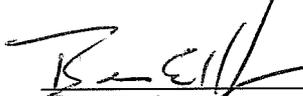
This project is not subject to public notice. The permittee had no comments on the draft permit.

10.0 FEE DETERMINATION

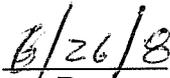
Fees for the APCD's work efforts on this permit and all follow-up work associated with this permit are assessed on a fee-reimbursable basis. An 'estimated' fee statement for this permit is included in Attachment D. The Project Code for this permit is 300500.

11.0 RECOMMENDATION

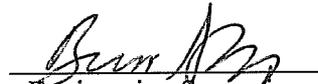
It is recommended that this permit be granted with the conditions as specified in the permit.



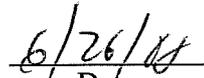
AQ Engineer



Date



Engineering Supervisor



Date

ATTACHMENTS

- A Emission Calculations
- B Net Emissions Increase (NEI) Table
- C Fee Statement

ATTACHMENT A

Emission Calculations

Table 5-1-1
 Venoco Ethanol Oil/Gas Facility, PTO Mod 7904 02
 Operating Equipment Description
 Page 2 of 8

Equipment Category	Emissions Unit	AFCD - IDS Equipment No.	Device Specifications Fuel	Parameter	Usage Data			Maximum Load Schedule						
					Size Units	Capacity Units	Load Units	hr	day	year*	Reference			
Combustion - Flare/TO H-205	Planned - Pilot Gas	***	Gas	DDNV	0.060	MMBtu/hr	0.060	MMBtu/hr	---	1	24	2190	8760	B
	Planned	***	PUC	205	34,000	MMBtu/hr	34,000	MMBtu/hr	---	1	24	1540	6161	
	Unplanned	***	Various	15,000	140,000	MMBtu/hr	140,000	MMBtu/hr	---	0	0	0	0	
H-206 ¹	Planned - Pilot Gas	***	PUC	205	0.340	MMBtu/hr	0.340	MMBtu/hr	---	1	24	2190	8760	B
	Planned	***	Various	205	20,320	MMBtu/hr	20,320	MMBtu/hr	---	1	24	2190	8760	
	Unplanned	***	Various	15,000	220,000	MMBtu/hr	220,000	MMBtu/hr	---	0	0	0	0	
H-207 ¹	Planned - Pilot Gas	***	PUC	205	1,000	MMBtu/hr	1,000	MMBtu/hr	---	1	24	2180	8760	B
	Planned	***	Various	205	8,500	MMBtu/hr	8,500	MMBtu/hr	---	1	24	2190	8760	
	Unplanned	***	Various	15,000	9,500	MMBtu/hr	9,500	MMBtu/hr	---	0	0	0	0	
Combined Units: H-205/206/207	Planned - Pilot Gas	***	PUC	205	1,400	MMBtu/hr	1,400	MMBtu/hr	---	1	24	2180	8760	B
	Planned	***	Various	205	34,000	MMBtu/hr	34,000	MMBtu/hr	---	1	24	1540	6161	
	Unplanned	***	Various	15,000	369,500	MMBtu/hr	369,500	MMBtu/hr	---	0	0	0	0	

1. These thermal oxidizers are not permitted to incinerate Lo-Cat System exhaust.
 * -- The annual hours listed do not constitute any 'hourly/operational limits; the numbers are merely used to compute annual emissions
 -- Annual hours of operation for H-205 are based on a total heat input of 215,364 MMBtu/year for all planned flaring.
 -- Annual hours of operation for the combined units is based on a total heat input of 227,082 MMBtu/year for all planned flaring.

Table 5.1-3
 Venoco Ellwood Oil&Gas Facility, PTO Mod 7804 02
 Hourly and Daily Emissions
 Page 6 of 8

Equipment Category	Emissions Unit	APCD-IDS Enforcement		NOx		RDC		CO		SOx		PM		PM10		Federal Enforceability
		lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	lb/hr	lb/day	
Combustion - Flare/O H-205	Planned - Pilot Gas	0.00	0.10	0.00	0.00	0.03	0.65	0.00	0.04	0.00	0.02	0.00	0.02	0.00	0.02	FE
	Planned	2.38	57.12	0.10	2.45	15.40	368.65	1.04	25.05	0.48	11.42	0.48	11.42	0.48	11.42	FE
	Unplanned	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	FE
H-206	Planned - Pilot Gas	0.02	0.57	0.00	0.02	0.15	3.70	0.01	0.25	0.00	0.11	0.00	0.11	0.00	0.11	FE
	Unplanned	1.99	47.81	0.11	2.63	9.20	220.92	0.62	14.97	0.28	6.83	0.28	6.83	0.28	6.83	FE
H-207	Planned - Pilot Gas	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	FE
	Unplanned	0.07	1.68	0.00	0.07	0.45	10.87	0.03	0.74	0.01	0.34	0.01	0.34	0.01	0.34	FE
Combined Units: H-205/206/207	Planned	0.83	20.00	0.05	1.10	3.85	92.41	0.26	6.26	0.06	1.52	0.06	1.52	0.06	1.52	FE
	Unplanned	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	FE
Worst-Case Flaring Scenario	Planned - Pilot Gas	0.10	2.35	0.00	0.10	0.63	15.22	0.04	1.03	0.02	0.47	0.02	0.47	0.02	0.47	FE
	Planned	2.38	57.12	0.10	2.45	15.40	368.65	1.04	25.05	0.48	11.42	0.48	11.42	0.48	11.42	FE
	Unplanned	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	FE
		2.48	59.47	0.11	2.55	16.04	384.87	1.09	26.06	0.50	11.89	0.50	11.89	0.50	11.89	FE

Notes:
 - FE means federally enforceable
 - A means APCD enforceable only
 - NE means not enforceable

Table 5.1-4
 Venoco Ellwood Oil&Gas Facility: PTO Mod 7904 02
 Annual Emissions
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Equipment Category	Emissions Unit	APCD ID# Equipment No.	NOx lb/yr	ROC lb/yr	CO lb/yr	SOx lb/yr	PM10 lb/yr	PM2.5 lb/yr	Federal Enforceability
Combustion - Flare/TO H-205	Planned - Pilot Gas	***	0.02	0.00	0.12	0.01	0.00	0.00	FE
	Planned	***	7.33	0.31	47.45	3.22	1.47	1.47	FE
	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	FE
H-206	Planned - Pilot Gas	***	0.10	0.00	0.67	0.05	0.02	0.02	FE
	Planned	***	8.73	0.48	40.32	2.73	1.25	1.25	FE
	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	FE
H-207	Planned - Pilot Gas	***	0.31	0.01	1.98	0.13	0.06	0.06	FE
	Planned	***	3.65	0.20	16.87	1.14	0.28	0.28	FE
	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	FE
Combined Units: H-205/206/207	Planned - Pilot Gas	***	0.43	0.02	2.78	0.19	0.09	0.09	FE
	Planned	***	7.33	0.31	47.45	3.22	1.47	1.47	FE
	Unplanned	***	0.00	0.00	0.00	0.00	0.00	0.00	FE
	Worst-Case Flaring Scenario	***	7.76	0.33	50.23	3.40	1.55	1.55	FE

5343.00

Notes:
 - FE means federally enforceable
 - A means APCD enforceable only

Table 5.2
Venoco Ellwood Oil&Gas Facility: PTO Mod 7904 02
Total Permitted Facility Emissions

A. HOURLY (lb/hr)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	2.00	0.20	8.35	1.06	0.27	0.25
Combustion - Flare/TO	2.48	0.11	16.04	1.09	0.50	0.50
Oil Storage Tank	-	0.68	-	-	-	-
Pigging Equipment	-	1.52	-	-	-	-
Sumps/W-W Tanks	-	0.06	-	-	-	-
Loading Rack	-	7.73	-	-	-	-
Fug.Comp. -- Gas Service	-	17.59	-	-	-	-
Fug. Comp. -- Oil Service	-	1.03	-	-	-	-
solvent/coating	-	<u>1.09</u>	-	-	-	-
Totals =	4.48	28.91	24.39	2.15	0.77	0.75

B. DAILY (lb/day)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	48.10	4.69	200.46	25.44	6.48	6.48
Combustion - Flare/TO	59.47	2.55	384.87	26.08	11.89	11.89
Oil Storage Tank	-	16.51	-	-	-	-
Pigging Equipment	-	1.52	-	-	-	-
Sumps/W-W Tanks	-	0.37	-	-	-	-
Loading Rack	-	24.63	-	-	-	-
Fug.Comp. -- Gas Service	-	422.11	-	-	-	-
Fug. Comp. -- Oil Service	-	24.74	-	-	-	-
solvent/coating	-	<u>8.68</u>	-	-	-	-
Totals =	107.57	497.12	585.33	51.53	18.38	18.38

C. ANNUAL (ton/yr)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	8.78	0.86	36.58	4.64	1.18	1.11
Combustion - Flare/TO	7.76	0.33	50.23	3.40	1.55	1.55
Oil Storage Tank	-	3.03	-	-	-	-
Pigging Equipment	-	0.05	-	-	-	-
Sumps/W-W Tanks	-	0.25	-	-	-	-
Loading Rack	-	0.29	-	-	-	-
Fug.Comp. -- Gas Service	-	77.03	-	-	-	-
Fug. Comp. -- Oil Service	-	4.52	-	-	-	-
solvent/coating	-	<u>1.56</u>	-	-	-	-
Totals =	16.54	87.92	86.81	8.05	2.74	2.66

Table 5.3
 Venoco Ellwood Oil&Gas Facility: PTO Mod 7904 02
 Federal Potential to Emit Information

A. HOURLY (lb/hr)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	2.00	0.20	8.35	1.06	0.27	0.25
Combustion - Flare/TO	2.48	0.11	16.04	1.09	0.50	0.50
Oil Storage Tank	-	0.68	-	-	-	-
Pigging Equipment	-	0.00	-	-	-	-
Sumps/W-W Tanks	-	0.00	-	-	-	-
Loading Rack	-	7.73	-	-	-	-
Fug.Comp. -- Gas Service	-	17.59	-	-	-	-
Fug. Comp. -- Oil Service	-	0.00	-	-	-	-
solvent/coating	-	0.00	-	-	-	-
Totals =	4.48	26.30	24.39	2.15	0.77	0.75

B. DAILY (lb/day)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	48.10	4.69	200.46	25.44	6.48	6.48
Combustion - Flare/TO	59.47	2.55	384.87	26.08	11.89	11.89
Combustion - Prev.exempt	402.24	27.36	86.65	4.56	27.36	27.36
Oil Storage Tank	-	16.51	-	-	-	-
Pigging Equipment	-	0.00	-	-	-	-
Sumps/W-W Tanks	-	0.00	-	-	-	-
Loading Rack	-	24.63	-	-	-	-
Fug.Comp. -- Gas Service	-	422.11	-	-	-	-
Fug. Comp. -- Oil Service	-	0.00	-	-	-	-
solvent/coating	-	0.00	-	-	-	-
Totals =	509.81	497.85	671.98	56.09	45.74	45.74

C. ANNUAL (ton/yr)

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Combustion - External	8.78	0.86	36.58	4.64	1.18	1.11
Combustion - Flare/TO	7.76	0.33	50.23	3.40	1.55	1.55
Combustion - Prev.exempt	1.68	0.11	0.36	0.02	0.11	0.11
Oil Storage Tank	-	3.03	-	-	-	-
Pigging Equipment	-	0.00	-	-	-	-
Sumps/W-W Tanks	-	0.00	-	-	-	-
Loading Rack	-	0.29	-	-	-	-
Fug.Comp. -- Gas Service	-	77.03	-	-	-	-
Fug. Comp. -- Oil Service	-	0.00	-	-	-	-
solvent/coating	-	0.00	-	-	-	-
Totals =	18.22	81.65	87.17	8.07	2.85	2.77

ATTACHMENT B

Net Emissions Increase Table

Table 10.2-4

Venoco Ellwood Oil&Gas Facility: PTO Mod 7904 02
Facility #0028 NEI-90

I. This PTO's "I" (NEI-90)

Permit No.	Date Issued	NOx		ROC		CO		SOx		PM		PM10	
		lb/day	ton/yr										
PTO Mod 7904 02	April '08	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

II. This Facility's "P1s"

Enter all facility "P1" NEI-90s below:

Permit No.	Date Issued	NOx		ROC		CO		SOx		PM		PM10	
		lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr
ATC 8262	Dec '91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC 9217-01	Sept '94	0.00	0.00	0.00	0.00	158.40	28.90	0.00	0.00	5.30	1.00	5.30	1.00
ATC 9218	Feb '98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC 9473-06	Apr '99	57.99	4.40	2.50	0.20	214.90	39.30	38.50	3.40	13.10	1.20	13.10	1.20
ATC 10022	Dec '98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC/PTO 10537	May '99	0.00	0.00	4.20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC 10749	Nov '02	0.00	0.00	3.64	0.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC 10941	Jan '03	48.72	4.82	4.18	0.69	215.39	31.17	21.85	2.16	9.74	0.96	9.74	0.96
ATC 11106	Sep '04	0.00	0.00	1.31	0.04	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ATC 11169	Sep '04	0.00	1.84	0.00	0.08	0.00	11.89	0.00	0.81	0.00	0.37	0.00	0.37
ATC 11579	July '05	0.00	0.00	15.97	2.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals		106.71	11.06	31.70	4.57	588.69	111.26	60.35	6.37	28.14	3.53	28.14	3.53

Notes: (1) Facility NEI from IDS.
(2) Totals only apply to permits for this facility ID. Totals may not appear correct due to rounding.
(3) Because of rounding, values in this table shown as 0.00 are less than 0.005, but greater than zero.

III. This Facility's "P2" NEI-90 Decreases (based on (29 + 4.6) MMBtu/hr of emissions and on "P1" based limits)

Enter all facility "P2" NEI-90s below:

Permit No.	Date Issued	NOx		ROC		CO		SOx		PM		PM10	
		lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr
ATC 10941	Jan '03	56.45	4.40	2.42	0.20	365.30	39.30	25.32	3.40	11.29	1.20	11.29	1.20
PTO Mod 7904 02	Jun '08	0.00	0.19	0.00	0.01	0.00	1.21	0.00	0.08	0.00	0.04	0.00	0.04
Totals		56.45	4.59	2.42	0.21	365.30	40.51	25.32	3.48	11.29	1.24	11.29	1.24

Notes: (1) Facility NEI from IDS.
(2) Totals only apply to permits for this facility ID. Totals may not appear correct due to rounding.
(3) Because of rounding, values in this table shown as 0.00 are less than 0.005, but greater than zero.

IV. This Facility's Pre-90 "D" Decreases

Enter all facility "D" decreases below:

Permit No.	Date Issued	NOx		ROC		CO		SOx		PM		PM10	
		lb/day	ton/yr										
None		0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals		0.00											

Notes: (1) Facility "D" from IDS.
(2) Totals only apply to permits for this facility ID. Totals may not appear correct due to rounding.
(3) Because of rounding, values in this table shown as 0.00 are less than 0.005, but greater than zero.

V. Calculate This Facility's NEI-90

Table below summarizes facility NEI-90 as equal to: I+ (P1-P2) -D

Term	NOx		ROC		CO		SOx		PM		PM10	
	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr
PTO "I" (see P1)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P1	106.71	11.06	31.70	4.57	588.69	111.26	60.35	6.37	28.14	3.53	28.14	3.53
P2	56.45	4.59	2.42	0.21	365.30	40.51	25.32	3.48	11.29	1.24	11.29	1.24
D	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FNEI-90	50.26	6.47	29.28	4.36	223.39	70.75	35.03	2.89	16.85	2.29	16.85	2.29

Notes: (1) Resultant FNEI-90 from above Section I thru IV data.
(2) Totals only apply to permits for this facility ID. Totals may not appear correct due to rounding.
(3) Because of rounding, values in this table shown as 0.00 are less than 0.005, but greater than zero.

Table 10.2-5
Venoco Ellwood Oil&Gas Facility: PTO Mod 7904 02
Ellwood Source #0028 NEI-90

Facility No.	Effective Permit	Effective Date	NOx		ROC		CO		SOx		PM		PM10	
			lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr	lb/day	ton/yr
0028	Reeval 7904-R7+ATC 11579+PTO Mod 7904 02	current	50.26	6.47	29.28	4.36	223.39	70.75	35.03	2.89	16.85	2.29	16.85	2.29
3105	Reeval 8234-R5	current	4.67	0.77	10.58	1.87	25.40	4.20	2.34	1.06	1.37	0.23	1.37	0.23
1065	PT-70/Reeval 4441-R2	current	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3035	PT-70/Reeval 8103-R4	May '98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals =			54.93	7.24	39.86	6.23	248.79	74.95	37.37	3.95	18.22	2.52	18.22	2.52

Notes:

- (1) Facility NEI from IDS.
- (2) Totals only apply to permits for this facility ID. Totals may not appear correct due to rounding.
- (3) Because of rounding, values in this table shown as 0.00 are less than 0.005, but greater than zero.

ATTACHMENT C

FEE STATEMENT

PTO No. 12629

FID: 00028 Ellwood Onshore Facility / SSID: 01063



**Santa Barbara County
Air Pollution Control District**

Permit Fee

Admin Change

354.00

Fee Statement Grand Total = \$354

Notes:

- (1) Fee Schedule Items are listed in APCD Rule 210, Fee Schedule "A".
- (2) The term "Units" refers to the unit of measure defined in the Fee Schedule.