Santa Barbara County
Air Pollution Control District

Permit to Operate 11062

EQUIPMENT OWNER:

Santa Maria Energy, LLC.

EQUIPMENT OPERATOR:

Santa Maria Energy, LLC.

EQUIPMENT LOCATION:

Casmalia Hills Exploration Site, located on NTU Road about 3.2 miles due west of the intersection of Highway 1 and Black Road and one mile north-northwest of the Casmalia Waste Disposal site. The facility is comprised of the Stokes A, Stokes B and Righetti oil leases.

STATIONARY SOURCE/FACILITY:

Santa Maria Energy - Casmalia Field NW	SSID: 10273
Casmalia Field NW	FID: 10393

EQUIPMENT DESCRIPTION:

The equipment subject to this permit is listed in the table at the end of this permit.

PROJECT/PROCESS DESCRIPTION:

PUC quality natural gas fired steam generators is used to periodically stimulate the wells for approximately 2 to 6 days. After stimulation, the well is shut-in for a period of 1 to 4 days and then placed into production. The wells use produced steam to gas-lift the reservoir produced fluids to the surface. The "casing blow" steam and vapors are vented to atmosphere. There are no well cellars. Produced gas hydrogen sulfide concentrations are approximately 3,000 ppmv. All produced gas is re-injected on-site and is not combusted in any equipment.

The produced oil, water, and gas from each well is sent through a production manifold to an air-cooled heat exchanger to reduce the temperature of the produced fluid to approximately 190 °F and then through a gas and liquid stratifier (degassifier). The gas from the stratifier is routed via a two inch pipeline down the hill to the top of the wash tank located at the production battery. The oil and water emulsion is directed from the stratifier via a four inch pipeline down the hill to the wash tank

gas boot. The liquid from the gas boot is piped into the base of the wash tank and the gas is piped into the top of the wash tank.

The oil from the wash tank is piped to the shipping tank and shipped from the facility via a truck loading rack. Water from the wash tank is sent to the wastewater tank. Oil that does not meet the specifications for shipping is sent to the reject tank and then redirected to the wash tank.

The tanks and loading rack are connected to a vapor recovery system. The recovered vapors are sent through the vapor recovery system consisting of an aerial cooler, gas and liquid separator, vapor recovery compressor, two inch piping and a gas/water disposal well located midway up the hill.

An advanced and fully closed automatic well test device located adjacent to the production manifold and used to periodically measure four-phase fluid production from each well.

CONDITIONS:

1. **Emission Limitations.** The mass emissions from the equipment permitted herein shall not exceed the values listed in Table 1. Compliance shall be based on the operational, monitoring, recordkeeping and reporting conditions of this permit.

   a. *Steam Generator Oxides of Nitrogen (NO_X) Concentration Emissions Limits.* Emissions of NO_X (as NO_2) from each steam generator subject to this permit shall not exceed a NO_X stack concentration of 14 ppmvd at 3% O_2 or a stack emission rate of 0.017 lb/MMBtu. Compliance with this condition shall be based on source testing and the monitoring conditions of this permit.

   b. *Steam Generator Reactive Organic Compounds (ROC) Concentration Emissions Limits.* Emissions of ROC from each steam generator subject to this permit shall not exceed a ROC stack concentration of 7 ppmvd at 3% O_2 or a stack emission rate of 0.003 lb/MMBtu. Compliance with this condition shall be based on source testing and the monitoring conditions of this permit.

   c. *Steam Generator Carbon Monoxide (CO) Concentration Emissions Limits.* Emissions of CO from each steam generator subject to this permit shall not exceed a CO stack concentration of 27 ppmvd at 3% O_2 or a stack emission rate of 0.020 lb/MMBtu. Compliance with this condition shall be based on source testing and the monitoring conditions of this permit.

2. **Operational Restrictions.** The permitted equipment is subject to the following operational restrictions:

   a. *Throughput Limitation.* The following throughput limitations shall not be exceeded:

Oil production[(a)]	1,200 bbl/day
Gas Production[(a)]	25,000 scf/day

   (a) Calculated as monthly production divided by the number of producing days.

   b. *Heat Input Limits.* The hourly, daily and annual heat input limits to the steam generators shall not exceed the values listed below. These limits are based on the design rating of the burners and the annual heat input value as listed in the permit application. Unless otherwise designated by the Control Officer, the following fuel heat content shall be used for determining compliance: Natural gas = 1,050 Btu/scf.

Steam Generator #1		
Hourly Heat Input	26.500	MMBtu/hour
Daily Heat Input	636.000	MMBtu/day
Annual Heat Input	232,140.000	MMBtu/year

Steam Generator #2		
Hourly Heat Input	26.500	MMBtu/hour
Daily Heat Input	636.000	MMBtu/day
Annual Heat Input	232,140.000	MMBtu/year

   c. *Gaseous Fuel Sulfur Limit.* The total sulfur content (calculated as H_2S at standard conditions, 60° F and 14.7 psia) of the gaseous fuel burned as fuel or combusted in the steam generators shall not exceed 5 grains per 100 cubic feet (80 ppmv). In order to ensure that this limit is not exceeded, the operator shall use PUC quality natural gas.

   d. *Oil Loading Rack Operation.* The loading rack used to ship oil from the facility shall use bottom-loading and a vapor recovery system that prevents the vapors displaced during loading from being released into the atmosphere. The operator shall also use either a block and bleed valve system or other connectors with equivalent spill prevention characteristics. Additionally the operator shall use one of the following devices to prevent overfill:

      i. A primary overfill protection system consisting of a preset fill meter with automatic flow shutoff and a secondary overfill protection system consisting of a liquid level sensor with the ability to signal high level to activate a control valve to shut off flow, or

      ii. A combination of overfill devices and/or procedures, submitted in writing to the Control Officer, that is at least as effective in preventing overfill spillage as the

system described above. District written approval must be obtained prior to implementing this option.

3. **Monitoring.** The permitted equipment is subject to the following monitoring requirements:

   a. The volumes of oil (in bbls) produced from each production module shall be measured through the use of calibrated meters or through the use of a District-approved alternate method. The meters shall be calibrated according to manufacturer's specifications and the calibration records shall be made available to the District upon request.

   b. On an annual basis: (1) the API gravity shall be measured and recorded and, (2) the true vapor pressure (TVP) at the maximum expected temperature of the crude oil in each storage tank shall be measured by using ASTM method D 323-82, (if API gravity is equal to or greater than 20 degrees) or the HOST Method (if API gravity is under 20 degrees), and recorded. Samples of crude oil shall be obtained from an active flow line into each tank, or from the tank, provided that there is an active flow of crude oil into the tank.

      If ASTM D323 applies, the TVP at the maximum expected temperature shall be calculated from the Reid vapor pressure in accordance with API Bulletin 2518, or equivalent Reid/true vapor pressure correlation. The calculated true vapor pressure shall be based on the maximum expected operating temperature for each crude oil storage tank.

   c. The volumes of PUC quality natural gas (in scf) burned in each steam generator shall be measured through the use of calibrated temperature and pressure corrected meters or through the use of a District-approved alternate method. The meters shall be calibrated according to manufacturer's specifications and the calibration records shall be made available to the District upon request.

   d. The volume (in units of standard cubic feet) of produced gas sent to the gas injection well(s) each month and for the year as well as the total sulfur content of that gas (as H_2S).

   e. The total sulfur content of the PUC quality fuel gas.

   f. The high heating value (HHV) of the PUC natural gas (Btu/scf) shall be measured annually in accordance with ASTM D-3588 or a District-approved method. Records shall be kept on site and made available for inspection by the District upon request.

   g. The amount of all coatings and solvents used.

   h. The dates and volumes of each shipment from the loading rack.

   i. All monitoring shall be conducted in accordance with the District-approved *Process Monitor Calibration and Maintenance Plan* (previously approved April 20, 2007; to be updated prior to Production Module Equipment Start-Up Period).

4. **Recordkeeping.** The following records shall be maintained by the permittee and shall be made available to the District upon request:

   a. The volume of oil produced each month and the number of days that oil was produced through the tank battery.

   b. The API gravity, true vapor pressure and storage temperature of the oil.

   c. The volume of PUC natural gas combusted each month (in units of standard cubic feet) in each steam generator and the number of days that each steam generator operated.

   d. The volume (in units of standard cubic feet) of produced gas sent to the gas injection well(s) each month and for the year as well as the total sulfur content of that gas (as H_2S).

   e. The total sulfur content of the PUC quality natural gas.

   f. The heating value of the PUC quality natural gas (Btu/scf).

   g. On an annual basis, the amount of coatings and solvents used. This information must be logged for each coating or solvent. The log shall list (for each material) the quantity of material used, the VOC content, whether the material is photochemically reactive per the definition of Rule 102.FF, and whether the material was applied to a surface or disposed of. A Material Safety Data Sheet (MSDS), or other product specification sheet, which specifies the VOC content of the material, shall be maintained with the log.

   h. Daily logs documenting the volume, in barrels, and dates of oil shipments.

   i. The total monthly and annual amount, in barrels, of crude oil trucked from the facility.

   j. Records required by the following District Rules: 325.F, 331.G, 344.G and 346.G.

   k. Records as required by the District-approved *Process Monitor Calibration and Maintenance Plan.*

   l. Records as required by the District-approved *Tank Pressure Monitoring Plan.*

   m. The permittee may make a negative declaration that no records where maintained in a reporting period if no production or activities occurred at the facility.

5. **Reporting.** By March 1st of each year, a written report documenting compliance with the terms and conditions of this permit for the previous calendar year shall be provided by the permittee to the District (Attn: *Annual Report Coordinator*). The report shall contain information necessary to verify compliance with the emission limits and other requirements of this permit. The report shall be in a format approved by the District. All logs and other basic source data not included in the report shall be made available to the District upon request. The report shall include the following information:

a. The volume of oil produced for each month and year, and the number of days that oil was produced.

b. API gravity, true vapor pressure, and storage temperature of the oil.

c. The volume of PUC quality natural gas combusted each month (in units of standard cubic feet) in each steam generator and the number of days that each steam generator operated.

d. The volume of produced gas sent to the gas injection disposal well for each month and year.

e. On an annual basis, a record, provided by the PUC Utility natural gas supplier, of the heating value and sulfur content of the fuel gas supplied to this facility.

f. On an annual basis, a log showing the amount of all coatings and solvents used.

g. The monthly and annual volume of oil shipped from the loading rack and the number of shipments per month and per year.

h. Reporting as required by the District-approved *Process Monitor Calibration and Maintenance Plan.*

i. Reports as required by the District-approved *Tank Pressure Monitoring Plan.*

j. The permittee may make a negative declaration that no records where maintained in a reporting period if no production or activities occurred at the facility.

6. **Production Module Equipment Start-Up Period.** The permittee may temporarily operate the production module permitted herein during a Production Module Equipment Start-Up Period which is not to exceed 180-days per module. Introduction of crude oil into the tank battery from each module defines the start of each Production Module Equipment Start-Up Period. The permittee shall notify the District in writing of the initial day of any operations under each Production Module Equipment Start-Up Period. During the Production Module Equipment Start-Up Period, the permittee shall comply with all operational, monitoring, recordkeeping and reporting requirements as specified in this permit.

a. Prior to the facility's Production Module Equipment Start-Up Period, the permittee shall submit and obtain District approval of the following plans:

i. *Source Test Plan*: The permittee shall submit a source test plan to the District (email: SourceTest@sbcapcd.org) for review and approval prior to the facility's Production Module Equipment Start-Up Period and at least thirty (30) calendar days prior to initiation of each source test. The source test plan shall be prepared consistent with the District's *Source Test Procedures Manual* (revised May 1990 and any subsequent revisions). This plan shall include a technical evaluation on how these engines will be tested at the maximum safest load.

ii. *Fugitive Hydrocarbon Inspection and Maintenance Plan*: The permittee shall submit and obtain District approval of an updated *Fugitive Hydrocarbon Inspection and Maintenance Plan*, perform a complete inspection of components and provide a written report to the District of the results.

iii. *Process Monitor Calibration and Maintenance Plan*: The permittee shall submit and obtain District approval of an updated *Process Monitor Calibration and Maintenance Plan.*

iv. *Tank Pressure Monitoring Plan*: The permittee shall submit and obtain District approval of an updated *Tank Pressure Monitoring Plan.*

v. *Health Risk Assessment:* The permittee shall fulfill the requirements of the Health Risk Assessment condition.

b. *Recordkeeping*: Begin recordkeeping as specified in Recordkeeping condition of this permit.

c. *District Inspection*: The permittee shall arrange for a District inspection not more than 30 calendar days (or other mutually agreed to time period) after each Production Module Equipment Start-Up Period begins. This inspection is required to verify that the equipment and its operation are in compliance with District Rules and permit conditions.

d. *Emission Source Test*: Conduct stack emission source testing of each steam generator within 60 days after the start of the Production Module Equipment Start-Up Period for each module. This testing shall be performed consistent with Table 2 and the *Source Testing* condition of this permit. Source test results shall be submitted to the District within 45 calendar days after completion of the source test and shall be consistent with the requirements of the approved source test plan. Source test results shall document the compliance status with mass emission limits in Table 1 and applicable permit conditions and rules. The District may waive this requirement if the facility has previously initiated operations and is under an ongoing source test schedule as outline under this permit.

7. **BACT.** The permittee shall apply emission control technology and design measures that represent Best Available Control Technology ("BACT"), for NO_x emissions, to the operation of the steam generators. The use of Lo-NO_x burners and Flue Gas Recirculation and the NO_x emission limits listed in permit condition 1 of this permit shall constitute BACT. BACT shall be in place, and shall be operational at all times, for the life of the project.

8. **Source Testing.** The following source testing provisions shall apply:

a. The permittee shall conduct source testing of air emissions and process parameters listed in Table 2 of this permit. More frequent source testing may be required if the equipment does not comply with permitted limitations or if other compliance problems, as determined by the District, occur. Source testing shall be performed on an annual schedule using the date of the initial source test as the anniversary date.

b. The permittee shall submit a written source test plan to the District for approval at least thirty (30) days prior to initiation of each source test. The source test plan shall be prepared consistent with the District's Source Test Procedures Manual (revised May 1990 and any subsequent revisions). The permittee shall obtain written District approval of the source test plan prior to commencement of source testing. The District 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 District personnel may observe the test.

c. Source test results shall be submitted to the District 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. Source test results shall document the permittee's compliance status with mass emission rates in Table 1 and applicable permit conditions and rules. For determining compliance with daily emission limits, the applicable pounds per day value in Table 1 shall be divided by 24 to convert to a "pounds per hour equivalent limit". If the source test "pounds per hour" result for a pollutant exceeds the "pounds per hour equivalent limit", then the source is not in compliance with the pounds per day permitted limit for the applicable pollutant. All District costs associated with the review and approval of all plans and reports and the witnessing of tests shall be paid by the permittee as provided for by District Rule 210.

d. 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 District approval before deferring or discontinuing a scheduled test, or performing maintenance on the equipment item on the scheduled test day. If the test cannot be completed on the scheduled day, then the test shall be rescheduled for another time with prior authorization by the District. 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 District. Failing to perform the source test of an equipment item on the scheduled test day without a valid reason and without District's authorization 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 District by the close of the business day following the scheduled test day.

The timelines in a, b, and c above may be extended for good cause provided a written request is submitted to the District at least three (3) days in advance of the deadline, and approval for the extension is granted by the District.

9. **Health Risk Assessment.** The permittee shall submit a completed health risk assessment (HRA) for District review prior to the Production Module Equipment Start-Up Period. The HRA shall follow the current version of the Modeling Guidelines for Health Risk Assessments,

APCD-15i, available here: http://www.ourair.org/wp-content/uploads/apcd-15i.pdf. If the results of the HRA exceed the District's significant risk thresholds, the permittee shall submit an application for an Authority to Construct (ATC) within 60 days of written notification from the District. The application for the ATC shall demonstrate that through the installation of emission controls, modification of the process, and/or other risk reduction methods, the facility's risk will be reduced below the District's significant risk thresholds. The risk reduction measures shall be implemented within 6 months from the issuance of the ATC for the risk reduction measures.

10. **Crude Oil Sampling.** Samples of crude oil shall be obtained from an active flow line into each tank provided that there is an active flow of crude oil into the tank.

11. **Vapor Recovery System.** The vapor recovery system shall be in operation when the equipment connected to the vapor recovery system at the facility is in use. Santa Maria Energy shall be responsible for operation and maintenance of all piping, valves and flanges associated with the vapor recovery system that serves the Santa Maria Energy tanks and the loading rack when in use by Santa Maria Energy.

    The vapor recovery system shall be maintained and operated to minimize the release of emissions from all systems, including pressure relief valves and gauge hatches. Any gauging or sampling device on the tanks must be equipped with a gas-tight cover which shall be closed and leak free at all times except during gauging or sampling.

12. **Fugitive Hydrocarbon I&M Program.** Santa Maria Energy shall implement the District-approved *Fugitive Hydrocarbon Inspection and Maintenance (I&M) Plan* for this facility. Records shall be kept in accordance with this plan and District Rule 331.

13. **Compliance with Rule 346.** Equipment shall not be used to transfer organic liquids into any organic liquid cargo vessel unless the equipment is in full compliance with District Rule 346.

14. **Requirements for Produced Gas.** The emissions of produced gas shall be controlled at all times using a properly maintained and operated system that directs all produced gas, except gas used in a tank battery vapor recovery system, to one of the following: (a) A system handling gas for fuel, sale, or underground injection; or (b) A flare that combusts reactive organic compounds; or (c) A device with an ROC vapor removal efficiency of at least 90% by weight. The provisions of this condition shall not apply to wells which are undergoing routine maintenance.

15. **Consistency with Analysis.** Operation under this permit shall be conducted consistent with all data, specifications and assumptions included with the application and supplements thereof (as documented in the District's project file) and the District's analyses under which this permit is issued as documented in the Permit Analyses prepared for and issued with the permit.

16. **Equipment Maintenance.** The equipment listed in this permit shall be properly maintained and kept in good condition at all times. The equipment manufacturer's maintenance manual, maintenance procedures and/or maintenance checklists (if any) shall be kept on site.

17. **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.

18. **Severability.** In the event that any condition herein is determined to be invalid, all other conditions shall remain in force.

19. **Conflict Between Permits.** The requirements or limits that are more protective of air quality shall apply if any conflict arises between the requirements and limits of this permit and any other permitting actions associated with the equipment permitted herein.

20. **Access to Records and Facilities.** As to any condition that requires for its effective enforcement the inspection of records or facilities by the District or its agents, the permittee shall make such records available or provide access to such facilities upon notice from the District. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A.

21. **Equipment Identification.** Identifying tag(s) or name plate(s) shall be displayed on the equipment to show manufacturer, model number, and serial number. The tag(s) or plate(s) shall be affixed to the equipment in a permanent and conspicuous position.

22. **Emission Factor Revisions.** The District may update the emission factors for any calculation based on USEPA AP-42 or District emission factors at the next permit modification or permit reevaluation to account for USEPA and/or District revisions to the underlying emission factors.

23. **Nuisance.** Except as otherwise provided in Section 41705 of the California H&SC, no person shall discharge from any source whatsoever such quantities of air contaminants or other material which cause injury, detriment, nuisance, or annoyance to any considerable number of persons or to the public, or which endanger the comfort, repose, health, or safety of any such persons or the public, or which cause, or have a natural tendency to cause, injury or damage to business or property.

24. **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*.

25. **Transfer of Owner/Operator.** This permit is only valid for the owner and operator listed on this permit unless a *Transfer of Owner/Operator* application has been applied for and received by the District. Any transfer of ownership or change in operator shall be done in a manner as specified in District Rule 203. District Form –01T and the appropriate filing fee shall be submitted to the District within 30 days of the transfer.

26. **Documents Incorporated by Reference.** The documents listed below, including any District-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 the project and shall be made available to District inspection staff upon request.

    (a) *Fugitive Hydrocarbon Inspection and Maintenance Plan* (to be updated prior to Production Module Equipment Start-Up Period)

    (b) *Process Monitor Calibration and Maintenance Plan* (to be updated prior to Production Module Equipment Start-Up Period)

    (c) *Tank Pressure Monitoring Plan* (to be updated prior to Production Module Equipment Start-Up Period)

AIR POLLUTION CONTROL OFFICER

APR 28 2015

DATE

Attachments:

- Table 1 – Module 1 Permitted Emission Limits
- Table 2 – Source Test Requirements
- Table 3 – Best Available Control Technology Requirements
- Permit Equipment List(s)
- Permit Evaluation for Permit to Operate 11062

Notes:

- Reevaluation Due Date: May 1, 2018
- Stationary sources are subject to an annual emission fee (see Fee Schedule B-3 of Rule 210).
- Annual reports are due by March 1st of each year.
- This permit supersedes ATC Mod 11062-02

Table 1
Module 1 Permitted Emissions

Equipment Category	NOx	ROC	CO	SOx	PM	PM10
Module 1						
Wash Tank						
lbs/day		0.01				
tons/year		0.00				
Shipping Tank						
lbs/day		0.50				
tons/year		0.09				
Reject Tank						
lbs/day		1.71				
tons/year		0.31				
Loading Rack						
lbs/day		8.60				
tons/year		1.57				
Wastewater Tank						
lbs/day		0.23				
tons/year		0.04				
26.500 MMBtu/hr Steam Generator (2x)						
lbs/hr	0.95	0.16	1.06	0.73	0.40	0.40
lbs/day	22.90	3.82	25.44	17.40	9.54	9.54
tons/year	4.18	0.70	4.64	3.18	1.74	1.74
Fugitive Emissions (16 wells)						
lbs/day		9.06				
tons/year		1.65				
Module 1 Total						
lbs/day	**22.90**	**23.93**	**25.44**	**17.40**	**9.54**	**9.54**
tons/year	**4.18**	**4.37**	**4.64**	**3.18**	**1.74**	**1.74**

Table 2
Steam Generator Source Test Requirements

Emission Points	Pollutants/Parameters	Test Method
Stacks	NO_X – ppmv & lb/hour	EPA Method 7E
	CO - ppmv & lb/hour	EPA Method 10
	ROC – ppmv & lb/hour	EPA Method 18
	Sampling Point Dtr	EPA Method 1
	Stack Gas Flow Rate	EPA Method 2
	O_2, CO_2, Dry Mol Wt	EPA Method 3
	Moisture Content	EPA Method 4
Gas Line	Fuel Gas Flow	Plant Gas Meter
	Higher Heating Value	ASTM D-1826-88
	Total Sulfur Content	ASTM D-1072

Site Specific Requirements

a. Alternative methods may be acceptable on a case-by-case basis.

b. This test is required to characterize the maximum hourly potential to emit when fired on natural gas for NO_X, CO and ROC in both units of ppmvd (at standard conditions and 3% O_2) and pounds per hour. The test shall be performed at the maximum attainable firing rate allowed by this permit.

c. The emission rates shall be based on EPA Methods 2 and 4, or Method 19 along with the heat input rate.

d. For NO_X, CO and O_2, a minimum of three 40-minute runs shall be obtained during each test. An ROC sample for each run shall be taken over a minimum of 5 minutes in accordance with the sampling protocol defined in the source test plan.

Table Notes

ROC = Reactive Organic Compounds per District Rule 205
Dtr = Determination

Table 3
Best Available Control Technology Requirements

Emission Source	Pollutant	BACT Technology	BACT Performance Standard
26.500 MMBtu/hr Steam Generators	NO_X	Low - NO_X burner and Flue Gas Recirculation	NO_X emissions no greater than 14 ppmv at 3% O_2

PERMIT EQUIPMENT LIST - TABLE A

PTO 11062 / FID: 10393 Casmalia Field NW / SSID: 10273

A PERMITTED EQUIPMENT

1 Production Module #1

1.1 Oil & Gas Wells #1

Device ID #	**105298**	***Device Name***	**Oil & Gas Wells #1**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	13 oil and gas producing wells and 3 waste (water and gas) injection wells. Stokes A Lease: 9 oil and gas wells Stokes B Lease: 2 oil and gas wells and 3 waste disposal wells Righetti Lease: 2 oil and gas wells		

1.2 Production Aerial Cooler

Device ID #	**109767**	***Device Name***	**Production Aerial Cooler**
Rated Heat Input		*Physical Size*	5.00 Horsepower
Manufacturer		*Operator ID*	H-200
Model		*Serial Number*	
Location Note	Top of the hill		
Device Description	Fan motors E-200A/B 5 hp total		

1.3 In-Line Phase Separator (Degassifier)

Device ID #	**109760**	***Device Name***	**In-Line Phase Separator (Degassifier)**
Rated Heat Input		*Physical Size*	
Manufacturer	Fabricated	*Operator ID*	tbd
Model		*Serial Number*	
Location Note	Top of the hill above the fin-fan cooler and well test system		
Device Description	4-inch inlet, 4-inch liquid outlet, 2-inch gas outlet. Vessel size: 18-inch diameter by 14-feet long Schedule 40. Gas line is routed to the routed wash tank. Liquid line is routed to the fin-fan cooler.		

1.4 Advanced Well Test System

Device ID #	**105314**	***Device Name***	**Advanced Well Test System**
Rated Heat Input		*Physical Size*	1.00 BBL
Manufacturer	Progauge	*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	Automatic well test system with Allen Bradley controls. Completely enclosed vertical fluid separation vessel 60-inches high and 24-inches in diameter. The unit electronically measures mass flow and water cut. All liquids and gases are returned to the production pipeline.		

1.5 Production Handling Facility

1.5.1 Wash Tank

Device ID #	**105288**	***Device Name***	**Wash Tank**
Rated Heat Input		*Physical Size*	1000.00 BBL
Manufacturer	Tiger Tank	*Operator ID*	TK-500
Model		*Serial Number*	05T2-4561
Location Note			
Device Description	The tank is 17.55 feet in diameter by 24 feet high, connected to the vapor recovery system. Design pressure = 2 oz/sq in		

1.5.2 In-Line Phase Separator (Gas Boot)

Device ID #	**109761**	***Device Name***	**In-Line Phase Separator (Gas Boot)**
Rated Heat Input		*Physical Size*	
Manufacturer	Fabricated	*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	4-inch inlet, 4-inch liquid outlet, 4-inch gas outlet. 24-inces diameter by 40-feet high, schedule 40		

1.6 Oil Sales Facility

1.6.1 Shipping Tank

Device ID #	**105290**	***Device Name***	**Shipping Tank**
Rated Heat Input		*Physical Size*	1000.00 BBL
Manufacturer	Tiger Tank	*Operator ID*	TK-503
Model		*Serial Number*	05T2-4562
Location Note			
Device Description	The tank is 21.5 feet in diameter by 16 feet high, connected to the vapor recovery system. Design: 8 oz pressure, 4 oz vacuum		

1.6.2 Oil Shipping Pump

Device ID #	**105327**	***Device Name***	**Oil Shipping Pump**
Rated Heat Input		*Physical Size*	15.00 Horsepower (Electric Motor)
Manufacturer	Moyno	*Operator ID*	P-503A/B
Model		*Serial Number*	AS2320606-3&4
Location Note			
Device Description	Two shipping pumps. 300 gpm at 40 psi		

1.6.3 Crude Oil Loading Rack

Device ID #	**105329**	***Device Name***	**Crude Oil Loading Rack**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	Connected to the vapor recovery system.		

1.7 Rejected Oil Facility

1.7.1 Reject Oil Tank

Device ID #	**105331**	***Device Name***	**Reject Oil Tank**
Rated Heat Input		*Physical Size*	1000.00 BBL
Manufacturer	Tiger Tank	*Operator ID*	TK-502
Model		*Serial Number*	05T2-4564
Location Note			
Device Description	The tank is 21.5 feet in diameter by 16 feet high, connected to the vapor recovery system. Design 8 oz pressure/ 4 oz vacuum.		

1.7.2 Bottoms Pump

Device ID #	**105332**	***Device Name***	**Bottoms Pump**
Rated Heat Input		*Physical Size*	15.00 Horsepower (Electric Motor)
Manufacturer	Moyno	*Operator ID*	P-502
Model		*Serial Number*	AS2320606-1
Location Note			
Device Description	300 gpm @ 40 psi		

1.8 Wastewater System

1.8.1 Wastewater Tank

Device ID #	**105336**	***Device Name***	**Wastewater Tank**
Rated Heat Input		*Physical Size*	1000.00 BBL
Manufacturer	Tiger Tank	*Operator ID*	TK-501
Model		*Serial Number*	05T2-4563
Location Note			
Device Description	The tank is 21.5 feet in diameter by 16 feet high, connected to the vapor recovery system. Design 8 oz pressure/ 4 oz vacuum		

1.8.2 Skim Pump

Device ID #	**105338**	***Device Name***	**Skim Pump**
Rated Heat Input		*Physical Size*	15.00 Horsepower
Manufacturer	Moyno	*Operator ID*	P-500
Model		*Serial Number*	AS2320606-2
Location Note			
Device Description	300 gpm @ 40 psig		

1.9 Vapor Recovery System

1.9.1 Vapor Recovery Compressor

Device ID #	**105291**	***Device Name***	**Vapor Recovery Compressor**
Rated Heat Input		*Physical Size*	75.00 Horsepower (Electric Motor)
Manufacturer	MyCom Compressor	*Operator ID*	
Model	G1410SSC	*Serial Number*	9120271
Location Note			
Device Description			

1.9.2 Condensate Traps

Device ID #	**105293**	***Device Name***	**Condensate Traps**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description			

1.9.3 Condensate Recycle Pump

Device ID #	**105428**	***Device Name***	**Condensate Recycle Pump**
Rated Heat Input		*Physical Size*	3.00 Horsepower (Electric Motor)
Manufacturer	Goulds	*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description			

2 Production Module #2

2.1 Oil & Gas Wells #2

Device ID #	**105425**	***Device Name***	**Oil & Gas Wells #2**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	Oil and gas wells to be drilled		

2.2 Steam Generators

2.2.1 Steam Generator 1

Device ID #	**105295**	***Device Name***	**Steam Generator 1**
Rated Heat Input	26.500 MMBtu/Hour	*Physical Size*	26.50 MMBtu/Hour
Manufacturer	PLC Ind. Services	*Operator ID*	SMP-1
Model	NB 789	*Serial Number*	00193-02
Location Note	Unit SMP-1 is located on the north side closest to the tank battery		
Device Description	Equipped with North American Magnaflame LE pre-mix Low-NOx burner and exhaust gas recirculation. Utilizing a modified convection section. Burner Model: 4211-27/X2736 Burner S/N: 2079884		

2.2.2 Steam Generator 2

Device ID #	**105414**	***Device Name***	**Steam Generator 2**
Rated Heat Input		*Physical Size*	26.50 MMBtu/Hour
Manufacturer	PLC Ind. Services	*Operator ID*	SMP-2
Model	NB 787	*Serial Number*	00125-01
Location Note	Unit SMP-2 is located on the south side furtherst from the tank battery		
Device Description	Equipped with North American Magnaflame LE pre-mix Low-NOx burner and exhaust gas recirculation. Utilizing a modified convection section. Burner Model: 4211-27-LE/X2736 (01/04) Burner S/N: 2042152 (01/04)		

3 Fugitive Hydrocarbon Components - Gas Condensate Svc - CLP

3.1 Valves

Device ID #	**105432**	***Device Name***	**Valves**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	116 components		

3.2 Connections

Device ID #	**105433**	***Device Name***	**Connections**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	751 components		

3.3 Compressor Seals

Device ID #	**109762**	***Device Name***	**Compressor Seals**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	9 components		

3.4 PSVs to Atm

Device ID #	**109768**	***Device Name***	**PSVs to Atm**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	4 components		

3.5 PSVs to VRS

Device ID #	**109769**	***Device Name***	**PSVs to VRS**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	2 components		

3.6 Pumps Seals

Device ID #	**109770**	***Device Name***	**Pumps Seals**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	4 components		

4 Fugitive Hydrocarbon Components - Oil Svc - CLP

4.1 Valves

Device ID #	**105434**	***Device Name***	**Valves**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	407 components		

4.2 Connections

Device ID #	**105435**	***Device Name***	**Connections**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	1,535 components		

4.3 Pump Seals - Single

Device ID #	**105436**	***Device Name***	**Pump Seals - Single**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	
Model		*Serial Number*	
Location Note			
Device Description	54 components		

B EXEMPT EQUIPMENT

1 Drain Tank

Device ID #	**109765**	***Device Name***	**Drain Tank**
Rated Heat Input		*Physical Size*	53.00 BBL
Manufacturer		*Operator ID*	T-504
Model		*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:*	202.L.13 H2O Well/Filtration Sys/Reverse Osmosis
Location Note			
Device Description	8-foot diameter by 6-foot high. Receives water from steam generator water skid		

2 Drain Pump

Device ID #	**109766**	***Device Name***	**Drain Pump**
Rated Heat Input		*Physical Size*	3.00 Horsepower
Manufacturer		*Operator ID*	P-504
Model		*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:*	202.L.13 H2O Well/Filtration Sys/Reverse Osmosis
Location Note			
Device Description	Serves the drain tank T-504		

3 Disposal Water Pumps

Device ID #	**109764**	***Device Name***	**Disposal Water Pumps**
Rated Heat Input		*Physical Size*	
Manufacturer		*Operator ID*	P-501A/B
Model		*Serial Number*	
Part 70 Insig?	No	*District Rule Exemption:*	202.L.13 H2O Well/Filtration Sys/Reverse Osmosis
Location Note			
Device Description	Two pumps		

Santa Barbara County
Air Pollution Control District

PERMIT EVALUATION FOR
PERMIT TO OPERATE 11062

1.0 BACKGROUND

1.1 General: Santa Maria Energy submitted an application for PTO 11062 on November 5, 2014. The District deemed the application complete on November 13, 2014. District inspections of the facility have shown the tanks and steam generators were constructed, and steam injection was initiated. However, the tanks never entered hydrocarbon service and therefore the SCDP condition of ATC Mod 11062-02 was never triggered. DOGGR records show that 16 wells (13 oil and gas, 3 water) have been drilled. All the equipment at this facility is currently idle.

All of the equipment that was constructed and is associated with this facility has been permitted in the PTO. The District has updated the fugitive emissions based on the as-built component counts for the wellheads. The facility potential to emit was determined using only Module 1 equipment since none of the wells associated with Module 2 have been drilled. Finally, the HRA condition in ATC Mod 11062-02 has been revised to require an HRA be conducted prior to equipment operation.

1.2 Permit History:

PERMIT	FINAL ISSUED	PERMIT DESCRIPTION
ATC 11062	01/13/2006	Oil and gas injection project.
ATC Mod 11062-01	03/02/2007	Adding a new Permit Condition that allows for the temporary operation of the two permitted steam generators.
ATC Mod 11062-02	04/23/2007	Modification to the final design of the oil and gas production facilities
Trn O/O 11062 02	05/08/2012	Transfer of owner/operator from Santa Maria Pacific to Santa Maria Energy, LLC.

1.3 Compliance History: The permitted equipment has no compliance history.

2.0 ENGINEERING ANALYSIS

2.1 Equipment/Processes: This is an enhanced oil recovery pilot project involving the drilling of up to forty-five wells, installed in two phases, Module 1 and 2. Module 1 has 13 producing wells and 3 waste disposal wells. Module 2 will have 29 additional producing wells. None of the wells associated with Module 2 have been drilled. Each well will undergo cyclic steam injection with steam being supplied by a steam generator fired on PUC quality natural gas. Both

26.500 MMBtu/hour steam generators were installed during Module 1. Each unit produces high-pressure steam that is injected into the oil wells to enhance production.

Steam generators are used to periodically stimulate the wells for approximately 2 to 6 days. After stimulation, the well is shut-in for a period of 1-4 days and then placed on production. The wells use produced steam to gas-lift the reservoir produced fluids to the surface. The "casing blow" steam and vapors are not vented to atmosphere. There are no well cellars. Produced gas hydrogen sulfide concentration are approximately 3,000 ppmv. All produced gas is re-injected on-site and is not combusted in any equipment

The produced oil, water and gas from each is sent through a production manifold. Then an air-cooled heat exchanger to reduce the temperature of the produced fluid to approximately 190 deg-F and then through a gas and liquid stratefier. The gas from the stratifier is routed via a two inch pipeline down the hill to the top of the wash tank located at the production battery. The oil/water emulsion is directed from the stratifier via a four inch pipeline down the hill to the wash tank gas boot. The liquid from the gas boot is piped into the base of the wash tank and the gas is piped into the top of the wash tank.

An advanced and fully closed automatic well test device located adjacent to the production manifold is used to periodically measure four-phase fluid production from each well.

The oil from the wash tank is piped to the shipping tank and is shipped from the facility via a truck loading rack. Water from the wash tank is sent to the wastewater tank. Oil that does not meet the specifications for shipping is sent to the reject tank and then redirected to the wash tank.

The tanks and loading rack are connected to a vapor recovery system. The recovered vapors are sent through the vapor recovery system consisting of an aerial cooler, gas and liquid separator, vapor recovery compressor, two inch piping and a gas/water disposal well located midway up the hill.

PUC quality natural gas is used as fuel in the steam generators.

The anticipated maximum H_2S concentration of the produced gas is 3,000 ppm H_2S. The peak projected production rates for this project are 1200 BOPD and approximately 25,000 scf/day of natural gas.

2.2 Emission Controls: The following is a summary of the emission controls at this facility:

a. The steam generators are equipped with low-NO_X burners and exhaust gas recirculation. The NO_X emissions are limited to 14 ppmv, the ROC emissions to 7 ppmv and the CO to 27 ppmv. The NO_X limit represents BACT; the ROC and CO limits do not and are based on the application. These limits are verified through source testing.

b. The steamed wells are not "blown down" to atmosphere. The produced steam is routed to the production gathering system. The wells do not have cellars.

c. A fugitive hydrocarbon inspection and maintenance program is used to comply with District Rule 331. An 80-percent reduction is applied to valves, fittings, and wellheads for implementation of Rule 331.

d. The tanks and loading racks are connected to a vapor recovery system. A 95-percent control efficiency is applied for the use of vapor recovery. The vapors will be sent to a gas injection well for injection into the Monterey Zone.

2.3 Emission Factors: Emission factors for each equipment item are documented in the attached emission calculation worksheets.

The following is documentation of the steam generator emissions in parts per million:

$$EF = (2.634 \times 10^{-9}) (ppmvd) (MW) (F\ factor)$$

Therefore:

$$ppmvd = EF / (2.634 \times 10^{-9}) (F\ factor) (MW)$$

Where:

$$(2.634 \times 10^{-9}) = (1\ lb\text{-}mole / 379\ ft^3) (1 / 1{,}000{,}000)$$

F factor = Stack flow at 3% O_2 = 10,051 dscf/MMBtu at 3% O_2

MW NO_X = 46.01 lb/lb-mole
MW ROC = 16 lb/lb-mole
MW CO = 28 lb/lb-mole

NO_X Emission Factor = 0.0170 lb/MMBtu (Source: BACT Limit)
ROC Emission Factor = 0.0030 lb/MMBtu (Source: SMP application)
CO Emission Factor = 0.0200 lb/MMBtu (Source: SMP application)

Calculated ppmv limits:

NO_X = 14 ppmvd
ROC = 7 ppmvd
CO = 27 ppmvd

2.4 Reasonable Worst Case Emission Scenario: Worst case emissions are based on operation of this facility 24 hours/day, 365 days per year at maximum permitted throughput levels.

2.5 Emission Calculations: Detailed emission calculation spreadsheets may be found in Attachment A. These emissions define the Potential to Emit for the permitted equipment. Well emissions from Module 2 are not included in the facility's potential to emit since these wells have not been drilled.

2.6 Special Calculations: There are no special calculations.

2.7 BACT Analyses: The steam generators triggered BACT for NO_x. See Attachment C for further discussion.

2.8 Enforceable Operational Limits: The permit has enforceable operating conditions that ensure the equipment is operated properly.

2.9 Monitoring Requirements: Monitoring of the equipment's operational limits are required to ensure that these are enforceable. This permit requires monitoring the volume of oil produced, the volume of gas burned in the steam generators, the volume of solvents used, the volume of oil trucked from the facility, tank vapor space pressure, and the parameters required by District Rules 325.F, 331.G, 344.G, and 346.G.

2.10 Recordkeeping and Reporting Requirements: The permit requires that the data which is monitored be recorded and reported to the District.

3.0 REEVALUATION REVIEW (not applicable)

4.0 REGULATORY REVIEW

4.1 Partial List of Applicable Rules:

Rule 101. Compliance of Existing Facilities
Rule 202. Exemptions to Rule 201
Rule 205. Standards for Granting Permits
Rule 302. Visible Emissions
Rule 303. Nuisance
Rule 309. Specific Contaminants
Rule 310. Odorous Organic Sulfides
Rule 311. Sulfur Content of Fuels
Rule 324. Disposal and Evaporation of Solvents
Rule 325. Crude Oil Production and Separation
Rule 326. Storage of Reactive Organic Compound Liquids
Rule 331. Fugitive Emissions Inspection and Maintenance
Rule 344. Sumps, Pits and Well Cellars
Rule 346. Loading of Organic Liquid Cargo Vessels
Rule 353. Adhesives and Sealants
Rule 360. Emissions of Oxides of Nitrogen from Large Water Heaters and Small Boilers
Rule 505. Breakdown Procedures
Rule 801. New Source Review
Rule 802. Nonattainment Review
Rule 803. Prevention of Significant Deterioration
Rule 810. Federal Prevention of Significant Deterioration

4.2 Rules Requiring Review: None.

4.3 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 decreases the NEI for ROC by 0.10 lb/day and 0.02 TPY. This reductions comes from changing the estimated wellhead component counts to the as-built counts. NEI values for this permit and facility can be found in Attachment B.

5.0 AQIA

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

6.0 OFFSETS/ERCs

6.1 Offsets: The emission offset thresholds of Regulation VIII are not exceeded.

6.2 ERCs: This source does not generate emission reduction credits.

7.0 AIR TOXICS

An air toxics health risk assessment (HRA) was not performed for this permitting action. The permittee is required to submit a Form-15 and complete a HRA prior to the Production Module Equipment Start-Up Period per Condition 10 of this permit.

8.0 CEQA / LEAD AGENCY

This project is exempt from CEQA pursuant to the Environmental Review Guidelines for the Santa Barbara County Air Pollution Control District (revised November 16, 2000). Appendix A (*District Projects Exempt from CEQA* and *Equipment or Operations Exempt from CEQA*} provides an exemption specifically for permits to operate and reevaluations thereof. No further action is necessary.

9.0 SCHOOL NOTIFICATION

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

10.0 PUBLIC and AGENCY NOTFICATION PROCESS/COMMENTS ON DRAFT PERMIT

10.1 This project was not subject to public notice.

10.2 Permittee draft comments and District responses can be found in Attachment E.

11.0 FEE DETERMINATION

Fees for the District's work efforts are assessed on a fee basis. The Project Code is *300000* (*Onshore Oil and Gas Lease*). See the *Fee Statement* Attachment for the fee calculations.

12.0 RECOMMENDATION

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

Kevin Brown	April 27, 2015		4-28-15
AQ Engineer/Technician	Date	Supervisor	Date

13.0 ATTACHMENT(S)

A. Emission Calculations
B. IDS Tables
C. BACT Documentation
D. DOGGR Well List
E. Draft Comments
F. Fee Statement

Permit to Operate 11062

ATTACHMENT A
Emission Calculations

FIXED ROOF TANK CALCULATION (AP-42: Chapter 7 Method)

Basic Input Data	
liquid {1:G13, 2:G10, 3:G7, 4:C, 5:JP, 6:ker, 7:O2, 8:O6} =	4
liquid TVP =	6.5
if TVP is entered, enter TVP temperature (°F) =	170
tank heated {yes, no} =	no
if tank is heated, enter temp (°F) =	
vapor recovery system present? {yes, no} =	yes
is this a wash tank? {yes, no} =	yes
will flashing losses occur in this tank? {yes, no} =	no
breather vent pressure setting range (psi) (def = 0.06):	0.06

Attachment: A-1
Permit: PTO 11062
Date: 03/26/15
Tank: Wash Tank
Name: Santa Maria Energy
Filename:
District: Santa Barbara
Version: Tank-2b.xls

PRINT

Tank Data		
diameter (feet) =		17.55
capacity (enter barrels in first col, gals will compute) =	1,000	42,000
conical or dome roof? {c, d} =		c
shell height (feet) =		24
roof height (def = 1):		1
ave liq height (feet):		23
color {1:Spec Al, 2:Diff Al, 3:Lite, 4:Med, 5:Rd, 6:Wh} =		4
condition {1: Good, 2: Poor} =		1
upstream pressure (psig) (def = 0 when no flashing occurs):		0

Liquid Data	A	B
maximum daily throughput (bopd) =		1,200
Ann thruput (gal): (enter value in Column A if not max PTE)		1.840E+07
RVP (psia):		1.82103
°API gravity =		15

Paint Factor Matrix	paint condition	
paint color	good	poor
spec alum	0.39	0.49
diff alum	0.60	0.68
lite grey	0.54	0.63
med grey	0.68	0.74
red	0.89	0.91
white	0.17	0.34

Molecular Weight Matrix	
liquid	mol wt
gas rvp 13	62
gas rvp 10	66
gas rvp 7	68
crude oil	50
JP-4	80
jet kerosene	130
fuel oil 2	130
fuel oil 6	190

Computed Values		
roof outage [1] (feet):		0.3
vapor space volume [2] (cubic feet):		314
turnovers [3]:		438
turnover factor [4]:		0.24
paint factor [5]:		0.68
surface temperatures (°R, °F)		
average [6]:	527.2	67.2
maximum [7]:	539	79
minimum [8]:	515.4	55.4
product factor [9]:		0.75
diurnal vapor ranges		
temperature [10] (fahrenheit degrees):		47.2
vapor pressure [11] (psia):		0.477406
molecular weight [12] (lb/lb-mol):		50
TVP [13] (psia) [adjusted for ave liquid surface temp]:		0.86074
vapor density [14] (lb/cubic foot):		0.007607
vapor expansion factor [15]:		0.12
vapor saturation factor [16]:		0.944015
vented vapor volume (scf/bbl):		8
fraction ROG - flashing losses:		0.308
fraction ROG - evaporative losses:		0.885

Adjusted TVP Matrix	
liquid	TVP value
gas rvp 13	7.908
gas rvp 10	5.56
gas rvp 7	3.932
crude oil	0.86074
JP-4	1.516
jet kerosene	0.0103
fuel oil 2	0.009488
fuel oil 6	0.0000472

RVP Matrix	
liquid	RVP value
gas rvp 13	13
gas rvp 10	10
gas rvp 7	7
crude oil	1.821029
JP-4	2.7
jet kerosene	0.029
fuel oil 2	0.022
fuel oil 6	0.00019

Long-Term
VRU_Eff= 95.00%

Short-Term
VRU_Eff= 95.00%

Emissions	Uncontrolled ROC emissions			Controlled ROC emissions		
	lb/hr	lb/day	ton/year	lb/hr	lb/day	ton/year
breathing loss [17] =	0.01	0.24	0.04	0.00	0.01	0.00
working loss [18] =	0.00	0.00	0.00	0.00	0.00	0.00
flashing loss [19] =	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS =	**0.01**	**0.24**	**0.04**	**0.00**	**0.01**	**0.00**

NOTES: see attachment for explanation of notes (1 through 19)

Permit to Operate 11062

ATTACHMENT A
Emission Calculations

FIXED ROOF TANK CALCULATION (AP-42: Chapter 7 Method)

Basic Input Data	
liquid {1:G13, 2:G10, 3:G7, 4:C, 5:JP, 6:ker, 7:O2, 8:O6} =	4
liquid TVP =	6.5
if TVP is entered, enter TVP temperature (°F) =	170
tank heated {yes, no} =	no
if tank is heated, enter temp (°F) =	
vapor recovery system present? {yes, no} =	yes
is this a wash tank? {yes, no} =	no
will flashing losses occur in this tank? {yes, no} =	no
breather vent pressure setting range (psi) (def = 0.06):	0.06

Attachment: A-2
Permit: PTO 11062
Date: 03/26/15
Tank: Shipping Tank
Name: Santa Maria Energy
Filename:
District: Santa Barbara
Version: Tank-2b.xls

PRINT

Tank Data		
diameter (feet) =		21.5
capacity (enter barrels in first col, gals will compute) =	1,000	42,000
conical or dome roof? {c, d} =		c
shell height (feet) =		16
roof height (def = 1):		1
ave liq height (feet):		8
color {1:Spec Al, 2:Diff Al, 3:Lite, 4:Med, 5:Rd, 6:Wh} =		4
condition {1: Good, 2: Poor} =		1
upstream pressure (psig) (def = 0 when no flashing occurs):		0

Liquid Data	A	B
maximum daily throughput (bopd) =		1,200
Ann thruput (gal): (enter value in Column A if not max PTE)		1.840E+07
RVP (psia):		1.82103
°API gravity =		15

Computed Values		
roof outage [1] (feet):		0.3
vapor space volume [2] (cubic feet):		3,013
turnovers [3]:		438
turnover factor [4]:		0.24
paint factor [5]:		0.68
surface temperatures (°R, °F)		
average [6]:	527.2	67.2
maximum [7]:	539	79
minimum [8]:	515.4	55.4
product factor [9]:		0.75
diurnal vapor ranges		
temperature [10] (fahrenheit degrees):		47.2
vapor pressure [11] (psia):		0.477406
molecular weight [12] (lb/lb-mol):		50
TVP [13] (psia) [adjusted for ave liquid surface temp]:		0.86074
vapor density [14] (lb/cubic foot):		0.007607
vapor expansion factor [15]:		0.12
vapor saturation factor [16]:		0.725353
vented vapor volume (scf/bbl):		8
fraction ROG - flashing losses:		0.308
fraction ROG - evaporative losses:		0.885

Paint Factor Matrix	paint condition	
paint color	good	poor
spec alum	0.39	0.49
diff alum	0.60	0.68
lite grey	0.54	0.63
med grey	0.68	0.74
red	0.89	0.91
white	0.17	0.34

Molecular Weight Matrix	
liquid	mol wt
gas rvp 13	62
gas rvp 10	66
gas rvp 7	68
crude oil	50
JP-4	80
jet kerosene	130
fuel oil 2	130
fuel oil 6	190

Adjusted TVP Matrix	
liquid	TVP value
gas rvp 13	7.908
gas rvp 10	5.56
gas rvp 7	3.932
crude oil	0.86074
JP-4	1.516
jet kerosene	0.0103
fuel oil 2	0.009488
fuel oil 6	0.0000472

RVP Matrix	
liquid	RVP value
gas rvp 13	13
gas rvp 10	10
gas rvp 7	7
crude oil	1.821029
JP-4	2.7
jet kerosene	0.029
fuel oil 2	0.022
fuel oil 6	0.00019

Long-Term
VRU_Eff = 95.00%

Short-Term
VRU_Eff = 95.00%

Emissions	Uncontrolled ROC emissions			Controlled ROC emissions		
	lb/hr	lb/day	ton/year	lb/hr	lb/day	ton/year
breathing loss [17] =	0.07	1.77	0.32	0.00	0.09	0.02
working loss [18] =	0.34	8.23	1.50	0.02	0.41	0.08
flashing loss [19] =	0.00	0.00	0.00	0.00	0.00	0.00
TOTALS =	**0.42**	**9.99**	**1.82**	**0.02**	**0.50**	**0.09**

NOTES: see attachment for explanation of notes (1 through 19)

Permit to Operate 11062

ATTACHMENT A
Emission Calculations

LOADING RACK EMISSION CALCULATION

Attachment:	A-3
Company:	Santa Maria Energy
Facility:	Casmalia Field NW
File Name:	

Reference: Loading Rack

Rack Type: Enter X as Appropriate

		S Factor
Submerged loading of a clean cargo tank		0.50
Submerged loading: Dedicated normal service	X	0.60
Submerged loading: Dedicated vapor balance service		1.00
Splash loading of a clean cargo tank		1.45
Splash loading: Dedicated normal service		1.45
Splash loading: Dedicated vapor balance service		1.00

Input data			Reference
S = Saturation Factor	0.60	See AP-42 Table 4.4-1	2
M = Molecular Weight	50	Crude Oil: Default = 50 lb/lb-mole	3
P = True Vapor Pressure (psia)	6.500	See AP-42 Table 12.3-5	1
T = Liquid Temperature ^{0}R	630	170 ^{0}F + 460 = ^{0}R	5
R = Loading Rate (bbl/hr)	160.00	6,720 gallons (42 gallons = 1 bbl)	1
C = Storage Capacity (bbl)	500	21,000 gallons (42 gallons = 1 bbl)	1
A = Annual Production (bbl)	438,000	18,396,000 gallons (42 gallons = 1 bbl)	1
eff = Vapor Recovery Efficiency	0.95	Default = 0.95	1
ROC/THC = Reactivity	0.885	Crude Oil: Default = 0.885	

HLPD = hours loading per day = (C/R) if < 24 =	7.50	hours/day
HLPY = hours loading per year = (A/R) =	2737.50	hours/year
L_L = Loading loss (lb/1000 gal) = 12.46 (S)(P)(M)/T =	3.8567	lb/1000 gal

Total Uncontrolled Hydrocarbon Losses:

Hourly

THL_H = (THL_A/HLPY) = **22.94** **lbs/hr**

Daily

THL_D = (THL_H)(HLPD) = **172.02** **lbs/day**

Annual

THL_A = (L_L)(A)(42 gal/bbl)(1 ton/2,000 lbs)(ROC/THC) = **31.39** **TPY**

Total Controlled Hydrocarbon Losses:

Hourly

THL_H = (THL_A/HLPY)(1-eff) = **1.15** lbs/hr

Daily

THL_D = (THL_H)(HLPD)(1-eff) = **8.60** lbs/day

Annual

THL_A = (L_L)(A)(42 gal/bbl)(1 ton/2,000 lbs)(1-eff)(ROC/THC) = tons/year = **1.57** TPY

Processed by: KMB Date: March 26, 2015

Notes:

1. Data provided by the applicant
2. AP-42, (Chapter 5, 5th Edition), Table 5.2-1
3. If not otherwise provided, crude oil is assumed to be 50 lb/lb-mole.
4. If not otherwise provided, vapor pressure is calculated from CARB AB-2588 Guidelines, page 103, eq. 25
5. R is calculated by adding 460 to ^{0}F.

Permit to Operate 11062

ATTACHMENT A
Emission Calculations

FUGITIVE HYDROCARBON CALCULATIONS - CARB/KVB METHOD

ADMINISTRATIVE INFORMATION
Attachment: A-4
Company: Santa Maria Energy
Facility: Casmalia Field NW
Processed by: KMB
March 26, 2015
Path & File Name:

Version: fhc-kvb5.xls
Date: 24-Oct-00

Reference: CARB speciation profiles #s 529, 530, 531, 532

Data	Value	Units
Number of Active Wells at Facility	0	wells
Facility Gas Production		scf/day
Facility Dry Oil Production		bbls/day
Facility Gas to Oil Ratio (if > 500 then default to 501)	501	scf/bbl
API Gravity	15	degrees API
Facility Model Number	4	dimensionless
No. of Steam Drive Wells with Control Vents	0	wells
No. of Steam Drive Wells with Uncontrol Vents	0	wells
No. of Cyclic Steam Drive Wells with Control Vents	0	wells
No. of Cyclic Steam Drive Wells with Uncontrol Vents	0	wells
Composite Valve and Fitting Emission Factor	6.6409	lb/day-well

Lease Model	Valve ROG Emission Factor Without Ethane	Fitting ROG Emission Factor Without Ethane	Composite ROG Emission Factor Without Ethane	
1	1.4921	0.9947	2.4868	lbs/day-well
2	0.6999	0.6092	1.3091	lbs/day-well
3	0.0217	0.0673	0.0890	lbs/day-well
4	4.5090	2.1319	6.6409	lbs/day-well
5	0.8628	1.9424	2.8053	lbs/day-well
6	1.7079	2.5006	4.2085	lbs/day-well

Model #1: Number of wells on lease is less than 10 and the GOR is less than 500.
Model #2: Number of wells on lease is between 10 and 50 and the GOR is less than 500.
Model #3: Number of wells on lease is greater than 50 and the GOR is less than 500.
Model #4: Number of wells on lease is less than 10 and the GOR is greater than 500.
Model #5: Number of wells on lease is between 10 and 50 and the GOR is greater than 500.
Model #6: Number of wells on lease is greater than 50 and the GOR is greater than 500.

ROC Emission Calculation Summary Results Table
Reactive Organic Compounds[c]

	lbs/hr	lbs/day	tons/year
Valves and Fittings[a]	0.00	0.00	0.00
Sumps, Wastewater Tanks and Well Cellars[b]	0.08	1.94	0.35
Oil/Water Separators [b]	0.00	0.00	0.00
Pumps/Compressors/Well Heads[a]	0.00	0.00	0.00
Enhanced Oil Recovery Fields	0.00	0.00	0.00
Total Facility FHC Emissions (ROC)	**0.08**	**1.94**	**0.35**

a: Emissions amount reflect an 80% reduction due to Rule 331 implementation.
b: Emissions reflect control efficiencies where applicable.
c: Due to rounding, the totals may not appear correct

Permit to Operate 11062

ATTACHMENT A
Emission Calculations

Emission Calculation by Emission Unit

Pumps, Compressors, and Well Heads Uncontrolled Emission Calculations

Number of Wells	0	wells
Wellhead emissions	0	ROC (lb/well-day)
FHC from Pumps	0	ROC (lb/well-day)
FHC from Compressors	0	ROC (lb/well-day)
Total:	0.0000	ROC (lb/well-day)

Sumps, Uncovered Wastewater Tanks, and Well Cellars

Efficiency Factor: (70% for well cellars, 0% for uncovered WW tanks, sumps and pits)

Unit Type/Emissions Factor

	Heavy Oil Service	Light Oil Service	
Primary	0.0941	0.138	(lb ROC/ft^2-day)
Secondary	0.0126	0.018	(lb ROC/ft^2-day)
Tertiary	0.0058	0.0087	(lb ROC/ft^2-day)

Surface Area and Type (emissions in lbs/day)

Description/Name	Number	Area (ft^2)	Primary	Secondary	Tertiary
			0.00		
			0.00	0.00	
					0.00
(a) A 70% reduction is applied for implementation of Rule 344 (*Sumps, Pits, and Well Cellars*).			0.00	0.00	0.00

Covered Wastewater Tanks

Efficiency Factor: 85%

Surface Area and Type (emissions in lbs/day)

Description/Name	Number	Area (ft^2)	Primary	Secondary	Tertiary
			0.00		
				0.00	
					0.00
			0.00	0.00	0.00

Covered Wastewater Tanks Equipped with Vapor Recovery

Efficiency Factor: 95%

Surface Area and Type (emissions in lbs/day)

Description/Name	Number	Area (ft^2)	Primary	Secondary	Tertiary
Reject Tank	1	363.05	1.71		
Wastewater Tank	1	363.05		0.23	
					0.00
			1.71	0.23	0.00

Oil/Water Separators

Efficiency Factor: varies (85% for cover, 95% for VRS, 0% for open top)

Emissions Factor: 560 (lb ROC/MM Gal)

		Type (emissions in lbs/day)			Total
Description/Name	TP-MM Gal	Equipped with Cover	Equipped with VRS	Open Top	lb/day
		0.0			
			0.0		
				0.0	
		0.0	0.0	0.0	0.0

Permit to Operate 11062

ATTACHMENT A
Emission Calculations

FUGITIVE ROC EMISSIONS CALCULATION

ADMINISTRATIVE INFORMATION
Attachment: A-5
Company: Santa Maria Energy
Facility: Casmalia Field NW
Processed by: KMB
Date: March 26, 2015
Path & File Name:

Facility Type: (Choose one)									
Production Field	x								
Gas Processing Plant		ROC[2]		Uncontrolled		Controlled	Controlled	Controlled	Controlled
Refinery		Emission	ROC/THC	ROC	ROC	ROC	ROC	ROC	ROC
Offshore Platform		Factor	Ratio	Emission	Control	Emission	Emission	Emission	Emission
Component	Count[1]	(lbs/day-clp)		(lbs/day)	Eff	(lbs/hr)	(lbs/day)	(Tons/Qtr)	(Tons/year)
Gas Condensate Service									
Valves - Acc/Inacc	116	0.295	0.31	10.61	0.80	0.09	2.12	0.10	0.39
Valves - Bellows		0.295	0.31	0.00	1.00	0.00	0.00	0.00	0.00
Valves - Unsafe		0.295	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Valves - Low Emitting		0.295	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Valves - E-500		0.295	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Valves - E-100		0.295	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Flanges - Acc/Inacc	751	0.070	0.31	16.30	0.80	0.14	3.26	0.15	0.59
Flanges - Unsafe		0.070	0.31	0.00	0.00	0.00	0.00	0.00	0.00
Flanges - E-500		0.070	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Flanges - E-100		0.070	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Compressor Seals - To Atm	9	2.143	0.31	5.98	0.80	0.05	1.20	0.05	0.22
Compressor Seals - To VRS		2.143	0.31	0.00	1.00	0.00	0.00	0.00	0.00
Compressor Seals - E-500		2.143	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Compressor seals - E-100		2.143	0.31	0.00	0.90	0.00	0.00	0.00	0.00
PSV - To Atm	4	6.670	0.31	8.27	0.80	0.07	1.65	0.08	0.30
PSV - To VRS	2	6.670	0.31	4.14	1.00	0.00	0.00	0.00	0.00
PSV - E-500		6.670	0.31	0.00	0.85	0.00	0.00	0.00	0.00
PSV - E-100		6.670	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Pump Seals	4	1.123	0.31	1.39	0.80	0.01	0.28	0.01	0.05
Pump Seals - E-500		1.123	0.31	0.00	0.85	0.00	0.00	0.00	0.00
Pump Seals - E-100		1.123	0.31	0.00	0.90	0.00	0.00	0.00	0.00
Sub Total	886			46.68		0.35	8.51	0.39	1.55
Oil Service									
Valves - Acc/Inacc	407	0.0041	0.56	0.93	0.80	0.01	0.19	0.01	0.03
Valves - Unsafe		0.0041	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Valves - E-500		0.0041	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Valves - E-100		0.0041	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Flanges - Acc/Inacc	1,535	0.0020	0.56	1.72	0.80	0.01	0.34	0.02	0.06
Flanges - Unsafe		0.0020	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Flanges - E-500		0.0020	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Flanges - E-100		0.0020	0.56	0.00	0.90	0.00	0.00	0.00	0.00
Pump Seals - Single	54	0.0039	0.56	0.12	0.80	0.00	0.02	0.00	0.00
Pump Seals - E-500		0.0039	0.56	0.00	0.85	0.00	0.00	0.00	0.00
Pump Seals - E-100		0.0039	0.56	0.00	0.90	0.00	0.00	0.00	0.00
PSV - To Atm		0.2670	0.56	0.00	0.80	0.00	0.00	0.00	0.00
PSV - To VRS		0.2670	0.56	0.00	1.00	0.00	0.00	0.00	0.00
PSV - E-500		0.2670	0.56	0.00	0.85	0.00	0.00	0.00	0.00
PSV - E-100		0.2670	0.56	0.00	0.00	0.00	0.00	0.00	0.00
Sub Total	1,996			2.772		0.02	0.55	0.03	0.10
Total	**2,882**			**49.45**		**0.38**	**9.064**	**0.41**	**1.65**

Notes:
1. Source:
2. APCD P&P # 6100.060.1998.
3. APCD P&P # 6100.061.1998
4. A 80% efficiency is assigned to fugitive components Rule 331 implementation.

Permit to Operate 11062

ATTACHMENT A
Emission Calculations

Attachment: A-6
Date: *04/03/15*

BOILER / STEAM GENERATOR CALCULATION WORKSHEET (ver. 6.0)

DATA	Two Idenitcal Units	
Permit No.	1	
Owner/Operator	SMP	
Facility/Lease	Stokes	
Boiler Type	Steam Generator	
Boiler Mfg.	no data	
Boiler Model No.	no data	
Boiler Serial/ID No.	no data	
Boiler Horsepower	no data	Bhp
Burner Type	Gas	
Burner Mfg.	no data	
Burner Model No.	no data	
Max. Firing Rate of Burner	26.500	MMBtu/hr
Max. Annual Heat Input	232,140.000	MMBtu/yr
Daily Operating schedule	24	hrs/day
Yearly Load factor (%)	100	%
Fuel Type	PUC Natural Gas	
High Heating Value	1,050	Btu/scf
Sulfur Content of Fuel	80.00	ppmvd as H2S
Nitrogen Content of Fuel	-	wt. % N
Boiler Classification	Industrial	
Firing Type	Other Type	
PM Emission Factor	0.0075	lb/MMBtu
PM_{10} Emission Factor	0.0075	lb/MMBtu
NO_x Emission Factor	0.0180	lb/MMBtu
SO_x Emission Factor	0.0137	lb/MMBtu
CO Emission Factor	0.0200	lb/MMBtu
ROC Emission Factor	0.0030	lb/MMBtu

RESULTS	lb/hr	lb/day	TPY
Nitrogen Oxides (as NO_2)	0.48	11.45	2.09
Sulfur Oxides (as SO_2)	0.36	8.70	1.59
PM_{10}	0.20	4.77	0.87
Total Suspended Particulate (PM)	0.20	4.77	0.87
Carbon Monoxide	0.53	12.72	2.32
Reactive Organic Compounds (ROC)	0.08	1.91	0.35

Hourly Heat Release	26.500	MMBtu/hr
Daily Heat Release	636.000	MMBtu/day
Annual Heat Release	232,140.000	MMBtu/yr
Rule 342 Applicability	232.1	Billion Btu/yr

Permit to Operate 11062

ATTACHMENT B
IDS Tables

PERMIT POTENTIAL TO EMIT

	NO_x	ROC	CO	SO_x	PM	PM_{10}
lb/day	22.90	23.93	25.44	17.40	9.54	9.54
lb/hr						
TPQ						
TPY	4.18	4.37	4.64	3.18	1.74	1.74

FACILITY POTENTIAL TO EMIT

	NO_x	ROC	CO	SO_x	PM	PM_{10}
lb/day	22.90	23.93	25.44	17.40	9.54	9.54
lb/hr						
TPQ						
TPY	4.18	4.37	4.64	3.18	1.74	1.74

FACILITY NEI90

	NO_x	ROC	CO	SO_x	PM	PM_{10}
lb/day	22.90	23.93	25.44	17.40	9.54	9.54
lb/hr						
TPQ						
TPY	4.18	4.37	4.64	3.18	1.74	1.74

Notes:
(1) Emissions in these tables are from IDS.
(2) Because of rounding, values in these tables shown as 0.00 are less than 0.005, but greater than zero.

Permit to Operate 11062

ATTACHMENT C
BACT Documentation

ENGINEERING EVALUATION BACT DISCUSSION LIST

1. Pollutant(s): NO_x

2. Emission Points: Gas fired 26.500 MMBtu/hr steam generators.

3. BACT Determination Summary:

   Technology: See Table 3 of permit.
   Performance Standard: See Table 3 of permit.

4. Level of Stringency: [x] Achieved in Practice
   [x] Technologically Feasible
   [ ] RACT, BARCT, NSPS, NESHAPS, MACT

5. BACT Selection Process Discussion: BACT was voluntarily installed by Santa Maria Energy for this project. The NO_x control technology was selected through a BACT analysis.

6. BACT Effectiveness: BACT is expected to be effective overall operating loads except within 2 hours of startup and shutdown for NO_x.

7. BACT During Non-Standard Operations: Within 2 hours of startup and shutdown 14 ppmv NO_x @ 3 percent oxygen will be achieved.

8. Operating Constraints: Each steam generator will be equipped with a low and flue gas recirculation (FGR) designed to reach 14 ppmv NO_x @ 3% O_2.

9. Continuously Monitored BACT: CEMS is not required for this project.

10. Source Testing Requirement: Annual source testing is required by the District once the Equipment Start-Up condition is triggered. During source testing fuel flow, FGR settings, and emissions will be checked.

11. Compliance Averaging Times: Compliance averaging times do not apply.

12. Multi-Phase Projects: This is a multi-phase project.

13. Referenced Sources: The following sources were reviewed to determine BACT:

    A. Bay Area Air Quality Management District Best Available Control Technology (BACT) Website Database.
    B. South Coast Air Quality Management District Best Available Control Technology (BACT) Website Database.
    C. San Joaquin Valley Unified Air Pollution Control District Best Available Control Technology (BACT) Database.
    D. Santa Barbara County District BACT database.

14. PSD BACT: Not applicable.

Permit to Operate 11062

ATTACHMENT D
DOGGR Well List

District	API#	WellStatus	LeaseName	Well#	OperatorName	OpCode	FieldName	AreaName	Section	Township	Range	BM	Latitude	Longitude	Spud Date	Abandon Date
3	08322393	I	Stokes A	30306	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.888196	-120.551523		
3	08322394	N	Stokes A	30404	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.888771	-120.551963		
3	08322395	I	Stokes A	31202	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.890157	-120.555929		
3	08322396	I	Stokes A	30804	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.889572	-120.554016	7/9/2005	
3	08322402	I	Stokes A	30205	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.888509	-120.550889		
3	08322407	I	Stokes A	30106	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.887959	-120.550524	8/18/2005	
3	08322408	I	Stokes A	30204	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.888918	-120.551093		
3	08322409	I	Stokes A	30206	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.888094	-120.551032		
3	08322411	I	Stokes A	30305	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.888551	-120.551374		

District	API#	WellStatus	LeaseName	Well#	OperatorName	OpCode	FieldName	AreaName	Section	Township	Range	BM	Latitude	Longitude	Spud Date	Abandon Date
3	08322398	I	Stokes B	30109	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.887056	-120.549488		
3	08322399	I	Stokes B	30511	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.886037	-120.552688		
3	08322400	N	Stokes B	30821	Santa Maria Energy, LLC	P3127	Any Field	Any Area	10	9N	35W	SB	34.882037	-120.554098		
3	08322401	A	Stokes B	31622	Santa Maria Energy, LLC	P3127	Any Field	Any Area	10	9N	35W	SB	34.881719	-120.558137		
3	08322404	I	Stokes B	20107	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.887789	-120.550038		

District	API#	WellStatus	LeaseName	Well#	OperatorName	OpCode	FieldName	AreaName	Section	Township	Range	BM	Latitude	Longitude	Spud Date	Abandon Date
3	08322444	I	Righetti	40502	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.891139	-120.552541		
3	08322442	I	Righetti	20408	Santa Maria Energy, LLC	P3127	Any Field	Any Area	3	9N	35W	SB	34.887381	-120.548758	3/15/2006	

Permit to Operate 11062

ATTACHMENT E
Draft Comments

1. What is the time frame for the HRA cited in Condition 9? Is a fee necessary for Form 15 submittal? Does the Form and the HRA get submitted prior to Production Module Equipment Startup?

   District Response: The permit condition has been reworded. No fee is necessary for the Form 15 submittal since the District already has a reimbursable deposit. Additionally, per the new language: yes, the Form and HRA need to be submitted prior to the Production Module Equipment Startup.

2. Under Production Module Start up (section 6), the words "Each production module" are used. However the permit is only used for module 1.

   District Response: This permit is for both production modules, however the emissions from the second module have not been included in this permit since the wells have yet to be drilled.

3. Based on the reading to the permit, the Fugitive I&M plan is not necessary until Production Module Equipment startup. Is this correct? Under Rule 331, only the wells need to be monitored annually. Is this the correct interpretation?

   District Response: Per the permit conditions, the Fugitive I&M Plan needs to be submitted to the District for approval prior to the Production Module Equipment Startup. Refer to Rule 331.F for the monitoring frequency required by this permit. Annual monitoring can only be done for certain operational conditions and component types.

4. Please indicate the basis for the fugitive component count in the permit? Our PTO application provided the well leakpath component count. Where did the rest of the components come from?

   District Response: The emission calculations submitted with the PTO application were only for the wellheads and not the rest of the production equipment. The District used the Production Module 1 fugitive emission inventory and calculations from ATC Mod 11062-02 as the basis for the PTO emission calculations. The oil service valves and flanges/connections values were adjusted based on the difference between the wellhead fugitive counts in the ATC Mod and the PTO permit application. The result was a decrease in 28 valves and 366 flanges/connections.

5. Recordkeeping under 4.a to 4.l do not begin until Production Module Equipment startup begins? Is this correct? (i.e. forms with all zeros are not necessary)

   District Response: A condition has been added to the Recordkeeping and Reporting conditions to allow Santa Maria Energy to make a negative declaration if there was no production or activities at the facility during a reporting period.

ATTACHMENT F
Fee Statement

FEE STATEMENT
PTO No. 11062
FID: 10393 Casmalia Field NW / SSID: 10273

Santa Barbara County
Air Pollution Control District

Device Fee

Device No.	Device Name	Fee Schedule	Qty of Fee Units	Fee per Unit	Fee Units	Max or Min. Fee Apply?	Number of Same Devices	Pro Rate Factor	Device Fee	Penalty Fee?	Fee Credit	Total Fee per Device
105298	Oil & Gas Wells #1	A1.a	1.000	65.46	Per equipment	No	16	1.000	1,047.36	0.00	0.00	1,047.36
109767	Production Aerial Cooler	A2	5.000	33.94	Per total rated hp	No	1	1.000	169.70	0.00	0.00	169.70
109760	In-Line Phase Separator (Degassifier)	A1.a	1.000	65.46	Per equipment	No	1	1.000	65.46	0.00	0.00	65.46
105314	Advanced Well Test System	A6	21.000	3.75	Per 1000 gallons	No	1	1.000	78.75	0.00	0.00	78.75
105288	Wash Tank	A6	42.000	3.75	Per 1000 gallons	No	1	1.000	157.50	0.00	0.00	157.50
109761	In-Line Phase Separator (Gas Boot)	A1.a	1.000	65.46	Per equipment	No	1	1.000	65.46	0.00	0.00	65.46
105290	Shipping Tank	A6	42.000	3.75	Per 1000 gallons	No	1	1.000	157.50	0.00	0.00	157.50
105327	Oil Shipping Pump	A2	15.000	33.94	Per total rated hp	No	2	1.000	1,018.20	0.00	0.00	1,018.20
105329	Crude Oil Loading Rack	A1.a	1.000	65.46	Per equipment	No	1	1.000	65.46	0.00	0.00	65.46
105331	Reject Oil Tank	A6	42.000	3.75	Per 1000 gallons	No	1	1.000	157.50	0.00	0.00	157.50
105332	Bottoms Pump	A2	15.000	33.94	Per total rated hp	No	1	1.000	509.10	0.00	0.00	509.10
105336	Wastewater Tank	A6	42.000	3.75	Per 1000 gallons	No	1	1.000	157.50	0.00	0.00	157.50
105338	Skim Pump	A2	15.000	33.94	Per total rated hp	No	1	1.000	509.10	0.00	0.00	509.10
105291	Vapor Recovery Compressor	A2	75.000	33.94	Per total rated hp	No	1	1.000	2,545.50	0.00	0.00	2,545.50
105293	Condensate Traps	A1.a	1.000	65.46	Per equipment	No	1	1.000	65.46	0.00	0.00	65.46
105428	Condensate Recycle Pump	A2	3.000	33.94	Per total rated hp	No	1	1.000	101.82	0.00	0.00	101.82
105425	Oil & Gas Wells #2	A1.a	1.000	65.46	Per equipment	No	29	1.000	1,898.34	0.00	0.00	1,898.34

ATTACHMENT F
Fee Statement

105295	Steam Generator 1	A3	26.500	491.08	Per 1 million Btu input	Max	1	1.000	6,570.78	0.00	0.00	6,570.78
105414	Steam Generator 2	A3	26.500	491.08	Per 1 million Btu input	Max	1	1.000	6,570.78	0.00	0.00	6,570.78
	Device Fee Sub-Totals =								**$21,911.27**	**$0.00**	**$0.00**	
	Device Fee Total =											**$21,911.27**

Permit Fee

Fee Based on Devices **$21,911.27**

Fee Statement Grand Total = $21,911

Notes:

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

Santa Barbara County
Air Pollution Control District

APR 28 2015

Certified Mail 9171 9690 0935 0090 0732 33
Return Receipt Requested

Laurie Tamura
Santa Maria Energy, LLC.
PO Box 7202
Santa Maria, CA 93456-7202

FID: 10393
Permit: P 11062
SSID: 10273

Re: Final Permit to Operate 11062
Fee Due: $ 21,911

Dear Ms. Tamura:

Enclosed is the final Permit to Operate (PTO) No. 11062 for an oil and gas production facility at Casmalia Field NW.

Please carefully review the enclosed documents to ensure that they accurately describe your facility and that the conditions are acceptable to you. Note that your permitted emission limits may, in the future, be used to determine emission fees.

You should become familiar with all District rules pertaining to your facility. This permit does not relieve you of any requirements to obtain authority or permits from other governmental agencies.

This permit requires you to:

- Pay a **fee** of $21,911, which is due immediately and is considered late after 30 calendar days from the date stamped on the permit. Pursuant to District Rule 210.IV.B, no appeal shall be heard unless all fees have been paid. See the attached invoice for more information.
- Follow the conditions listed on your permit. Pay careful attention to the recordkeeping and reporting requirements.
- Ensure that a copy of the enclosed permit is posted or kept readily available near the permitted equipment.
- Promptly report changes in ownership, operator, or your mailing address to the District.

If you are not satisfied with the conditions of this permit, **you have thirty (30) days from the date of this issuance to appeal this permit to the Air Pollution Control District Hearing Board** (ref: California Health and Safety Code, §42302.1). Any contact with District staff to discuss the terms of this permit will not stop or alter the 30-day appeal period.

Please include the facility identification (FID) and permit numbers as shown at the top of this letter on all correspondence regarding this permit. If you have any questions, please contact Kevin Brown of my staff at (805) 961-8826.

Sincerely,

Michael Goldman, Manager
Engineering Division

enc: Final PTO 11062
Final Permit Evaluation
Invoice # P 11062
Air Toxics "Hot Spots" Fact Sheet District Form 12B

cc: Casmalia Field NW 10393 Project File
Engr Chron File
Accounting (Invoice only)
Kevin Brown (Cover letter only)

\\sbcapcd.org\shares\Groups\ENGR\WP\Oil&Gas\GSD\SSID 10273 - Santa Maria Energy - Casmalia Field NW\10393 SMP Casmalia\PTOs\PTO 11062\PTO 11062 - Final Letter - 4-27-2015.doc

Santa Barbara County
Air Pollution Control District
260 N San Antonio Rd, Suite A
Santa Barbara, CA 93110-1315

Invoice: P 11062
Date: APR 28 2015
Terms: Net 30 Days

300000/6600/3280

INVOICE

BILL TO:	FACILITY:
Carie Lara Santa Maria Energy, LLC. (110248) PO Box 7202 Santa Maria, CA 93456-7202	Casmalia Field NW 10393

Permit: Permit to Operate (PTO) No. 11062

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

Amount Due: $ 21,911

REMIT PAYMENTS TO THE ABOVE ADDRESS
Please indicate the invoice number P 11062
on your remittance.

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

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