



South Coast Air Quality Management District



21865 Copley Drive, Diamond Bar, CA 91765-4178
(909) 396-2000 • www.aqmd.gov

July 28, 2010

Mr. Gerardo Rios
Chief – Permits Office
U. S. EPA, Region IX
75 Hawthorne Street, Air 3
San Francisco, CA 94105

Dear Mr. Rios:

Subject: West Newport Oil Co. (WNOG, ID 042775) – Title V Permit Revision

WNOG has proposed to revise their Title V permit by installing a new boiler. WNOG is a crude oil and gas producing facility (SIC 1311) located at 1080 W. 17th Street, Costa Mesa, CA 92627. This proposed permit revision is considered as a “de minimis significant permit revision” to their Title V permit. Attached for your review are the evaluation and permit for the proposed revision.

If you have any questions or need additional information regarding the proposed permit revision, please call Chandrashekhar S. Bhatt at (909) 396 - 2653 or John Yee at (909) 396 - 2531.

Very truly yours,

Brian L. Yeh
Senior Manager
General Commercial and Energy Permitting

BLY:JTY:csb:Cover Letter-wnoc-042557

Attachments

FACILITY PERMIT TO OPERATE WEST NEWPORT OIL CO

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DRAFT

FACILITY PERMIT TO OPERATE WEST NEWPORT OIL CO

SECTION A: FACILITY INFORMATION

LEGAL OWNER &/OR OPERATOR: WEST NEWPORT OIL CO

LEGAL OPERATOR (if different than owner):

EQUIPMENT LOCATION: 1080 W 17TH ST
COSTA MESA, CA 92627-4503

MAILING ADDRESS: P O BOX 1487
NEWPORT BEACH, CA 92663

RESPONSIBLE OFFICIAL: JAY STAIR

TITLE: VICE PRESIDENT

TELEPHONE NUMBER: (714) 631-1100

CONTACT PERSON: TOM MC CLOSKEY

TITLE: ENGINEER

TELEPHONE NUMBER: (714) 631-1100

INITIAL TITLE V PERMIT ISSUED: June 01, 2008

TITLE V PERMIT EXPIRATION DATE: May 31, 2013

TITLE V	RECLAIM
YES	NOx: YES SOx: YES CYCLE: 1 ZONE: COASTAL

FACILITY PERMIT TO OPERATE WEST NEWPORT OIL CO

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

Equipment	ID No.	Connected To	RECLAIM Source Type/ Monitoring Unit	Emissions* And Requirements	Conditions
Process 6: EXTERNAL COMBUSTION					
System 1: STEAM GENERATION					
BOILER, NATURAL GAS/FIELD GAS MIXTURE, CLAYTON INDUSTRIES, MODEL SEG-254-5-FMB, WITH LOW NOX BURNER, 9.75 MMBTU/HR WITH A/N:	D56		NOX: PROCESS UNIT**; SOX: PROCESS UNIT**	CO: 100 PPMV (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988]; NOX: 9 PPMV FIELD GAS (3) [RULE 2012, 5-6-2005]; NOX: 9 PPMV NATURAL GAS (3) [RULE 2012, 5-6-2005]; NOX: 9 PPMV FIELD GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]; NOX: 9 PPMV NATURAL GAS (4) [RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]; SOX: 0.83 LBS/MMSCF NATURAL GAS (1) [RULE 2011, 5-6-2005]; SOX: 0.83 LBS/MMSCF FIELD GAS (1) [RULE 2011, 5-6-2005]	A63.1, A195.1, A195.2, D29.1, I296.1
BURNER, NATURAL GAS/FIELD GAS MIXTURE, CLAYTON INDUSTRIES, MODEL UH-33430, WITH LOW NOX BURNER, 9.75 MMBTU/HR					

* (1) (1A) (1B) Denotes RECLAIM emission factor
 (3) Denotes RECLAIM concentration limit
 (5) (5A) (5B) Denotes command and control emission limit
 (7) Denotes NSR applicability limit
 (9) See App B for Emission Limits
 (2) (2A) (2B) Denotes RECLAIM emission rate
 (4) Denotes BACT emission limit
 (6) Denotes air toxic control rule limit
 (8) (8A) (8B) Denotes 40 CFR limit (e.g. NSPS, NESHAPS, etc.)
 (10) See section J for NESHAP/MACT requirements
 ** Refer to section F and G of this permit to determine the monitoring, recordkeeping and reporting requirements for this device.

**FACILITY PERMIT TO OPERATE
WEST NEWPORT OIL CO**

SECTION H: DEVICE ID INDEX

**The following sub-section provides an index
to the devices that make up the facility
description sorted by device ID.**

**FACILITY PERMIT TO OPERATE
WEST NEWPORT OIL CO**

SECTION H: DEVICE ID INDEX

Device Index For Section H			
Device ID	Section H Page No.	Process	System
D56	1	6	1

FACILITY PERMIT TO OPERATE WEST NEWPORT OIL CO

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

FACILITY CONDITIONS

F9.1 Except for open abrasive blasting operations, the operator shall not discharge into the atmosphere from any single source of emissions whatsoever any air contaminant 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 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 subparagraph (a) of this condition.

[RULE 401, 3-2-1984; RULE 401, 11-9-2001]

F24.1 Accidental release prevention requirements of Section 112(r)(7):

a). The operator shall comply with the accidental release prevention requirements pursuant to 40 CFR Part 68 and shall submit to the Executive Officer, as a part of an annual compliance certification, a statement that certifies compliance with all of the requirements of 40 CFR Part 68, including the registration and submission of a risk management plan (RMP).

b). The operator shall submit any additional relevant information requested by the Executive Officer or designated agency.

[40CFR 68 - Accidental Release Prevention, 5-24-1996]

DEVICE CONDITIONS

A. Emission Limits

A63.1 The operator shall limit emissions from this equipment as follows:

FACILITY PERMIT TO OPERATE WEST NEWPORT OIL CO

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

CONTAMINANT	EMISSIONS LIMIT
PM10	Less than or equal to 67 LBS IN ANY ONE MONTH
VOC	Less than or equal to 48 LBS IN ANY ONE MONTH

The operator shall calculate the emission limit(s) by using fuel use data and the following emission factors: PM10: 7.6 lb.s/mmmscf, and VOC: 5.50 lbs/mmmscf

[RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002]

[Devices subject to this condition : D56]

A195.1 The 9 PPMV NOX emission limit(s) is averaged over 60 minutes at 3 percent oxygen.

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988; RULE 2005, 5-6-2005]

[Devices subject to this condition : D56]

A195.2 The 100 PPMV CO emission limit(s) is averaged over 60 minutes at 3 percent oxygen.

[RULE 1703(a)(2) - PSD-BACT, 10-7-1988]

[Devices subject to this condition : D56]

D. Monitoring/Testing Requirements

D29.1 The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant(s) to be tested	Required Test Method(s)	Averaging Time	Test Location
CO emissions	District method 100.1	1 hour	Outlet
NOX emissions	District method 100.1	1 hour	Outlet

FACILITY PERMIT TO OPERATE WEST NEWPORT OIL CO

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

The test shall be conducted after AQMD approval of the source test protocol, but no later than 180 days after the initial start-up. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to determine the oxygen level in the exhaust. In addition, the test shall measure the fuel flow rate (CFH) and the flue gas flow rate.

The test shall be conducted in accordance with AQMD approved test protocol. The protocol shall be submitted to the AQMD engineer no later than 45 days prior to the proposed test date and shall be approved by the AQMD before the test commences. The test protocol shall include the proposed operating parameters of the boiler during the test, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted when this equipment is operating at a load of 100 percent.

The test shall be conducted every 5 years to verify NOx concentration limit.

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(a)(1)-BACT, 12-6-2002; RULE 1303(b)(2)-Offset, 5-10-1996; RULE 1303(b)(2)-Offset, 12-6-2002; RULE 2012, 5-6-2005]

[Devices subject to this condition : D56]

I. Administrative

- 1296.1 This equipment shall not be operated unless the operator demonstrates to the Executive Officer that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year after the first compliance year of operation, the facility holds sufficient RTCs in an amount equal to the annual emissions increase.

FACILITY PERMIT TO OPERATE WEST NEWPORT OIL CO

SECTION H: PERMIT TO CONSTRUCT AND TEMPORARY PERMIT TO OPERATE

The operator shall comply with the terms and conditions set forth below:

To comply with this condition, the operator shall hold, prior to the 1st compliance year, a minimum of 946 lbs/year of NO_x RTCs and 62 lbs/yr of SO_x RTCs. In accordance with Rule 2005 (f), unused RTCs may be sold only during the reconciliation period for the fourth quarter of the applicable compliance year inclusive of the 1st compliance year

[RULE 2005, 5-6-2005]

[Devices subject to this condition : D56]

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	509314	June 23, 10
	Evaluated by CGP/C S Bhatt	Energy Team E

BACKGROUND:

West Newport Oil (WNO) operates a large crude oil and gas production and separation facility at this site in Costa Mesa. The site is located between PCH to the south, Victoria Street to the north, and a river channel to the west. There is a residential area directly to the east.

This application was submitted as a Class I Permit to Construct on March 25, 2010 for the addition of a boiler. The facility is subject to the NOx and SOx Reclaim rules, and is in the Title V program as well.

Initially, when this application was filed, this boiler was rated at 10.46 mm btu/hr and accordingly was classified as a Large NOx Source. WNO later requested that they do not want this to be classified as a large source and sent a letter from the manufacturer (Clayton) stating that this boiler will be de-rated to 9.75 mm btu/hr (please see Clayton's letter dated June 18, 10 in the folder). As per this information the proposed boiler is now classified as a process unit. This is a Class 1 application and a P/C will be issued after 45-day EPA review.

PROCESS DESCRIPTION:

The boiler will be fired primarily on natural gas, with the ability to fire field gas, as well. Steam produced in the boiler will be injected into the field for enhanced oil recovery.

The boiler is rated at 9.75 mmbtu/hr heat input, and will use a Clayton Industries low NOx burner for NOx and CO control. It will be permitted to operate 24 hours/day, 7 days per week.

EMISSIONS:

Emission calculations are shown in Appendix A. Following is a summary:

Pollutant	Maximum Emissions		30 Day Average Emissions	Annual Emissions
	lbs/hr	lbs/day	lbs/day	lbs/yr
NOx	0.108	2.59	3	946
CO	0.731	17.54	18	6,404
ROG	0.065	1.56	2	569
PM ₁₀	0.0897	2.15	2	786
SOx	0.0071	0.17	0	62

Daily maximums and 30 Day Average emissions are based on 24 hour/day operation. Annual emissions are based on 8,760 hours/yr operation.

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EVALUATION:

Rule 212 – Standards for Approving Permits

There is no school within 1000 feet of the proposed boiler (the closest schools are Whittier Elementary School about 0.3 miles to the east of the property line, and Carden Hall Elementary & Jr. High about 0.4 also to the east of the property line). The emissions do not exceed the thresholds of the rule, and the cancer risk is less than 1 in a million. Therefore, no public notice is required.

Rule 402 – Nuisance

There are no records of nuisance problems at this site. As long as the wells are maintained and kept in good condition, nuisance problems are not expected.

Rule 407 – Liquid and Gaseous Air Contaminants

This rule limits the CO emissions to 2000 ppm. The burner manufacturer has guaranteed a CO emission level of 100 ppm. As per Rule 2001, Table 2, SO₂ compliance is not required [SO_x RECLAIM facility].

Rule 409 – Combustion Air Contaminants

This rule limits the particulate matter emissions to 0.1 gr/ft³ at 12% O₂. Compliance is expected based on the use of gaseous fuel, and the following calculation:

$$\begin{aligned}
 \text{PM, gr/scf} &= 0.0897 \text{ lbs/hr} * (7000 \text{ gr/lb})/99,155 \text{ scf/hr (exhaust flow rate from Appendix A)} \\
 &= 0.0063 \text{ gr/scf}
 \end{aligned}$$

Rule 431.1 – Sulfur Content of Gaseous Fuels

Since this facility is a SO_x RECLAIM facility, this rule is not applicable as per R-2001, Table 2.

Rule 1146 – NO_x from Boilers

The NO_x requirements of this rule are not applicable, because the unit is subject to NO_x Reclaim. The CO limit in this rule is 400 ppm. The burner manufacturer has guaranteed a CO emission level of 100 ppm.

Regulation XIII – New Source Review

30 Day Average emissions for VOC, PM₁₀, and CO are greater than 1 lb/day, therefore the modification is subject to NSR under Rule 1303.

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BACT

For PM₁₀ minor source BACT for a boiler this size is the use of natural gas fuel. The boiler will be fired primarily on natural gas fuel; however, field gas may also be used. Field gas is essentially natural gas. For CO, minor source BACT for a boiler of this size is 100 ppm (watertube type). The manufacturer of the burner has guaranteed the 100 ppm CO emission level (see letter in the file). There are no BACT requirements for VOC.

Modeling

Under Rules 1303, modeling is not required for combustion sources with emissions below the Table A-1 limits, as follows:

	PM ₁₀ , lbs/hr	CO, lbs/hr
Table A-1 Limits	2.8	25.9
Boiler Emissions	0.0897	0.731

Therefore, no modeling is required.

Offsets:

Non- Reclaim pollutants' Emission increase from the new boiler

Pollutant	Increase, lbs/day	Offsets Required?	Offset Amount
CO	18	No – attainment	0
ROG*	2	Yes*	2 (includes 1.2 factor)
PM ₁₀	2	No – under 4 tpy	0

*Note:- WNOC's VOC PTE as shown below needs to be corrected for 3 POs [removal odorizing unit, 2 heater treaters have incorrect VOC emissions . These corrections will reduce the PTE below the threshold and may not require any offsets.

Current NSR entries for this facility are as follows:

Pollutant	NSR Balance		Threshold	Exceeds Threshold?
	Lbs/day	Tpy	tpy	
VOC	26	4.75	4	Yes
PM ₁₀	2	0.37	4	No

PM₁₀ is under the threshold; therefore no offsets are required under the Rule 1304 exemption and SB827 enacted on 1/1/2010. VOC is over the threshold, therefore, offsets for the increase only, are required by 1304(d)(2)(B). WNOC has purchased the necessary VOC ERCs and have been transferred into their NSR account.

WNOC has asked the District to update their NSR PTE as the 2 heater treaters' VOC emissions are incorrectly recorded in the database and an odorizing unit is no longer in service. Thus, the PTE will be UNDER 4 tpy and the offset for VOC emissions increase will not be required per Rule 1304.

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Toxicants Emissions (from Appendix B)

Pollutant	Emission Factors lbs/mmcf	Emissions (lbs/hr), Qhr	Emissions (lbs/yr)	Emissions (ton/yr), Qyr
Acetaldehyde	0.0043	5.07E-05	4.44E-01	2.22E-04
Acrolein	0.0027	3.19E-05	2.79E-01	1.40E-04
Benzene	0.0080	9.44E-05	8.27E-01	4.14E-04
Ethylbenzene	0.0095	1.12E-04	9.82E-01	4.91E-04
Formaldehyde	0.0170	2.01E-04	1.76E+00	8.80E-04
Hexane	0.0063	7.43E-05	6.51E-01	3.26E-04
Naphthalene	0.0003	3.50E-06	3.10E-02	1.55E-05
PAH	0.0001	1.20E-06	1.03E-02	0.52E-05
Propylene	0.7310	8.63E-03	7.56E+01	3.78E-02
Toluene	0.0366	4.32E-04	3.78E+00	1.89E-03
Xylene	0.0272	3.21E-04	2.81E+00	1.41E-03
Total		9.957E-03	8.72E+01	4.36E-02

Calculations of toxicants' emissions are shown in Appendix B and details of Tier I and Tier II toxic analyses are also shown in Appendix B. This new boiler will be located more than 300 meters from the nearest residence and commercial facilities and per procedure outlined in Version 7.0 of SCAQMD Risk Assessment Procedures, R-1401 risk analysis was performed. Since Application Screening Index (ASI) per Tier 1 analysis was more than one, detailed Tier II analysis was performed. The summary of this result is shown below. The MICR is less than one in a million and both the hazard indices are less than one and thus, this boiler will comply with the rule requirements.

Rule 1401:

The Tier 2 analysis results are summarized below:

MICR Residential	MICR worker	Acute HI	Chronic HI
0.3137E-06	0.1255E-06	0.00195	0.0101

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Regulation XVII:

Prevention of Significant Deterioration (PSD):- PSD analysis ensures that air quality in clean air areas does not significantly deteriorate when a new source or modification at the existing source takes place. The purpose is to maintain a margin of future industrial growth without any adverse impact on air quality standards. The South Coast Air Basin where this new boiler will be installed is in attainment of National Ambient Air Quality Standards (NAAQS) for CO, NO₂ and SO₂ emissions and PSD analysis will apply to these pollutants. The purpose of Reg. XVII is to review the stationary sources that emit the above attainment air contaminants.

Rule 1701 (b)(1):

The emission increase of CO, NO₂ and SO₂ from the operation of this new boiler will be 6,404 lbs/yr (3.2 tpy), 946 lbs/yr (0.47 tpy) and 62 lbs./yr (0.03 tpy) respectively. Since there is an emission increase of CO and NO_x, BACT applies and the boiler will comply with BACT per manufacturer guarantee. Since the increase in potential to emit these pollutants is less than 100 tons/yr, there is no significant emission increase and the source will not be located within 10 KM of a Class 1 area, further PSD analysis is not applicable.

Rule 2001 – Applicability:

This is a NO_x and SO_x RECLAIM facility in Cycle 1 and will comply with all applicable rules of this regulation.

Rule 2002 - Allocation for NO_x and SO_x (RTCs):

The facility has been granted the NO_x and SO_x RTCs at the time of induction into RECLAIM.

Rule 2004 - Requirements:

The facility will comply with the rule requirements of permits, allocations, reporting variances and breakdowns.

Rule 2005– New Source Review:

Since there is emissions increases of NO_x (0.108 lb/hr) and SO_x (0.0071 lb/hr) from this new boiler, NSR is triggered. To comply with BACT requirements this boiler will be using natural gas and/or field gas which is equivalent to pipeline quality. As the NO_x hourly emission increase is less than 0.31 lb/hr limit (Table A1, Appendix A), modeling is not required.

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Rule 2005.:

The Rule requires that WNOG hold sufficient RTCs to offset the annual emissions increase of NOx and SOx from the operation of this new boiler at a 1 to 1 ratio. WNOG has 3,950 lbs/yr of NOx RTCs and 20,000 lbs/yr of SOx RTCs for compliance year 2010 and beyond which will be sufficient to offset the NOx (946 lbs/yr) and SOx (62 lbs/yr) emissions increase. For year 2009, WNOG reported emissions of 1,524 lbs NOx and 4,053 lbs of SOx. Therefore the addition of the new boiler will not exceed the present holdings of NOx and SOx RTCs. Permit condition I296.1 will require WNOG to hold 946 lbs/yr of NOx RTCs and 62 lbs/yr of SOx RTCs at the commencement of each compliance year.

RECLAIM

Pollutant	Increase, lbs/hr	Offsets Required?
NOx	0.108	Yes from RTCs holding
SOx	0.0071	Yes from RTCs holding

Rule 2011 – SOx RECLAIM

Per this rule, this new boiler is classified as a process unit and will comply with having a fuel meter to measure quarterly fuel usage, will report mass SOx emissions quarterly per R-2011 requirements and will have a SOx emission factor of 0.83 lb/mmscf per R-2002.

Rule 2012 – NOx RECLAIM

The unit is classified as a process unit because it is rated for less than 10 mmbtu/hr. A process unit is required to maintain a totalizing fuel meter and to use the NOx concentration limit along with quarterly fuel use to report mass emissions on a quarterly basis. The applicant has indicated to have NOx concentration limit of 9 ppm. (please see AEC's e-mail, dated 07/27/10). A process unit, using the concentration limit for emission reporting, shall be source tested once every 5 years.

Regulation XXX:

WNOG is a Title V facility and the addition of the new boiler requires Title V permit revision.

Rule 3000:

Per definition of subsection (b)(6), the addition of this boiler is classified as De minimus significant Title V permit revision as the cumulative emission increase of non-RECLAIM pollutants and hazardous air pollutants are less than Table 1 of this rule.

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Rule 3002:

Per this rule requirement, WNOG has submitted the Title V permit revision application for addition of this boiler.

Rule 3003:

As this is the De minimus significant permit revision, public participation under R-3006 is not required per rule subsection (i)(4)(B). Notification requirements of rule subsection (m) to notify another state is not required as this boiler is not located within 50 miles of any contiguous state. This satisfies rule subsection (i)(4)(C). Permit conditions to comply with all applicable regulatory requirements satisfies subsection (i)(4)(D). Per rule subsection (i)(4)(e) and (j), a copy of this permit will be sent to EPA for a 45-day review period.

Rule 3005:

As per definition under R-3000 (b)(6), this Title V permit revision is classified as De minimus significant permit revision. As required by subsection (e) of this rule, applicant has certified that the permit revision meets the criteria of de minimus significant revision procedure and to use such procedure (please see Mr. Tom McCloskey's letter of 07-09-10 in the folder).

Rule 3006:

Public participation as required by subdivision (a) of this rule is not required as per subsection (b) of this rule.

RECOMMENDATION:

The proposed boiler complies with all applicable rules and regulations of the south coast AQMD and a P/C will be issued after EPA's 45-day review period.

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CONDITIONS:

A63.1

The operator shall limit emission from this equipment as follows:

CONTAMINANT	EMISSION LIMIT
PM10	67 LBS IN ANY ONE MONTH
VOC	48 LBS IN ANY ONE MONTH

The operator shall calculate the monthly emission limit(s) by using fuel use data and the following emission factors: VOC: 5.50 lbs/mmcf, PM10: 7.6 lbs/mmcf.

[Rule 1303 – Offsets]

A195.1

The 9.0 PPMV NOX emission limit(s) is averaged over 60 minutes at 3 percent O2, dry.

[Rule 2005 – BACT, R-1703 BACT]

A195.2

The 100.0 PPMV CO emission limit(s) is averaged over 60 minutes at 3 percent O2, dry.

[Rule 1703(a) – BACT]

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D29.1

The operator shall conduct source test(s) for the pollutant(s) identified below.

Pollutant to be tested	Required Test Method(s)	Averaging Time	Test Location
NOx emissions	District Method 100.1	1 hour	Outlet stack
CO emissions	District Method 100.1	1 hour	Outlet stack

The test shall be conducted after AQMD approval of the source test protocol, but no later than 180 days after initial start-up. The AQMD shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted to determine the oxygen levels in the exhaust. In addition, the tests shall measure the fuel flow rate (CFH), and the flue gas flow rate.

The test shall be conducted in accordance with AQMD approved test protocol. The protocol shall be submitted to the AQMD engineer no later than 45 days before the proposed test date and shall be approved by the AQMD before the test commences. The test protocol shall include the proposed operating conditions of the boiler during the tests, the identity of the testing lab, a statement from the testing lab certifying that it meets the criteria of Rule 304, and a description of all sampling and analytical procedures.

The test shall be conducted when this equipment is operating at a load of 100 percent.

The test shall be conducted every 5 years to verify NOx concentration limit

[Rule 1303(a)(1) – BACT, Rule 1303(b)(2) – Offset, Rule 2005 -BACT, Rule 1703]

I296.1

This equipment shall not be operated unless the operator demonstrate to the Executive Officer that the facility holds sufficient RTCs to offset the prorated annual emissions increase for the first compliance year of operation. In addition, this equipment shall not be operated unless the operator demonstrates to the Executive Officer that, at the commencement of each compliance year of operation, the facility holds sufficient RTCs in an amount equal to the annual emission increase.

To comply with this condition, the operator shall hold, prior to the 1st compliance year, a minimum of 946 lbs/yr NOx and 62 lbs/yr of SOx RTCs. In accordance with Rule 2005(f), unused RTCs may be sold only during the reconciliation period for the fourth quarter of the applicable compliance year inclusive of the 1st compliance year.

[Rule 2005]

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Appendix A

Criteria Pollutant Emission Calculations

Data: This boiler will be fueled by natural gas and field gas. For conservative approach field gas data is used for the emission estimates.

Boiler Heat Input 9.75 mmbtu/hr
Field Gas HHV 824 btu/cf [gas analysis dated 2/15/08]
F-Factor 8710 dscf/mmbtu
Molar Volume 380 dscf/lb-mole

Calculations:

Fuel Use 0.0118 mmcf/hr [9.75 mmbtu/hr x cf/824 btu]
Exhaust Gas 99,155 dscf/hr @ 3% O₂ [9.75 mmbtu/hr x 8710 dscf/mmbtu x 20.9/(20.9 -3)]

Emission factors for ROG, PM₁₀, and SO_x are taken from AQMD Form B-1. NO_x and CO are based on the manufacturer guarantee.

Pollutant	Emission Factor
NO _x	9 ppm
CO	100 ppm
ROG	5.50 lbs/mmcf
PM ₁₀	7.60 lbs/mmcf
SO _x	0.83 lbs/mmcf

Emissions:

Pollutant	Maximum Emissions		30 Day Average Emissions	Annual Emissions	Monthly Emissions
	lbs/hr	lbs/day	lbs/day	lbs/yr	lbs/month
NO _x	0.108	2.59	3	946	
CO	0.731	17.54	18	6,404	
ROG	0.065	1.56	2	569	48
PM ₁₀	0.0897	2.15	2	786	67
SO _x	0.0071	0.17	0	62	5

Daily maximums and 30 Day Average emissions are based on 24 hour/day operation. Annual emissions are based on 8,760 hours/yr operation. Monthly emissions are calculated for purposes of condition A63.1, and are based on 31 days/month operation, rounded to the nearest pound.

NO_x:- (9ppm x 99,155 dscf/hr x 46 lbs/lb-mole)/380 cf/lb-mole = 0.108 lbs/hr
CO:- (100 ppm x 99,155 dscf/hr x 28 lbs/lb-mole)/380 cf/lb-mole = 0.731 lbs/hr
PM₁₀: - 7.60 lbs/mmcf x 0.0118 mmcf/hr = 0.097 lbs/h

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Appendix B

Toxic Emissions

Toxic Emissions are based on the Ventura County APCD AB2588 External Combustion Emission Factors, May 17, 2001.

Boiler Data:

Maximum heat input	9.75 mmbtu/hr
Maximum fuel use	0.0118 mmcf/hr (based on 824 btu/cf)
Annual hours of operation	8760 hours

Pollutant	Emission Factors lbs/mmcf	Emissions (lbs/hr), Qhr	Emissions (lbs/yr)	Emissions (ton/yr), Qyr
Acetaldehyde	0.0043	5.07E-05	4.44E-01	2.22E-04
Acrolein	0.0027	3.19E-05	2.79E-01	1.40E-04
Benzene	0.0080	9.44E-05	8.27E-01	4.14E-04
Ethylbenzene	0.0095	1.12E-04	9.82E-01	4.91E-04
Formaldehyde	0.0170	2.01E-04	1.76E+00	8.80E-04
Hexane	0.0063	7.43E-05	6.51E-01	3.26E-04
Naphthalene	0.0003	3.50E-06	3.10E-02	1.55E-05
PAH	0.0001	1.20E-06	1.03E-02	0.52E-05
Propylene	0.7310	8.63E-03	7.56E+01	3.78E-02
Toluene	0.0366	4.32E-04	3.78E+00	1.89E-03
Xylene	0.0272	3.21E-04	2.81E+00	1.41E-03
Total		9.957E-03	8.72E+01	4.36E-02

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Toxic Analysis contd.....

Tier 1 Analysis: Application Screening Index (ASI) [for carcinogenic and/or chronic compounds]

Pollutant Screening Index (PSIp) = Q_{yr_p} / PSL_p Pollutant Screening Level {from Table 1A, 300 meter distance}

$$PSIp = Q_{yr_p} / PSL_p$$

Applicant had performed the Tier 1 analysis (for multiple toxicants) calculating each toxicant's pollutant screening index (PSIp) using the originally proposed 10.46 mm btu/hr rating (please see application folder). This showed that Application Screening Index (ASI, which is the summation of each toxicant's screening index) is more than one [1.24]. The prime contributor for this ASI to be more than one is PAH having PSlp = 1.13]. The PAH emission factor for the boiler rating of 9.75 mm btu/hr is higher than the same at 10.46 mm btu/hr which will yield higher PSlp for PAH. Since the PSlp for PAH is more than one as shown below, other toxicants' PSlps are not calculated and no further Tier 1 analysis for acute components is done (applicant has shown the results of the full Tier 1 analysis for cancer/chronic and acute components).

TAC	Q_{yr_p} (lb/yr)	PSLp (lb/yr). From Table 1A	PSIp
PAH	1.03E-02	7.69E-03	1.34

Since ASI exceeds 1 (just by PAH alone) for cancer/chronic components, even though ASI for acute may be less than 1, this facility did not pass Tier 1 screening. Proceed to Tier 2 analysis.

Tier II Analysis:

Steam Generator's location will be more than 300 meters from the nearest residence as well as any commercial facility. CP, REL and MP values are from Table 8A; dispersion factor (X/Q) values (1.06) from Table 3A; DBR (302r, 149w) from Table 9A, EVF [0.96r and 0.38w] from Table 9B, MET = 0.69 (Table 3B) for Costa Mesa, AFann = 1.0 from Table 3C

Toxic Analysis (Residential Area):

$$MICR = CP \times Q \text{ (ton/yr)} \times X/Q \times AFann \times MET \times DBR \times EVF \times 10^{-6} \times MP$$

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$$\text{MICR (Residential)} = \text{CP} \times \text{Q (ton/yr)} \times \text{X/Q} \times \text{AFann} \times \text{MET} \times \text{DBR} \times \text{EVF} \times 10^{-6} \times \text{MP}$$

Toxicant	Emissions Factor, lb/mmcf	Emission Rate, ton/yr Qyr	X/Q, ($\mu\text{g}/\text{m}^3$)/(ton/yr), Table 3A	CP, (mg/kg-day) ⁻¹	MP	MICR (residential)
Acetaldehyde	0.0043	2.22E-04	1.06	1.00E-02	1.0	0.0005E-06
Benzene	0.0080	4.14E-04	1.06	1.00E-01	1.0	0.0195E-06
Formaldehyde	0.0170	8.80E-04	1.06	2.10E-02	1.0	0.0087E-06
Naphthalene	0.0003	1.55E-05	1.06	1.20E-01	1.0	0.0009E-06
PAH (ex. Naphthalene)	0.0001	0.52E-05	1.06	3.90E+00	29.76	0.2841E-06
Total MICR	----	----	----	----	----	0.3137E-06

Toxic Analysis (Commercial Area) [DBR = 149 and EVF = 0.38]

$$\text{MICR (commercial)} = \text{CP} \times \text{Q (ton/yr)} \times \text{X/Q} \times \text{AFann} \times \text{MET} \times \text{DBR} \times \text{EVF} \times 10^{-6} \times \text{MP}$$

Toxicant	Emissions Factor, lb/mmcf	Emission Rate, ton/yr Qyr	X/Q, ($\mu\text{g}/\text{m}^3$)/(ton/yr), Table 3A	CP, (mg/kg-day) ⁻¹	MP	MICR (residential)
Acetaldehyde	0.0043	2.22E-04	1.06	1.00E-02	1.0	0.00009E-06
Benzene	0.0080	4.14E-04	1.06	1.00E-01	1.0	0.0017E-06
Formaldehyde	0.0170	8.80E-04	1.06	2.10E-02	1.0	0.0008E-06
Naphthalene	0.0003	1.55E-05	1.06	1.20E-01	1.0	0.00008E-06
PAH (ex. Naphthalene)	0.0001	0.52E-05	1.06	3.90E+00	14.62	0.1228E-06
Total MICR	----	----	----	----	----	0.1255E-06

Since MICR for both the residential and commercial is less than one in a million, cancer burden calculation is not done.

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Hazard Index Calculations: (for Residential/Commercial Areas)

Toxicant	Qhr, lb/hr, max	Qyr, lbs.yr, max	REL, ug/m ³ (from Table - 8A		(X/Q)yr, for chronic (ug/m ³)/(ton/yr)	(X/Q)hr for acute (ug/m ³)/(lb/hr) Resid/work. Table - 6	MP for HIC
			Acute	Chronic			
Acetaldehyde	5.07E-05	2.22E-04	n/a	9.0	1.06	n/a	1.0
Acrolein	3.19E-05	1.40E-04	0.19	0.06	1.06	59.8	1.0
Benzene	9.44E-05	4.14E-04	1,300	60	1.06	59.8	1.0
Ethyl Benzene	1.12E-04	4.91E-04	n/a	2000	1.06	n/a	1.0
Formaldehyde	2.01E-04	8.80E-04	94	3.0	1.06	59.8	1.0
Hexane	7.43E-05	3.26E-04	n/a	7000	1.06	n/a	1.0
Naphthalene	3.50E-06	1.55E-05	n/a	9.00	1.06	n/a	1.0
PAH (ex. Naphthalene)	1.20E-06	0.52E-05	n/a	n/a	n/a	n/a	n/a
Propylene	8.63E-03	3.78E-02	n/a	3000	1.06	n/a	1.0
Toluene	4.32E-04	1.89E-03	37,000	300	1.06	59.8	1.0
Xylene	3.21E-04	1.41E-03	22,000	700	n/a	59.8	1.0

A. Chronic Toxicity: [Reference Table 10A]

Toxic Air Contaminant (TAC)	Affected Organ	Qyr, ton/yr max	(X/Q)yr	MET
Acetaldehyde	RESP	2.22E-04	1.06 {Resi., work.	0.69
Acrolein	EYE, RESP	1.40E-04		
Benzene	DEV,HEM,NS	4.14E-04		
Ethyl Benzene	AL, DEV, END, KID	4.91E-04		
Formaldehyde	EYE, RESP	8.80E-04		
Naphthalene	RESP	1.55E-05		
Propylene	RESP	3.78E-02		
Toluene	DEV/NS, RESP	7.02E-03		
Xylene	NS, RESP	5.22E-03		

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Chronic Hazard Index [HIC] Residential/worker

Acetaldehyde:

$$\text{HIC [RESP]} = [\text{Qyr} \times (\text{X/Q})\text{yr} \times \text{MET} \times \text{MP}] / \text{Chronic REL} = [2.22\text{E-}04 \times 1.06 \times 0.69 \times 1] / 9.0 = 0.1804\text{E-}04$$

$$\text{HIC [RESP]} = 0.1804\text{E-}04$$

Acrolein

$$\text{HIC} = [\text{Qyr} \times (\text{X/Q})\text{yr} \times \text{MET} \times \text{MP}] / \text{Chronic REL}$$

$$\text{HIC [EYE, RESP]} = \{[1.40\text{E-}04 \times 1.06 \times 0.69 \times 1] / 0.06\} = 0.0017$$

Benzene:

$$\text{HIC} = [\text{Qyr} \times (\text{X/Q})\text{yr} \times \text{MET} \times \text{MP}] / \text{Chronic REL} \times \text{AF (REL adj. factor for 6 hrs. averaging} = 0.88, \text{Table 8B)}$$

$$\text{HIC [DEV, HEM, NS]} = \{[4.14\text{E-}04 \times 1.06 \times 0.69] / 60.0\} \times 0.88 = 0.0444\text{E-}04$$

Ethyl Benzene:

$$\text{HIC} = [\text{Qyr} \times (\text{X/Q})\text{yr} \times \text{MET} \times \text{MP}] / \text{Chronic REL}$$

$$\text{HIC [AL, DEV, END, KID]} = \{[4.91\text{E-}04 \times 1.06 \times 0.69] / 2000\} = 0.00184\text{E-}04$$

Formaldehyde

$$\text{HIC} = [\text{Qyr} \times (\text{X/Q})\text{yr} \times \text{MET} \times \text{MP}] / \text{Chronic REL}$$

$$\text{HIC [EYE, RESP]} = \{[8.80\text{E-}04 \times 1.06 \times 0.69] / 3.0\} = 2.145\text{E-}04$$

Naphthalene

$$\text{HIC} = [\text{Qyr} \times (\text{X/Q})\text{yr} \times \text{MET} \times \text{MP}] / \text{Chronic REL}$$

$$\text{HIC [RESP]} = \{[1.55\text{E-}05 \times 1.06 \times 0.69] / 9.0\} = 0.0126\text{E-}04$$

Propylene

$$\text{HIC} = [\text{Qyr} \times (\text{X/Q})\text{yr} \times \text{MET} \times \text{MP}] / \text{Chronic REL}$$

$$\text{HIC [RESP]} = \{[3.78\text{E-}02 \times 1.06 \times 0.69] / 3000\} = 0.0922\text{E-}04$$

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Toluene

$$HIC = [Qyr \times (X/Q)yr \times MET \times MP] / \text{Chronic REL}$$

$$HIC [DEV, NS, RESP] = \{[1.89E-03 \times 1.06 \times 0.69] / 300\} = 0.0461E-04$$

Xylene

$$HIC = [Qyr \times (X/Q)yr \times MET \times MP] / \text{Chronic REL}$$

$$HIC [NS, RESP] = \{[1.41E-03 \times 1.06 \times 0.69] / 700\} = 0.0147E-04$$

**A. SUMMARY, Hazard Index: [HIC] By Target Organs for Chronic]
[Residential/worker]**

TAC	HIC							
	DEV	NS	EYE	HEM	RESP	KID	AL	END
Acetaldehyde	---	---	---	---	0.1804E-04	---	---	---
Acrolein	---	---	17.0E-04	---	17.0E-04	---	---	---
Benzene	0.0444E-04	0.0444E-04	---	0.0444E-04	---	---	---	---
Ethyl Benzene	0.00184E-04	---	---	---	---	0.00184E-04	0.00184E-04	0.00184E-04
Formaldehyde	---	---	2.145E-04	---	2.145E-04	---	---	---
Naphthalene	---	---	---	---	0.0126E-04	---	---	---
Propylene	---	---	---	---	0.0922E-04	---	---	---
Toluene	0.0461E-04	0.0461E-04	---	---	0.0461E-04	---	---	---
Xylene	---	0.0147E-04	---	---	0.0147E-04	---	---	---
Total	0.0923E-04	0.105E-04	19.145E-04	0.0444E-04	19.491E-04	0.00184E-04	0.00184E-04	0.00184E-04

DEV (developmental), NS (Nervous System), HEM (Hematopoietic system), RESP = respiratory system, KID (kidney), AL (Alimentary System), END (Endocrine System), EYE = eye

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X/Qhr for residential/worker area (@300 meter) is 59.8, Table 6,]

B. Acute Toxicity: [Reference Table 10A]

Toxic Air Contaminant (TAC)	Affected Organs	Qhr, lb/hr max	(X/Q)hr Table 6	REL acute
Acrolein	EYE, RESP	3.19E-05	59.8	0.19
Benzene	DEV, HEM, IMM, RESP	9.44E-05	59.8	1,300
Formaldehyde	EYE, IMM, RESP	2.01E-04	59.8	94
Toluene	DEV, EYE, NS, REPR, RESP	4.32E-04	59.8	37,000
Xylene	EYE, RESP	3.21E-04	59.8	22,000

DEV (Developmental), HEM (Hematopoietic system), IMM (Immune system), RESP = respiratory, REPR = reproductive, NS/(nervous systems), EYE = eye

Acute Hazard Index (HIA) Residential/worker

Acrolein:

$$HIA = [Qhr \times (X/Q)]/REL = [(3.19E-05 \times 59.8)/0.19] = 0.0100$$

$$HIA [EYE, RESP] = 0.0100$$

Benzene:

$$HIA = [Qhr \times (X/Q)]/REL \times AF \text{ (REL adjustment factors for 6 hrs averaging = 0.88, Table 8B)}$$

$$HIA \quad [(9.44E-05 \times 59.8)/1300] \times 0.88 = 0.0382E-04$$

$$HIA [DEV, HEM, IMM, RESP] = 0.0382E-04$$

Formaldehyde:

$$HIA = [Qhr \times (X/Q)]/REL$$

$$HIA = [(2.01E-04 \times 59.8)/94] = 1.279E-044$$

$$HIA [EYE, IMM, RESP] = 1.279E-04$$

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Toluene:

$$HIA = [Q_{hr} \times (X/Q)]/REL = [(4.32E-04 \times 59.8)/37,000] = 0.00698E-04$$

$$HIA [DEV, EYE, NS, REPR, RESP] = 0.00698E-04$$

Xylene:

$$HIA = [Q_{hr} \times (X/Q)]/REL = [(3.21E-04 \times 59.8)/22000] = 0.0087E-04$$

$$HIA [EYE, RESP] = 0.0087E-04$$

B. SUMMARY, Hazard Index: [HIA] By Target Organs for Acute

[Residential/worker

TAC	HIA						
	DEV	HEM	EYE	REPR	RESP	IMM	NS
Acrolein	---	---	0.0100	---	0.0100	---	---
Benzene	0.0382E-04	0.0382E-04			0.0382E-04	0.0382E-04	
Formaldehyde			1.279E-04		1.279E-04	1.279E-04	
Toluene	0.0070E-04		0.0070E-04	0.0070E-04	0.0070E-04		0.0070E-04
Xylene			0.0087E-04		0.0087E-04		
Total	0.0452E-04	0.0382E-04	0.0101	0.0070E-04	0.0101	1.317E-04	0.0070E-04

DEV (Developmental), HEM (Hematopoietic system), IMM (Immune system), RESP = respiratory, REPR = reproductive, NS/(nervous systems), EYE = eye

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Appendix C

Facility PTE Calculations

Total facility PTE is calculated in order to determine if the facility qualifies for the offset exemption under Rule 1304.

There are currently 7 permit units under this ID#, the Crude/Oil/Water Separation System (D88368), 2 fuel oil storage tanks (D34334, D34355), 2 heater treaters (D92962, D92963), and the proposed new boiler under this application, plus the crude oil wells (F89601). The crude wells are exempt under 219, and so their emissions are not included in the calculation of PTE for Rule 1304 purposes.

A. Total facility fugitive emissions

Component	Inventory	Factor, lbs/yr [AER Form B1]	Emissions, lbs/yr
Valves in gas/light liquid service	55	12	660
Valves in heavy liquid service	20	4.4	88
Pumps in heavy liquid service	2	104	208
Compressors in gas service	4	514	2056
Others in gas/light liquid service	60	4.9	294
Total			3306

B. Combustion Sources

Heater Treaters

Maximum Rating = 3 mmbtu/hr Heat Content = 894 btu/cf, Emission factors (Form B-1)

Pollutant	EF	Emissions			Total
	Lbs/mmcf	Lbs/hr	Lbs/day	Lbs/yr	Lbs/yr
NOx	130	0.44	10.61	3872	7744
CO	35	0.12	2.86	1042	2085
VOC	7	0.02	0.57	208	417
PM ₁₀	7.5	0.03	0.61	223	447
SOx	0.6	0.002	0.05	18	36

Proposed Boiler: Maximum Rating = 9.75 mmbtu/hr, Heat Content = 894 btu/cf

Pollutant	EF	Emissions		
	Lbs/mmcf	Lbs/hr	Lbs/day	Lbs/yr
NOx	9 ppm	0.108	2.59	946
CO	100 ppm	0.731	17.54	6,404
VOC	5.5	0.065	1.56	569
PM ₁₀	7.6	0.0897	2.15	786
SOx	0.6	0.0071	0.17	62

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Appendix D

Facility SOx Emissions

There are 4 sources of SOx emissions from the facility – the 2 heater treaters, the new boiler, and the micro-turbine. The following table summarizes the SOx emissions from each unit:

Unit	Maximum Daily SOx Emissions
Heater Treaters (2)	0.1
Proposed Boiler	0.18
Microturbine	0.02
TOTAL	0.3

The calculations are based on maximum fuel use, 24 hour/day operation, and an emission factor of 0.83 lbs/mmcf.