



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES

19

PAGE

1

APPL. NO.

509640

DATE

5/9/2011

PROCESSED BY

SAAndrewis

CHECKED

BY

PERMIT TO OPERATE /CHANGE OF CONDITION

COMPANY NAME

TESORO REFINING AND MARKETING CO
P.O. BOX 817, WILMINGTON, CA 90748-0817

EQUIPMENT LOCATION

2101 E. PACIFIC COAST HIGHWAY
WILMINGTON, CA 90744
Facility ID#: 800436
Facility Type: NOx & SOx RECLAIM (Cycle 1), Title V

EQUIPMENT DESCRIPTION

Additions are shown as underlined and deletions are shown as ~~strikeouts~~.
Section D: Permit to Operate

Equipment	ID No.	Connecte d To	RECLAIM Source Type / Monitoring Unit	Emissions and Requirements	Conditions
PROCESS 2: COKING AND RESIDUAL CONDITIONING					P13-1
SYSTEM 3 : DCU HEATERS					
HEATER, H-101, REFINERY GAS, WITH LOW NOx BURNER, AIR PREHEATING, 218.4 MMBTU/HR WITH A/N: 470266, <u>509460</u>	D32		NOX: MAJOR SOURCE**; SOX: MAJOR SOURCE**	<u>CO:35 PPMV(5)RULE 1303(a)(1)-[BACT-5-10-1996]; CO: 2000 PPMV (5A) [RULE 407, 4-2-1982]; NOx:24.7LBS/HR(7)[RULE 2005,5-6-2005];PM: (9) [RULE 404, 2-7-1986]; PM: 0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981]</u>	A63.2, <u>A99.18</u> , A305.1, B61.1, D28.3, D90.7, D328.1*** E193.5,H23.3, I296.1
BURNER, REFINERY GAS, JOHN ZINK, MODEL PSMR-10, WITH LOW NOX BURNER, 80 TOTAL , 218.4 MMBTU/HR					

*** Note: CO CEMS is required per condition A63.2; therefore, this condition is not required for D32

- * (1) Denotes RECLAIM emission factor
 - (2) Denotes RECLAIM emission rate
 - (3) Denotes RECLAIM concentration limit
 - (4) Denotes BACT emission limit
 - (5)(5A)(5B)Denotes command and control emission limit
 - (6) Denotes air toxic control rule limit
 - (7) Denotes NSR applicability limit
 - (8)(8A)(8B)Denotes 40 CFR limit(e.g. NSPS, NESHAPS, etc.)
 - (9) See App B for Emission Limits
 - (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.



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES
19

PAGE
2

APPL. NO.
509640

DATE
5/9/2011

PROCESSED BY
SAAndrewis

CHECKED
BY

FEE ANALYSIS

All fees shown in Table 1 have been paid by the applicant.

Table 1 – Summary of Fee Analysis

A/N	Equipment Description	BCAT/CCAT	Fee Schedule	Fee Type	Fee	XPP Fee	Total Fee
509886	Permit Amendment	555009 (BCAT)		FP –RECLAIM/ Title V Significant Amendment	\$1687.63		\$1687.63
509460	Heater	019605	E	Change of condition	\$4,416.74	\$2,208.37	\$6,625.11
Total							\$8,312.74

BACKGROUND

This application was received by the AQMD on March 30, 2010 from Tesoro Refining And Marketing Co for a change of permit condition for the Coker Heater H-101 (Device D32).

This heater was installed in 1968, prior to New Source Review requirements, and it was modified in 1994 by installing Low-NOx burners, which did not result in an emission increase. In 1999, under application 351727; the heater was modified by increasing the heat release from 182.4 MMbtu/hr to 218.4 MMbtu/hr and was subject to New Source Review and the CO BACT and the daily limits were imposed. In 2002, Tesoro, previously Equilon/Shell submitted application A/N 399582 to revise the permit condition A63.2 PM limit of 8 lbs/day to a proposed PM limit of 26 lbs/day. In 2007, the refinery was purchased by Tesoro including Coker Heater H-101, which has submitted application A/N 470266 for a change of ownership of the equipment.

The District staff visited Tesoro refinery to inspect the heater and discuss the different operating scenarios on 7/13/201 and based on our visit and Jay’s recommendations, Tesoro submitted this application for change of condition. (see field meeting report by the engineer in attachment 6)

Tesoro proposes in this application the addition of a new condition and revision of an existing condition to clarify that the CO concentration limit of 35 ppm does not apply during the specific operating conditions described below.

Tesoro identifies the specific operating conditions when the heater does not meet the current 35 ppm CO concentration limit specified in the permit and is operating outside normal parameters, however, it will still meet the CO daily emissions limit that is specified in condition A63.2, which is 136 lbs/day. For example, during start-up, this typically lasts 12 hours, low fuel flow to the heater results in a low temperature with



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES
19

PAGE
3

APPL. NO.
509640

DATE
5/9/2011

PROCESSED BY
SAAndrewis

CHECKED
BY

incomplete combustion in the firebox of the heater. The incomplete combustion leads to CO concentrations that are higher than the specified limit. In some circumstances, the adjustment to 3% excess oxygen following a heater trip and safety precautions during restart that require the purging of the firebox prior to the relight of the burners to assure that combustible gases do not remain, can result in exceedances of CO limit.

There will be no physical or operational changes to the H-101 Heater (D32), and there is no change in the heat rating for the Heater due to this revision to the permit. The expected operating schedule is 24 hours per day, 7 days per week, 52 weeks per year.

COMPLIANCE RECORD REVIEW

The facility's compliance history for the past 2 years indicates one NOV (P52842) is still pending (see Attachment 1). P52842 was issued to Tesoro on 4-27-10 for multiple violations of Rule 1189(c)(3). An emergency hearing was conducted at the AQMD Hearing Board on 4-28-10 and the facility was denied a variance. Tesoro is expected to be placed under an abatement order by the District to have this compliance issue resolved. Note that the HGU-2 unit has been shutdown since 4-6-10 and is not expected to operate until a variance or order of abatement is granted. The details of this NOV is with Attachment 1.

PROCESS DESCRIPTION

The refinery uses crude oils and distillates to produce gasoline, diesel, jet fuels, petroleum coke and other petroleum products.

The coking units produce light hydrocarbons and petroleum coke by thermal cracking the heavy residual oil from the vacuum units and small amounts of recovered oil and emulsion from the utilities area. Vacuum tower bottoms are fed to the coker fractionators and the pumped through gas fired process heaters which H-101(D32) is one of the heaters before being routed to the coke drum. Vapors from the coke drums return to the fractionators where they are separated into various boiling range streams. The gas produced off the fractionators is compressed and separated in the coker gas plant. The coking process is semi-batch. Once hydrocarbon feed is switched out of a drum, the drum is cooled and the coke removed to the pit using high pressure water.

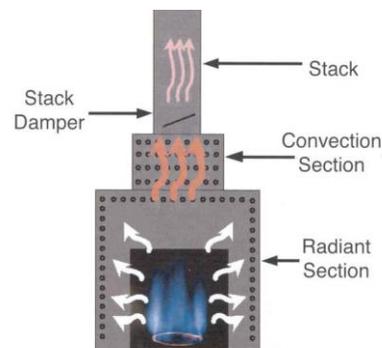
The subject Coker Heater H-101, 218.4 MMBTU/hr, is fired on refinery fuel gas. This heater is equipped with air pre-heating, low NOx burners, CEMs, forced draft fan and induced draft fan. It has 80 low NOx burners that are arranged on the floor of the firebox. The heater is designed to operate at an inlet temperature of 700 degrees F and an outlet temperature of 930 degrees F. The general purpose of the H-101 heater is to provide the DCU with the heat required to heat the feed or "charge" to a predetermined temperature to make petroleum coke in the Coke Drums.



The Coker Heater is an enclosed structure, cabin type four-pass heater. The charge to the heater is combined with steam condensate as it enters the convection section of the heater. This allows the charge to heat up gradually because the convection section is cooler. As the tubes pass into the radiant section of the firebox, the tubes pick up the radiant heat from the burners. The steam condensate is used to boost up the pressure and increases the velocity of the charge thus delaying the coking process until the charge reaches the Coke Drums.

The total charge to the heater is divided between two sets of coke drums. The two sets of two drums compliment each other. While one drum is coking, the other drum is either steaming, water cooling, coke cutting or in steam test/warm up. The heater services this 'semi-batch operation' for the coking process and therefore, it operates with two sides, north and south. One side, which has 40 burners, is in circulation and one side, which has the other 40 burners, is in startup. Then the circulating side is started up while the other side is in normal operation.

The heater emissions are affected by various operations of the heater. The operations that can affect emissions involve how each side of the heater is operated. The following operations are discussed below: Heater/Fuel Gas Trip, Decoke of the heater, Cold Start and Warm/"Hot" Start. See below and attachment 3 for the heater configuration.



COKER HEATER OPERATING SCENARIOS

The heater emissions are affected by various operations of the heater. The operations that can affect emissions involve how each side of the heater is operated. The following operations are discussed below: Decoke of the heater, Cold Start and Warm/"Hot" Start, Heater/Fuel Gas Trip.

Decoke of the Heater : The coker heater fuel gas valves are isolated, the natural draft air doors are opened, normally a few pilots are kept lit to prevent a combustible mixture from accumulating inside the firebox and the coke build up inside the heater process tubes is removed. High CO results when the heater is restarted. One side of the heater is given coker heater charge and the other remains on gas oil flush circulating. The side



given charge is brought up to 930 degF from 700 degF by introducing fuel gas to the 40 burners on this side; these must be manually lined up and lit individually. Frequency is approximately every six months.

Cold Start: The entire unit is started up after a turnaround. This requires flushing the unit with gas oil and drying out the water by slowly increasing temperatures above the boiling point. Both sides are on circulation of gas oil. Then one side of the heater is given coker heater charge and is brought up to 930 degF from 700 degF by introducing fuel gas to the 40 burners on this side; these must be manually lined up and lit individually. Then the cold side (the side that is circulating gas oil) is given coker heater charge and brought up to match the outlet temperature of the hot side by introducing fuel gas to the 40 burners which must be lit one at a time. Frequency is approximately every 2 years.

Warm/"Hot" Start (one side in circulation): With one side of the heater at 930 degF outlet temperature, and the other side at 700 degF, the cold side is circulating gas oil. The cold side is then given coker heater charge and brought up to match the outlet temperature of the hot side by introducing fuel gas to the 40 burners which must be lit one at a time. Frequency is approximately once every six months.

Heater/Fuel Gas Trip: A fuel gas trip is when the fuel gas emergency isolation valve closes due to one of the following: emergency, low charge flow, low fuel gas pressure due the heater failing to trip to natural draft when triggered. This extinguishes all 80 burners. It requires a restart of the heater and can result in high CO due to low fuel gas firing to increase temperatures similar to what occurs during the 'warm' start.

CHANGE OF CONDITION EVALUATION

After consulting with the District (see the attached e-mail from Mike Kulakowski from Tesoro to Jay Chen dated September 16, 2010), Tesoro installed a portable CO CEMS with high range on the heater during a scheduled shutdown and warm/hot Start for decoking operation of the heater on December 2010. Tesoro submitted the data during the shutdown in December 5, 2010 and warm /hot startup in December 9, 2010. The data, which is attached in the e-mails submitted by Royann Winchester dated May 11, 2011, is from December 3rd through December 10th, 2010 using a portable high range CO CEMS.

Shutdown Procedures Scenario (For Decoke of the heater)

On 12/5/2010, the heater commences to shutdown and to circulate one drum only from 7:23 am to 10:33 am and from 10:23 am to 12:00 pm no fuel gas to heater and shutdown was completed. See the attached e-mail from Royann Winchester dated May 11, 2011.

The total daily emissions on 12/5/2010 was 68.38 lb/day for operating only 10.5 hours which is below the daily limit of 136 lbs/day.(see Attachment 3)



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES

19

PAGE

6

APPL. NO.

509640

DATE

5/9/2011

PROCESSED BY

SAAndrewis

CHECKED

BY

During the scheduled turn down operation, the current BACT CO concentration limit specified in the permit (35 ppm CO @3% O₂) was exceeded in attachment 3 to an average of 180.13 ppm @3%O₂; however, the CO emission were well below the Rule 407 limit of 2000 ppm measured on a dry basis, averaged over 15 consecutive minutes.

Startup Procedures Scenario (Warm/"Hot" Start)

On 12/9/2010, the heater startup procedures would start by first commencing the fuel gas firing and starting both sides on circulation. The startup of the heater was completed in 12 hours, from 9:00 am to 9:00 pm. See the attached e-mail from Royann Winchester dated May 11, 2011.

The total daily emissions on 12/9/2010 was 48 lb/day for operating only 15 hours which is below the daily limit of 136 lbs/day.(see Attachment 3)

During the scheduled start up operation, the current BACT CO concentration limit specified in the permit (35 ppm CO @3% O₂) was exceeded in attachment 3 to highest 15min average of 213 ppm @3%O₂; however, the CO emission were well below the Rule 407 limit of 2000 ppm measured on a dry basis, averaged over 15 consecutive minutes.

Conclusion

The operational periods of the heater when the CO concentration limit is not achievable are described below;

Following the shutdown of the heater and when the heater process temperature is getting up to normal operating range during start-up.

1. Up to two hours of a heater shutdown/startup: A heater shutdown/startup is defined as when the fuel gas to the heater drops below 15 MSCFH.
2. The time that the heater process outlet temperature reading is less than the normal operating temperature of 850 degree F, following a heater shutdown: (such as, is required during the cold/warm/hot heater startup).

The Unit operating procedure drives the timing of the increase in heater temperatures. It is not simply the act of starting up the heater that determines the time required to achieve a normal operating temperature.

CO mass emissions rate calculations

The calculations to determine the CO mass emissions rate is as follows:

Calculating the adjusted CO concentration is a two step process, done in the spreadsheets used in the exhibits of attachment 2. The first calculation is for 3% O₂ adjusted 15 minute average CO concentration. The equations used are:



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES
19

PAGE
7

APPL. NO.
509640

DATE
5/9/2011

PROCESSED BY
SAAndrewis

CHECKED
BY

15 minute Raw CO = (Raw CO for each of the 15 minutes starting at 0:00 of each hour) / 15

15 minute excess O2 = (Raw O2 for each of the 15 minutes starting at 0:00 of each hour) / 15

15 Minute Adjusted CO = (15 minute raw CO) * ((20.9-3) / (20.9 – 15 minute excess O2))

Then, the 15 minute adjusted CO is used, along with average fuel flow, average Fuel HHV and F factor to determine the daily mass. The equation is:

Daily CO mass = 15 Minute Adjusted CO *(20.9/17.9)*(28/379/1000000)*(8552)*Average Fuel flow*(1000)* Average HHV /(1000000)*24

15 Minute Adjusted CO is in ppm@3%O2

Average Fuel flow is in thousand standard cubic feet / hour

8552 is the F-factor from LAR's RECLAIM program

1265 is the average HHV is in BTU / SCF

The table below for CO emissions calculations during a 15-min exceedance **as an example** taken for 12-05-2010 incident attached in Attachment 3:

Date 12/5/10 15min data) from 7:30AM to 7:44 AM	Date	Time	O ₂	CO	CO ppm @3% O ₂	North Side Htr Outlet Temp (deg F)	South side Htr Outlet Temp (deg F)	FG Flow North (mscfh)	FG Flow South (mscfh)	15 Min Ave. CO (ppm @3% O ₂)	CO hourly mass, lbs
1	12/5/10	7:30AM	13.93	24.74	63.58	809.63	902.26	4.20	72.83		
2	12/5/10	7:31AM	13.91	19.64	50.31	798.68	901.93	3.98	73.01		
3	12/5/10	7:32AM	13.96	38.12	98.34	788.91	901.45	4.25	73.26		
4	12/5/10	7:33AM	13.94	64.44	165.68	780.48	900.94	3.86	73.60		
5	12/5/10	7:34AM	13.90	112.83	288.35	773.30	900.58	4.08	73.82		
6	12/5/10	7:35AM	13.74	153.35	383.10	767.32	900.22	4.16	74.07		
7	12/5/10	7:36AM	13.70	136.16	338.51	762.31	899.78	4.21	74.37		
8	12/5/10	7:37AM	13.73	97.25	242.85	758.29	899.17	4.16	74.77		
9	12/5/10	7:38AM	13.73	77.13	192.62	754.98	898.32	4.15	75.10		
10	12/5/10	7:39AM	13.74	76.72	191.85	752.14	897.57	4.10	75.58		
11	12/5/10	7:40AM	13.68	73.35	181.90	749.81	897.19	4.11	76.03		
12	12/5/10	7:41AM	13.64	75.74	186.82	747.75	897.15	4.10	76.46		
13	12/5/10	7:42AM	13.62	71.68	176.33	746.17	897.56	3.98	76.91		
14	12/5/10	7:43AM	13.57	71.49	174.48	744.72	897.96	3.97	77.01		
15	12/5/10	7:44AM	13.51	74.47	180.44	743.44	898.38	4.14	77.26		
15-min average	12/5/10		13.75	77.81	194.34	765.20	899.36	4.10	74.94	194.34	14.33



PROPOSED NEW CONDITION

The District is proposing a condition to clarify that the 35 ppm CO limit applies only during normal operation of this heater and not during shutdown and startups periods. However, the daily emission rate of 136 lbs/day specified in condition A63.2 shall apply at all times.

A99.18 The 35 ppm CO limit shall not apply to this heater during the following periods:

- a) Up to 2 hours following a heater shutdown, or
- b) the time beginning when either (or both) process outlet temperature reading for the heater (north or south) is below 850° F and ending when both process temperature readings (north and south) are above 850° F.

However, the daily emission rate of 136 lbs/day specified in Condition A63.2 shall apply at all times.

For the purposes of this condition, a heater shutdown/startup shall be defined as when the fuel gas to either (or both) side of the heater (north or south) drops below 15 MSCH.

Written records of shutdowns and startups shall be maintained and made available upon request from the Executive Officer of his designee

Note: CO CEMS is required per condition A63.2; also CO source test is required every 3 years per condition D28.3. Tesoro has a certified CO monitor for a range span 0 to 100 ppm. However, after reviewing the CO results that Tesoro submitted due to the change of operating scenarios, the District requested that the CO analyzer span would be change from 0 to 200 ppm. Tesoro intend to report CO concentrations from H-101 at actual measured value. The Low Level Calibration Error(LLCE) and Low Level spike recovery (LLSR) testing will be performed during certification and annual recertification as a supplemental and alternative performance requirements to certify these CEMS. Tesoro submitted on May 19, 2011 a Relative Accuracy test for certification of the CO CEMS that included LLCE and LLSR (see in attachment 4 the attached emails and the CEMS certification regarding the CO certification)

Note: Tesoro requested 15 MSCFH as the cutoff, due to the fact that unfortunately, sometimes orifice meters and transmitters do not show zero when there is no flow, particularly when they are ranged for high flow rates. In reviewing the data, Tesoro found instances where the fuel valve was closed, but the meter still indicated around 12 MSCFH. This is in spite of attempts to re-calibrate and re-zero the meter. On that basis, Tesoro requested 15 MSCFH as the cutoff.



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES
19

PAGE
9

APPL. NO.
509640

DATE
5/9/2011

PROCESSED BY
SAAndrewis

CHECKED
BY

RULE EVALUATION:

PART 1 SCAQMD REGULATIONS

Rule 212	Standards for Approving Permits	November 14, 1997
	<p>In accordance with Rule 219(c), a significant project is a new or modified facility in which:</p> <p>(1) the new or modified permit unit is located within 1000 feet of a school;</p> <p>(2) the new or modified facility has on-site emission increases exceeding the daily maximum specified in subdivision (g); or</p> <p>(3) the new or modified permit unit has an increased cancer risk greater than, or equal to, one in a million (1×10^{-6}) during a lifetime of 70 years or pose a risk of nuisance.</p> <p>This change of condition is not considered a significant project under this rule since the permit unit is not being modified and is:</p> <p>(1) are not located within 1,000 feet of a school;</p> <p>(2) do not exceed the daily maximum specified in subdivision (g); or</p> <p>(3) do not increase the cancer risk greater than, or equal to, one in a million (1×10^{-6}).</p> <p>Therefore, a public notice is not required.</p>	
Rule 401	Visible Emissions	November 9, 2001
	Visible emissions are not expected under normal operating conditions.	
Rule 402	Nuisance	May 7, 1976
	Nuisance complaints associated with the above project are not expected under normal operating conditions.	
Rule 404	Particulate Matter-Concentration	February 7, 1986
	This rule sets forth particulate mater emission standards based on the gas discharge rate. Normally, equipment which fires on gaseous fuel can be meet these standards. This heater is fired on refinery gas only, therefore compliance is expected.	
Rule 407	Liquid and Gaseous Air Contaminants	April 2, 1982
	This rule limits CO emissions to 2,000 ppm, averaged over 15 consecutive minutes. Condition A63.2 is tagged to the heater and a source test performed in September 23, 2010 showed the actual measured CO concentration to be 23 ppmv corrected to 3% oxygen, which is well below 2,000 ppm. During all the incidents that the heater exceeded the 35 ppm CO@ 3 % O2 limit, the heater was well below the 2,000 ppm. Therefore, compliance is expected.	



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES

19

PAGE

10

APPL. NO.

509640

DATE

5/9/2011

PROCESSED BY

SAAndrewis

CHECKED

BY

Rule 409	Combustion Contaminants	August 7, 1981
	This rule limits particulate matter emissions to 0.1 gr/cf of gas, averaged over a minimum of 15 consecutive minutes. Source tests have demonstrated compliance with this limit. Continuous compliance is expected.	
Rule 431.1	Sulfur Content Of Gaseous Fuels	June 12, 1998
	Tesoro is a SOx RECLAIM facility. In accordance with Rule 2001(j), Rule 431.1 was subsumed by RECLAIM. Therefore, the SOx limits do not apply to this facility.	

Rule 1123	Refinery Process Turnarounds	December 7, 1990
	This process unit is subject to the turnaround requirements of this rule. Tesoro submitted Process Turnarounds Compliance Plan, which has been approved under application A/N 474117. The proposed Rule 1123 compliance plan was issued and the letter to the facility was sent on July 21, 2010. Tesoro currently keeps records of the process unit turnaround and is expected to comply with this rule.	

REG XIII	New Source Review	December 6, 2002																					
	<p>NSR does apply to this heater for CO. On June 11, 2007, EPA re-designated the South Coast Air Basin (SCAB) as attainment with respect to CO National Ambient Air Quality Standards (NAAQS). Since AQMD was already attainment with State standards and NAAQS for the rest of basin, and CO is not identified as a precursor to any non-attainment pollutants in Regulation XIII, the requirements of Regulation XIII (Rule 1303) do not apply to any new or modified source with a net emission increase in CO. In accordance with Mohsen Nazemi's August 14, 2007 policy memo regarding PSD Delegation, no CO offsets will be required in the form of ERCs and no NSR codes from the Priority Reserve or Rule 1304 exemptions to offset emission increases for CO should be used for all new permits issued for equipment with CO emission increases. However, the policy memo also requires BACT when NSR is triggered. There is no emission increases of CO from this change of condition application; therefore, NSR is not triggered.</p> <p>Although there is no increase of CO emissions, below is a summary of the emissions entered in NSR for the previous and current application:</p> <p style="text-align: center;">Table - Heater H-101 NSR CO Emissions</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">A/N</th> <th colspan="4">CO Emissions</th> </tr> <tr> <th>Hourly, lbs/hr</th> <th>30-avg, lbs/day</th> <th>Emission increase, lbs/day</th> <th>Emissions Offset required lbs/day</th> </tr> </thead> <tbody> <tr> <td>351727 (previous application)</td> <td>5.6</td> <td>136</td> <td>82</td> <td>90*</td> </tr> <tr> <td>509446</td> <td>5.6</td> <td>136</td> <td>---</td> <td>---</td> </tr> </tbody> </table> <p>* Tesoro provided 90 lbs/day CO ERCs in 1999 (see attachment 5).</p> <p>This revision does not affect emissions of other criteria pollutants: therefore NSR</p>				A/N	CO Emissions				Hourly, lbs/hr	30-avg, lbs/day	Emission increase, lbs/day	Emissions Offset required lbs/day	351727 (previous application)	5.6	136	82	90*	509446	5.6	136	---	---
A/N	CO Emissions																						
	Hourly, lbs/hr	30-avg, lbs/day	Emission increase, lbs/day	Emissions Offset required lbs/day																			
351727 (previous application)	5.6	136	82	90*																			
509446	5.6	136	---	---																			



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES

19

PAGE

11

APPL. NO.

509640

DATE

5/9/2011

PROCESSED BY

SAAndrewis

CHECKED

BY

	is not triggered for other pollutants as well.	
Rule 1401	New Source Review of Toxic Air Contaminants	June 5, 2009
	Rule 1401 should not apply to this change of condition since this rule applies to new, relocated, and modified permit units. Rule 1401(c)(9) defines <i>modification</i> as “any physical change in, change in method of operation, or addition to an existing permit unit that requires an application....” Therefore, since this change in condition is not a modification according to Rule 1401(c)(9), Rule 1401 does not apply in this case.	

REG XVII	Prevention of Significant Deterioration (PSD)	August 13, 1999
1701(b)- Applicability	Upon delegation by EPA, this regulation applies to preconstruction review of stationary sources that emit attainment air contaminants. On June 11, 2007, EPA re-designated the South Coast Basin as attainment with respect to CO National Ambient Air Quality Standards (NAAQS). Since the heater emits CO (an attainment air contaminant) and is located in the South Coast Basin, it is subject to PSD review.	
1701(b)(1)	BACT. As noted in the Emissions section, there is no net emission increase in potential to emit (PTE) emissions. As proposed above the higher CO concentration (35 ppm @3% O2) would be allowed only for shutdown and startups operation, the PTE would remain the same. This change of condition does not result in a change in the method of operation during shutdowns and startups. Therefore, BACT does not apply to this change of condition since there no increase in PTE emissions.	
1701(b)(2)	<p>The requirements of this regulation apply to the following stationary sources:</p> <p>(A) Increase in Potential to Emit. The modification proposed at this existing source will not increase the potential to emit greater than 100 tons of CO per year.</p> <p>(B) Significant Emission Increase. Rule 1702(s) defines a significant emission increase of CO as an increase greater than 100 tons per year. The potential emissions does not change, therefore, there is no increase for CO.</p> <p>(C) Class I Area. The refinery is not located within 10 km of a Class I area.</p> <p>Therefore, the requirements of this regulation do not apply to this heater change of condition.</p>	
1701(b)(3)	<p>Major Stationary Source. Since the source does not meet any of the conditions of subparagraph (b)(2), it is not considered a PSD major stationary source.</p> <p>The CO change of condition will not result in an increase of emissions and therefore will not result in PSD major modification. Therefore, this heater is not subject to PSD permitting requirements. Compliance is expected.</p>	



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES

19

PAGE

12

APPL. NO.

509640

DATE

5/9/2011

PROCESSED BY

SAAndrewis

CHECKED

BY

<p>REG XVII Rule-1714</p>	<p>Prevention of Significant Deterioration for greenhouse gases Adopted November 5, 2010</p>
	<p>A recent EPA Endangerment Finding for greenhouse gases (GHG) means that emissions of GHG need to be evaluated under PSD. Note that ambient air quality standards have not yet been released for GHG. Therefore, as the South Coast Air Basin is <i>not</i> in <i>nonattainment</i>, GHG emissions are also subject to PSD in South Coast under Rule 1714.</p> <p>The newly-promulgated Tailoring Rule specifies that GHG emissions must be evaluated under PSD for permits issued after January 2nd, 2011 for projects at existing PSD or Title V sources in South Coast according to a phased-in applicability time frame. The subject equipment is located at a Title V facility (Tesoro was issued a Title V permit effective 11/23/09). Note that because this change of condition is expected to take place after July 1, 2011, the Tailoring Rule Step 2 would apply. This means that a significant emission increase of GHGs can itself trigger PSD for modifications</p> <p>The CO change of condition will not result in an increase of emissions of any pollutant including GHG and therefore will not result in PSD major modification. Therefore, this heater is not subject to PSD permitting requirements. Compliance is expected.</p>
<p>Rule 2005</p>	<p>New Source Review for RECLAIM April 20, 2001</p>
	<p>Since no increase in NOx and SOx emission is expected, these applications are not subject to RECLAIM NSR.</p>
<p>Regulation XXX</p>	<p>Title V March 16, 2001</p>
	<p>Rule 3001(a): Applicability</p> <p>Tesoro Refinery is currently subject to Title V. The permit issued for this heater will be issued as a revision of the Title V permit. Permit revisions are categorized into the following four types: administrative, minor, de minimus significant and significant.</p> <p>As defined in Rule 3000, a minor Title V permit revision is any revision that does not include any of the following:</p> <ol style="list-style-type: none"> 1. relaxation of any monitoring, recordkeeping, or reporting requirement, term, or condition in the Title V permit; 2. the addition of equipment or modification to existing equipment or processes that result in an emission increase of non-RECLAIM pollutants or hazardous air pollutants (HAP) in excess of any of the emission threshold levels ; 3. any modification at a RECLAIM facility that results in an emission increase



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES

19

PAGE

13

APPL. NO.

509640

DATE

5/9/2011

PROCESSED BY

SAAndrewis

CHECKED

BY

of RECLAIM pollutants over the facility's starting Allocation plus the nontradeable Allocations;

4. requests for a permit shield when such requests are made outside applications for initial permit or permit renewal issuance;
5. any revision that requires or changes a case-by-case evaluation of reasonably available control technology (RACT) pursuant to Title I of the federal Clean Air Act; or maximum achievable control technology (MACT) pursuant to 40 CFR Part 63, Subpart B;
6. any revision that results in a violation of regulatory requirements;
7. any revision that establishes or changes a permit condition that the facility assumes to avoid an applicable requirement;
8. installation of new equipment subject to a New Source Performance Standard (NSPS) pursuant to 40 CFR Part 60, or a National Emission Standard for Hazardous Air Pollutants (NESHAP) pursuant to 40 CFR Part 61 or 40 CFR Part 63; or,
9. modification or reconstruction of existing equipment, resulting in an emission increase subject to new or additional NSPS requirements pursuant to 40 CFR Part 60, or to new or additional NESHAP requirements pursuant to 40 CFR Part 61 or 40 CFR Part 63.

The Tesoro Los Angeles Refinery has been designated as a Title V facility. The initial Title V permit was issued on November 23, 2009. The proposed change of the permit condition for the subject heater does not meet any of the requirements above; it only clarifies that the CO concentration limit of 35 ppm does not apply during the startup/shutdown periods that was defined on page 4 of this evaluation. Therefore, this Title V permit revision A/N 509460 qualifies as a **minor revision**, which will be sent to EPA for a 45-day review. Public notice is not required. A final copy of the permit will be submitted to the EPA within 5 working days of its issuance.

PART 2 STATE REGULATIONS

California Environmental Quality Act (CEQA)

According to the District's CEQA guidelines, the thresholds for significant effect are:

NOx	55 pounds per day
ROG	55 pounds per day
PM10	150 pounds per day
CO	550 pounds per day
SOx	150 lbs per day

Based on the emissions shown in Emissions section, this proposed change of condition is not a significant project. Therefore, preparation of a CEQA document is not required.



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES

19

PAGE

14

APPL. NO.

509640

DATE

5/9/2011

PROCESSED BY

SAAndrawis

CHECKED

BY

PART 3 FEDERAL REGULATIONS

Regulation IX: Standards of Performance for New Stationary Sources (NSPS)

Subpart J	Standards of Performance for Petroleum Refineries
§60.100	<i>Applicability, designation of affected facility, and reconstruction.</i> Since the heater is a fuel combustion device, the heater is subject to this subpart.
§60.104(a)(1)	<i>Standards for sulfur oxides.</i> The operator shall not burn in the heater any fuel gas that contains hydrogen sulfide (H ₂ S) in excess of 230 mg/dscm (0.10 gr/dscf)*. Tesoro operates two H ₂ S CEMS on their fuel gas system. A check of the H ₂ S CEMS data recorded shows the daily average H ₂ S was well below 160 ppm. Therefore, the refinery complies with this subpart.
§60.105(a)(4)	<i>Monitoring of emissions and operations.</i> Tesoro operates two H ₂ S CEMS on their fuel gas system. The 88-AI-942 CEMS analyzes all treated fuel gas that is normally used within the refinery for heater and boiler fuel gas combustion and other process purposes. The 88-AI-945 CEMS analyzes all treated fuel gas that is normally sent directly to the flare for combustion purposes. Each of these analyzers was installed to demonstrate compliance with 40CFR 60.104(a)(1) and 60.105(a)(4)-Monitoring of emissions and operations.

*160 ppm

Regulation X: National Emission Standards for Hazardous Air Pollutants (NESHAPS)

Subpart DDDDD	National Emission Standards for Hazardous Air Pollutants for Industrial, Commercial, and Institutional Boilers and Process Heaters
§63.7485	<i>Am I subject to this subpart?</i> A facility is subject to this subpart if it operates an industrial, commercial, or institutional boiler or process heater as defined in §63.7575 that is located at, or is part of, a major source of HAP as defined in §63.2. §63.7575 defines <i>Large gaseous fuel subcategory</i> as “any watertube boiler or process heater that burns gaseous fuels not combined with any solid fuels, burns liquid fuel only during periods of gas curtailment or gas supply emergencies, has a rated capacity of greater than 10 MMBtu per hour heat input, and has an annual capacity factor of greater than 10 percent”. Therefore, the heater operated at Tesoro is subject to this subpart.
§63.7490	<i>What is the affected source of this subpart?</i> The heater is considered an existing source since it is not new or reconstructed.
§63.7595(b)	<i>When do I have to comply with this subpart?</i> Existing units will be required to comply with the regulation within three years after the final rule is published in the federal register. The proposed regulation defines eleven (11) subcategories of boilers and process heaters. Emission limits for new and existing boilers and process heaters are specified in Tables 1 and 2 of the proposed regulation. The tables do not contain any emission limits for new or



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES 19	PAGE 15
APPL. NO. 509640	DATE 5/9/2011
PROCESSED BY SAAndrewis	CHECKED BY

existing boilers or process heaters in the natural gas/refinery gas category. As specified in paragraph no. 3, Determination of the Work Practice Standard, of the proposed regulation, boilers and process heaters in the natural gas/refinery gas subcategory that have a heat input capacity greater than 10 MMBtu/hr would be subject to an annual tune-up. Additionally, all existing boilers would be subject to a one-time energy assessment performed by qualified personnel.

Since the Existing process heaters are not subject to any emission limits, they are also not subject to any of the operating limits, performance testing, or other compliance requirements specified in Tables 4 through 8 of the proposed regulation.

Due to a lack of emission limits, it is not expected that the regulation, as proposed, will have a significant impact on the design of the existing process heater. Based on past compliance with similar regulations, it is expected that Tesoro would comply with this regulation as proposed. No changes to the permit or additional action are required at this time.

*This maximum achievable control technology(MACT) standard was originally promulgated by EPA on September 13,2004 and was vacated and remanded by the US court of Appeals for the District of Columbia Circuit on June 19, 2007. A new rule was proposed on June 4, 2010. The public comment period for the proposed rule ended on August 23, 2010. However, **The EPA is delaying the effective dates for the final rules until the proceedings for judicial review of these rules are completed or the EPA completes its reconsideration of the rules, whichever is earlier.***

DATES: The effective dates of the final rules published in the **Federal Register** on March 21, 2011 (76 FR 15608 and 76FR 15704), are delayed until such time as judicial review is no longer pending or until the EPA completes its reconsideration of the rules, whichever is earlier.

**CONCLUSION/RECOMMENDATIONS**

Although Tesoro is expected to be placed under order of Abatement for the NOV(P52842) that was issued for HGU-2 unit, this unit has been shutdown since 4-6-2010 and is not expected to operate till a variance or order of abatement is granted. Thus the District, considers this facility to be in compliance with all the permit requirements, and shall recommend the issuance of the subject permit to operate subject to the conditions below:

A63.2 the operator shall limit emissions from this equipment as follows:

<i>Contaminant</i>	<i>Emissions Limit</i>
CO	Less than or equal to 136 lbs per day
PM	Less than or equal to 26 lbs per day
ROG	Less than or equal to 26 lbs per day
SOx	Less than or equal to 86368 lbs in any one year

The operator shall calculate the emission limit(s) of CO based on the AQMD certified continuous monitor pursuant to Rule 218 **for all operating scenarios including normal operation, decoking, startups, shutdowns.** This monitoring system shall have the capability to show the cumulative daily emissions.

The operator shall calculate the emission limit(s) of SOx by using daily emission data reported to the AQMD pursuant to regulation XX, for any 365-day period to demonstrate exemption from PSD requirements.

[RULE 1303(b)(2)-Offset, 5-10-1996]

[Devices subject to this condition : D32]

A99.18 The 35 ppm CO limit shall not apply to this heater during the following periods:

- a) Up to 2 hours following a heater shutdown, or
- b) the time beginning when either (or both) process outlet temperature reading for the heater (north or south) is below 850° F and ending when both process temperature readings (north and south) are above 850° F.

However, the daily emission rate of 136 lbs/day specified in condition A63.2 shall apply at all times.

For the purposes of this condition, a heater shutdown/startup is defined as when the fuel gas to the heater drops below 15 MSCFH.

Written records of shutdowns and startups shall be maintained and made available upon request from the Executive Officer or his designee

[RULE 1303(b)(2)-Offset, 5-10-1996][Devices subject to this condition: D32]

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 19	PAGE 17
	APPL. NO. 509640	DATE 5/9/2011
	PROCESSED BY SAAndrewis	CHECKED BY

B61.1 the operator shall not use fuel gas containing the following specified compounds:

Compound	ppm by volume
H2S greater than	160

[40CFR 60 Subpart J, 10-4-1991]

[Devices subject to this condition : D9, D32, D89, D90, D112, D216, D810, D812]

D28.3 The operator shall conduct source test(s) in accordance with the following specifications:

The test shall be conducted to confirm the emission limits of this equipment as specified in condition A63.2

The test shall be conducted to determine and report the mass emission rate in pound per hour for NOx, SOx, ROG, CO, total PM, and PM10.

Source test shall be conducted when this equipment is operating at 80 percent or greater of the permitted maximum rated capacity.

The test shall be conducted to confirm the CO emission concentration limit of 35 ppm, corrected to 3 percent oxygen, dry basis.

The test shall be conducted within 60 days after achieving maximum production rate, but no later than 180 days after initial start-up.

The district shall be notified of the date and time of the test at least 10 days prior to the test.

The test shall be conducted at least once every three years for ROG, ~~CO~~^{*}, and PM10 emissions

[RULE 1303(a)(1)-BACT, 5-10-1996; RULE 1303(b)(2)-Offset, 5-10-1996]

[Devices subject to this condition : D9, D32]

*THE CO is continuously recorded by Certified CO CEMS

D90.7 The operator shall continuously monitor the H2S concentration in the fuel gases before being burned in this device according to the following specifications:

The operator may monitor the H2S concentration at a single location for fuel combustion devices, if monitoring at this location accurately represents the concentration of H2S in the fuel gas being burned in this device.

 <p>SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT</p> <p>ENGINEERING AND COMPLIANCE DIVISION</p> <p>APPLICATION PROCESSING AND CALCULATIONS</p>	PAGES 19	PAGE 18
	APPL. NO. 509640	DATE 5/9/2011
	PROCESSED BY SAAndrewis	CHECKED BY

The operator shall use gas chromatograph meeting the requirements of 40CFR60 Subpart J to monitor the parameter.

The operator shall also install and maintain a device to continuously record the parameter being monitored.

[40CFR 60 Subpart J, 10-4-1991]

[Devices subject to this condition: D9, D32, D89, D90, D112, D216, D217, D810, D812]

D328.1 The operator shall determine compliance with the CO emission limit(s) either: (a) conducting a source test at least once every five years using AQMD method 100.1 or 10.1; or (b) conducting a test at least annually using a portable analyzer and AQMD-approved test method. The test shall be conducted when the equipment is operating under normal conditions to demonstrate compliance with CO emission limit(s). The operator shall comply with all general testing, reporting, and recordkeeping requirements in sections E and K of this permit.

[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997; RULE 404, 2-7-1986; RULE 405, 2-7-1986]

[Devices subject to this condition : ~~D32~~, D89, D90, D216, D217]

E193.5 The operator shall operate and maintain this equipment according to the following requirements:

To maintain the PM10 average daily value to 26 lbs or below from this equipment H-101(D32), the DCU Propane Vaporizer E-1465(D1616-P2S1) will only operate when the DCU Sponge Oil Absorber V-910 (D1143-P2S1) is in operation

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

[Devices subject to this condition: D32]

H.23.3 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
H2S	40CFR 60 Subpart	J

[40CFR 60 Subpart J, 10-4-1991]

[Devices subject to this condition : D9, D32, D89, D90, D112, D216, D217]



SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

ENGINEERING AND COMPLIANCE DIVISION

APPLICATION PROCESSING AND CALCULATIONS

PAGES

19

PAGE

19

APPL. NO.

509640

DATE

5/9/2011

PROCESSED BY

SAAndrewis

CHECKED

BY

Attachments

1.	NOV's and NC's Issued
2.	Heater configuration
3.	CO concentration data on 12/5/2010 and 12/9/2010
4.	Source Test Report dated 9/23/2010
5.	CO ERC Certificate
6.	Field and meeting notes