



**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT  
ENGINEERING AND COMPLIANCE DIVISION**

ENGINEERING EVALUATION REPORT

PAGE	1 of 23
APPL. NO	553163 and 553168
PROCESSED BY	Yan Yang
CHECKED BY	
DATE	7/17/2013

Alteration/Modification

**COMPANY NAME:** Tesoro Refining & Marketing Company LLC,  
Tesoro Los Angeles Refinery – Carson Operations  
Facility ID # 174655

**MAILING ADDRESS:** P.O. Box 6210  
Carson, CA 90749

**EQUIPMENT LOCATION:** 2350 E 223<sup>rd</sup> Street  
Carson, CA 90810

**CONTACT PERSON:** David Essex  
Environmental Permitting Engineer  
(310) 847-5648

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SECTION H: FACILITY DESCRIPTION AND EQUIPMENT SPECIFIC CONDITIONS

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**EQUIPMENT DESCRIPTION:**

The following equipment under Process 5/System 2 in Section D of the Title V permit will be move to Section H. Additions and deletions are noted in underlines and ~~strikeouts~~, respectively.

Equipment	ID No.	Connected To	RECLAIM Source Type / Monitoring Unit	Emission* And Requirements	Conditions
<b>Process 5: HYDROTREATING</b>					
<b>System 2: MID-BARREL DESULFURIZER</b>					S13.2, S15.6, S56.1
REACTOR, RPV 3900, HEIGHT: 27 FT 9 IN; DIAMETER: 8 FT 6 IN A/N: <u>429540 553163</u> Permit to Construct Issued: (Issuance Date)	D334				
SCRUBBER, RPV 3901, RECYCLE GAS MDEA, HEIGHT: 59 FT 6 IN; DIAMETER: 4 FT 6 IN A/N: <u>429540 553163</u> Permit to Construct Issued: (Issuance Date)	D335				
COLUMN, STRIPPER, RPV 3902, STABILIZER SIDESTREAM, HEIGHT: 28 FT 6 IN; DIAMETER: 2 FT 6 IN A/N: <u>429540 553163</u> Permit to Construct Issued: (Issuance Date)	D336				



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Equipment	ID No.	Connected To	RECLAIM Source Type / Monitoring Unit	Emission* And Requirements	Conditions
<b>Process 5: HYDROTREATING</b>					
<b>System 2: MID-BARREL DESULFURIZER</b>					S13.2, S15.6, S56.1
COLUMN, STABILIZER, RPV 3903, HEIGHT: 70 FT 8 IN; DIAMETER: 8 <del>6</del> FT / <b>9 FT</b> A/N: 429540 553163 Permit to Construct Issued: (Issuance Date)	D337				
SCRUBBER, RPV 3904, STABILIZER OFF-GASES MDEA, HEIGHT: 49 FT ; DIAMETER: 2 FT 6 IN A/N: 429540 553163 Permit to Construct Issued: (Issuance Date)	D338				
TANK, FLASH, RPV 3909, REACTOR EFFLUENT, HEIGHT: 20 FT ; DIAMETER: 7 FT A/N: 429540 553163 Permit to Construct Issued: (Issuance Date)	D339				
VESSEL, SEPARATOR, RPV 3910, DESULFURIZER OIL-WATER, LENGTH: 10 FT ; DIAMETER: 3 FT A/N: 429540 553163 Permit to Construct Issued: (Issuance Date)	D340				
ACCUMULATOR, RPV 3911, STABILIZER OVERHEAD, HEIGHT: 10 FT ; DIAMETER: 4 FT A/N: 429540 553163 Permit to Construct Issued: (Issuance Date)	D341				
POT, COMPRESSOR SUCTION, RPV 3912, STABILIZER OFF-GAS, HEIGHT: <del>5</del> 4 FT 4 IN; DIAMETER: 2 FT A/N: 429540 553163 Permit to Construct Issued: (Issuance Date)	D342				
KNOCK OUT POT, RPV 3913, HYDROGEN FEED GAS, HEIGHT: 4 FT ; DIAMETER: 2 FT A/N: 429540 553163 Permit to Construct Issued: (Issuance Date)	D343				
DRUM, KNOCK OUT, RPV 3915, RECYCLE GAS MDEA, HEIGHT: 7 FT ; DIAMETER: 2 FT 6 IN A/N: 429540 553163 Permit to Construct Issued: (Issuance Date)	D345				
DRUM, KNOCK OUT, RPV 3916, STABILIZER RELEASE OFF GAS, HEIGHT: 6 FT ; DIAMETER: 2 FT A/N: 429540 553163 Permit to Construct Issued: (Issuance Date)	D346				



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Equipment	ID No.	Connected To	RECLAIM Source Type / Monitoring Unit	Emission* And Requirements	Conditions
<b>Process 5: HYDROTREATING</b>					
<b>System 2: MID-BARREL DESULFURIZER</b>					
VESSEL, SEPARATOR, RPV 3917, STABILIZER OFF-GAS, HEIGHT: 4 FT ; DIAMETER: 2 FT A/N: 429540 <u>553163</u> Permit to Construct Issued: (Issuance Date)	D347				S13.2, S15.6, S56.1
FILTER, RPV 5654, FEED S, HEIGHT: <u>3 4</u> FT <u>40 5</u> IN; DIAMETER: 2 FT 6 IN A/N: 429540 <u>553163</u> Permit to Construct Issued: (Issuance Date)	D348				
FILTER, RPV 5655, FEED N, HEIGHT: <u>3 4</u> FT <u>40 5</u> IN; DIAMETER: 2 FT 6 IN A/N: 429540 <u>553163</u> Permit to Construct Issued: (Issuance Date)	D349				
COMPRESSOR, RW 0033- <u>087.32</u> , THREE STAGE RECYCLE & MAKEUP HYDROGEN, INGERSOLL-RAND 13075 SCFM. WITH PACKED GLAND A/N: 429540 <u>553163</u> Permit to Construct Issued: (Issuance Date)	D350				
COMPRESSOR, RW <u>0036-087.32</u> , THREE STAGE RECYCLE & MAKEUP HYDROGEN, INGERSOLL-RAND 13075 SCFM. WITH PACKED GLAND A/N: 429540 <u>553163</u> Permit to Construct Issued: (Issuance Date)	D351				
COMPRESSOR, RW 0035- <u>087.32</u> , OFF GAS, INGERSOLL-RAND 622 SCFM. WITH PACKED GLAND A/N: 429540 <u>553163</u> Permit to Construct Issued: (Issuance Date)	D352				
COMPRESSOR, RW 0034- <u>087.32</u> , OFF GAS, INGERSOLL-RAND 622 SCFM. WITH PACKED GLAND A/N: 429540 <u>553163</u> Permit to Construct Issued: (Issuance Date)	D353				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 429540 <u>553163</u> Permit to Construct Issued: (Issuance Date)	D2483			<b>HAP: (10) [40CFR 63 Subpart CC, #5A, 6-23-2003]</b>	H23.3

The following equipment under Process 21/System 2 in Section H of the Title V permit will be modified as follows. Additions and deletions are noted in underlines and ~~strikeouts~~, respectively.



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Equipment	ID No.	Connected To	RECLAIM Source Type / Monitoring Unit	Emission* And Requirements	Conditions
<b>Process 21: AIR POLLUTION CONTROL PROCESS</b>					
<b>System 2: FLUID CATALYTIC CRACKING UNIT FLARE SYSTEM</b>					
FLARE, ELEVATED WITH STEAM INJECTION, WITH A LIGHT GAS SEAL, 15 STEAM JETS & 2" CENTER STEAM DISCHARGE, NATURAL GAS, SERVING AS BACKUP FOR THE UNITS HANDLED BY THE HYDROCRACKER & THE COKER FLARES, HEIGHT: 128 FT ; DIAMETER: 2 FT WITH A/N: 488608 553168 Permit to Construct Issued: 06/02/09  BURNER, JOHN ZINK, MODEL QSC-24	C1305			CO: 2000 PPMV (5) [RULE 407, 4-2-1982]; PM: 0.1 GRAINS/SCF (5) [RULE 409, 8-7-1981]	S31.9, S31.10, S56.1, S58.3  D12.15, D323.1, E193.3, E193.21, H23.12, H23.29
DRUM, FLARE KNOCKOUT, RPV 2132, LENGTH: 30 FT ; DIAMETER: 12 FT A/N: 488608 553168 Permit to Construct Issued: 06/02/09	D1306			BENZENE: (10) [40CFR 61 Subpart FF, #2, 12-4-2003]; VOC: 500 PPMV (8) [40CFR 61 Subpart FF, 12-4-2003]	E193.18, H23.12
DRUM, WATER SEAL, RW 7000, HEIGHT: 25 FT ; DIAMETER: 12 FT A/N: 488608 553168 Permit to Construct Issued: 06/02/09	D2803				
VESSEL, AUTOPUMP, FCC FLARE, RW-6885-289.09, HEIGHT: 3 FT 11 IN; DIAMETER: 1 FT A/N: 488608 553168 Permit to Construct Issued: 06/02/09	D2865				
VESSEL, AUTOPUMP, FCC FLARE, RW-6886-289.09, HEIGHT: 3 FT 11 IN; DIAMETER: 1 FT A/N: 488608 553168 Permit to Construct Issued: 06/02/09	D2866				
VESSEL, SEPARATOR, RPV 3246, STEAM, HEIGHT: 6 FT ; DIAMETER: 3 FT A/N: 488608 553168 Permit to Construct Issued: 06/02/09	D1307				
FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 488608 553168 Permit to Construct Issued: 06/02/09	D2543			HAP: (10) [40CFR 63 Subpart CC, #5A, 6-23-2003]	H23.3



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**CONDITIONS**

**PROCESS CONDITIONS**

None

**SYSTEM CONDITIONS**

S13.2 All devices under this system are subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1123

**[RULE 1123, 12-7-1990]**

[Systems subject to this condition : ... Process 5, System ... 2 ...]

S15.6 The vent gases from all affected devices of this process/system shall be vented as follows:

All sour gases shall be directed to amine contactor system located within this system.

This process/system shall not be operated unless the amine contactor system is in full use and has a valid permit to receive vent gases from this system.

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

[Systems subject to this condition : ... Process 5, System 2 ...]

S31.9 The following BACT requirements shall apply to VOC service fugitive components associated with the devices that are covered by application number(s) 450816, 450822, 450823, 450824, 450840, 450841, 502189, 502190:

All open-ended valves shall be equipped with cap, blind flange, plug, or a second valve.

All pressure relief valves shall be connected to closed vent system or equipped with rupture disc.

All new process drains installed as a result of this project shall be equipped with a water seal.

All sampling connections shall be closed-purge, closed-loop, or closed-vent system.

All new valves in VOC service installed as a result of this project shall be of leakless type, except those specifically exempted by Rule 1173 or approved by the District in the following applications: heavy liquid service, control valves, instrument piping/tubing, applications requiring torsional valve stem motion, applications where failures could pose safety hazards (e.g. drain valves with valve stems in horizontal position), retrofits with space limitations, and valves not commercially available.



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For the purpose of this condition, leakless valve shall be defined as any valve equipped with sealed bellow or equivalent as approved in writing by the District prior to installation. Components shall be defined as any valve, flange, fitting, pump, compressor, pressure relief device, diaphragm, hatch, sight-glass, and meter, which are not exempted by Rule 1173.

All accessible pumps, compressors, and atmospheric PRDs shall be audio-visually inspected once per 8 hr shift. All accessible components in light liquid/gas/vapor and pumps in heavy liquid service shall be inspected quarterly, except for pumps in light liquid service and valves in gas/vapor or light liquid service which shall be inspected monthly when required per CFR60 Subpart GGG. All inaccessible or difficult to monitor components in light liquid/gas/vapor service shall be inspected annually.

The following leaks shall be repaired within 7 calendar days - All light liquid/gas/vapor components leaking at a rate of 500 to 10,000 ppm, heavy liquid components leaking at a rate of 100 to 500 ppm or greater than 3 drops/minute, unless otherwise extended as allowed under Rule 1173. The following leaks shall be repaired within 2 calendar days - any leak between 10,000 to 25,000 ppm, any atmospheric PRD leaking at a rate of 200 to 25,000 ppm, unless otherwise extended as allowed under Rule 1173.

The following leaks shall be repaired with in 1 calendar day - any leak greater than 25,000 ppm, heavy liquid leak greater than 500 ppm, or light liquid leak greater than 3 drops per minute.

If 98.0 percent or greater of the new valve and the new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppm for two consecutive months, the operator may revert to a quarterly inspection program with the approval of the executive officer. This condition does not apply to leakless valves.

The operator shall keep records of the monthly inspection (and quarterly where applicable), subsequent repair, and reinspection, in a manner approved by the District.

The operator shall provide to the District, no later than 90 days after initial startup, a recalculation of the fugitive emissions based on actual components installed and removed from service. The operator shall also submit a complete, as built, piping and instrumentation diagram(s) and copies of requisition data sheets for all non-leakless type valves with a listing of tag numbers and reasons why leakless valves were not used.

[**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]**

[Systems subject to this condition : ... ~~Process 21, System 2~~]

S31.10 The following BACT requirements shall apply to VOC service fugitive components associated with the devices that are covered by application number(s) 454566, 454567, 454568, 458598, 458600, 458610, 459257, 459284 & 459286:



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The operator shall provide to the District, no later than 90 days after initial startup, a recalculation of the fugitive emissions based on actual components installed and removed from service. The valves and flanges shall be categorized by size and service. The operator shall submit a listing of all new non-bellows seal valves which shall be categorized by tag no., size, type, operating temperature, operating pressure, body material, application, and reasons why bellows seal valves were not used.

All new valves in VOC service, except those specifically exempted by Rule 1173 and those in heavy liquid service as defined in Rule 1173, shall be bellows seal valves, except as approved by the District, in the following applications: heavy liquid service, control valve, instrument piping/tubing, applications requiring torsional valve stem motion, applications where valve failure could pose safety hazard (e.g., drain valves with valve stems in horizontal position), retrofits/special applications with space limitations, and valves not commercially available.

All new valves and major components in VOC service as defined by Rule 1173, except those specifically exempted by Rule 1173 and those in heavy liquid service as defined in Rule 1173, shall be distinctly identified from other components through their tag numbers (e.g., numbers ending in the letter "N"), and shall be noted in the records.

All new components in VOC service as defined in Rule 1173, except valves and flanges, shall be inspected quarterly using EPA reference Method 21. All new valves and flanges in VOC service, except those specifically exempted by Rule 1173, shall be inspected monthly using EPA Method 21.

If 98.0 percent or greater of the new (non-bellows seal) valves and the new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppmv for two consecutive months, then the operator may change to a quarterly inspection program with the approval of the District.

The operator shall revert from quarterly to monthly inspection program if less than 98.0 percent of the new (non-bellows seal) valves and the new flange population inspected is found to leak gaseous or liquid volatile organic compounds at a rate less than 500 ppmv.

All new components in VOC service with a leak greater than 500 ppmv but less than 1,000 ppmv, as methane, measured above background using EPA Method 21 shall be repaired within 14 days of detection. Components shall be defined as any valve, fitting, pump, compressor, pressure relief valve, diaphragm, hatch, sight-glass, and meter, which are not exempted by Rule 1173.

The operator shall keep records of the monthly inspection (quarterly where applicable), subsequent repair, and reinspection, in a manner approved by the District. Records shall be kept and maintained for at least five years, and shall be made available to the Executive Officer or his authorized representative upon request.

All open-ended valves shall be equipped with cap, blind flange, plug, or a second valve.



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All pressure relief valves shall be connected to a closed vent system or equipped with a rupture disc and telltale indicator.

All pumps shall utilize double seals and be connected to a closed vent system.

All compressors to have a seal system with a higher pressure barrier fluid.

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

[Systems subject to this condition : ... Process 21, System ... 2 ...]

S56.1 Vent gases from all affected devices of this process/system shall be directed to a gas recovery system, except for the venting of gases from equipment specifically identified in a permit condition, and for the following events for which vent gases may be directed to a flare:

- 1) Vent gases resulting from an Emergency as defined in Rule 1118 ;
- 2) Vent gases resulting from Planned Shutdowns, Startups and/or Turnarounds as defined in Rule 1118, provided that the owner/operator follows the applicable options and any associated limitations to reduce flaring that were identified, evaluated and most recently submitted by the owner/operator to the Executive Officer pursuant to Rule 1118, or any other option(s) which reduces flaring for such planned events; and
- 3) Vent gases due to and resulting from an Essential Operational Need, as defined in Rule 1118.

The evaluation of options to reduce flaring during Planned Shutdowns, Startups and/or Turnarounds shall be updated annually to reflect any revisions, and submitted to the Executive Officer in the first quarter of each year, but no later than March 31st of that year.

This process/system shall not be operated unless its designated flare(s) are in full use and have valid permits to receive vent gases from this process/system.

Vent gases shall not be released to the atmosphere except from the existing safety devices or relief valves on the following equipment:

1. Process 1, System 2: 10, 12, 14
2. Process 1, System 3: 19, 20, 24 to 26, 39
3. Process 1, System 5: 41, 42, 2726
4. Process 1, System 6: 43, 49, 57, 58
5. Process 1, System 7: 59, 60, 61, 62
6. Process 2, System 1: 74, 77, 2388
7. Process 2, System 2: 82, 89, 90, 92, 2389
8. Process 2, System 3: 94, 95
9. Process 2, System 5: 98, 101, 102
10. Process 2, System 6: 111, 112, 113



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11. Process 2, System 11: 159, 160
12. Process 3, System 1: 164 to 167, 170, 172 to 181, 184, 1336 to 1349, 2382, 2387
13. Process 3, System 2: 186, 188, 189, 191, 196, 199, 201, 204, 1352 to 1355
14. Process 3, System 4: 241
15. Process 3, System 6: 242, 245 to 247, 249
16. Process 3, System 7: 1363
17. Process 4, System 1: 253 to 256, 258, 262, 265, 266, 277, 278, 283, 287, 1364, 1366, 1367, 1372, 1374 to 1376, 1378 to 1381
18. Process 4, System 2: 291, 1400 to 1403
19. Process 4, System 3: 292, 293, 299
20. Process 4, System 4: 302, 304
21. Process 4, System 5: 308, 310, 311
22. Process 4, System 7: 1975, 1977, 1980
23. Process 5, System 1: 314 to 317, 319, 320, 323 to 332
24. Process 5, System 2: 335 to 338, 340, 343, 348 to 3531
25. Process 5, System 3: 356, 360, 1413
26. Process 5, System 4: 401, 406, 407, 412, 414
27. Process 6, System 1: 426, 427, 429, 431, 434, 435, 437, 440, 444, 445, 455 to 456, 458, 460
28. Process 6, System 2: 462, 469, 474 to 475, 477 to 481, 483, 486
29. Process 6, System 3: 490, 494, 495, 498, 501, 503, 506, 507, 509, 510, 512, 513, 518, 520, 521, 525 to 528
30. Process 7, System 1: 542 to 548, 550, 552 to 558, 560, 562 to 569
31. Process 7, System 2: 2892, 2893
32. Process 8, System 1: 593 to 597
33. Process 8, System 2: 608, 610, 612 to 614, 622, 624
34. Process 9, System 1: 631, 632, 638 to 652, 659 to 663, 666 to 668, 1482, 1483, 1486 to 1488, 1491, 1493 to 1495, 1497 to 1502, 1528, 1533 to 1536, 2019
35. Process 9, System 2: 672 to 681, 685
36. Process 9, System 9: 637, 653, 656, 658, 664
37. Process 10, System 1: 706
38. Process 10, System 2: 709, 711 to 715, 720, 721
39. Process 10, System 3: 725
40. Process 11, System 1: 730, 1620
41. Process 12, System 1: 756, 759
42. Process 12, System 2: 760 to 762, 764
43. Process 12, System 3: 765 to 770
44. Process 12, System 4: 771, 772, 774
45. Process 12, System 8: 785, 790, 2365, 2366
46. Process 12, System 9: 794, 797 to 799
47. Process 12, System 10: 806
48. Process 12, System 12: 815, 818
49. Process 12, System13: 823, 828
50. Process 12, System 16: 830
51. Process 12, System 17: 832
52. Process 12, System 22: 853, 854
53. Process 12, System 24: 860, 861, 863, 864, 865



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- 54. Process 12, System 25: 866, 867, 869, 870, 871, 2003
- 55. Process 12, System 27: 873 to 875
- 56. Process 15, System 7: 1644 to 1646, 1648, 1649
- 57. Process 16, System 3: 1986, 2115 to 2120, 2353, 2394
- 58. Process 21, System 1: 1304
- 59. Process 21, System 2: 1307
- 60. Process 21, System 4: 1315, 1316, 1319, 1323 to 1325, 1659

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

[Systems subject to this condition : ...Process 5, System ... 2 ..., Process 21, System 2 ...]

S58.3 Fluid Catalytic Cracking Unit Flare System shall only be used to receive and handle vent gases from the following Process(es) and System(s):

- Coking Units (Process: 2, System: 1 & 2)
- Coker Blowdown Facility (Process: 2, System: 3)
- Coker Gas Compression & Absorption Unit (Process: 2, System: 5)
- Blowdown Gas Compression System (Process: 2, System: 6)
- Coker Gas Treating Unit (Process: 2, System: 11)
- Fluid Catalytic Cracking Units Compression Unit (Process: 3, System: 1, 2, & 3)
- Propylene Tetramer Unit (Process: 3, System: 6)
- Naphtha Splitter Unit (Process: 4, System: 2)
- Light Ends Depropanizer Unit (Process: 4, System: 3)
- Straight Run Light Ends Depropanizer Unit (Process: 4, System: 4)
- North Area Deisobutanizer Unit (Process: 4, System: 5)
- Coker Gas Fractionation Unit (Process: 4, System: 7)
- Liquid Recovery Unit (Process: 4, System: 8)
- Jet Fuel Hydrotreating Unit (Process: 5, System: 1)
- Mid-Barrel Desulfurizer Unit (Process: 5, System: 2)
- Light Gasoline Hydrogenation Unit (Process: 5, System: 4)
- Catalytic Reformer Units (Process: 6, System: 1, 2, & 3)
- Hydrogen Plant (Process: 7, System: 1)
- Hydrocracking Units (Process: 8, System: 1 & 2)
- Alkylation Unit (Process: 9, System: 1)
- Iso-Octene Unit (Process: 9, System: 9)
- Catalytic Polymerization Unit (Process: 9, System: 2)
- Fuel Gas Mix System (Process: 10, System: 1)
- LPG Recovery & Drying Facilities (Process: 10, System: 2 & 3)
- MDEA Regeneration Systems (Process: 12, System: 9, 10, 11, 12, & 13)
- North & South Sour Water Treatment Systems (Process: 12, System: 14 & 15)
- Sulfur Recovery Units (Process: 13, System: 1, 2, 3, & 4)
- Claus Tail Gas Treating Units (Process: 13, System: 5 & 7)

If FCC Flare is being utilized to backup the No. 5 Flare, No. 1 Crude Unit (Process: 1, System: 1)



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If FCC Flare is being utilized to backup No. 5 Flare, Superfractionation Unit (Process: 4, System: 1)

If FCC Flare is being utilized to backup No. 5 Flare, Naphtha HDS Unit (Process: 5, System: 5)

If FCC Flare is being utilized to backup the No. 5 Flare, Naphtha HDS Reactor Heater (Process: 5, System: 6)

If FCC Flare is being utilized to backup the No. 5 Flare, Hydrogen Plant No. 2. Although this process and system must not be in operation, it can route vent gas to the FCC Flare in the event of a fire case failure scenario (Process: 7, System: 2)

If FCC Flare is being utilized to backup the No. 5 Flare, C5 Alkylation Depentanizer Unit (Process: 9, System: 6)

If FCC Flare is being utilized to backup the No. 5 Flare, Naphtha Isomerization Unit (Process: 9, System: 8)

If FCC Flare is being utilized to backup the No. 5 Flare, Butane Isomerization Unit. Although this process and system must not be in operation, it can route vent gas to the FCC Flare in the event of a fire case failure scenario (Process: 9, System: 10)

If FCC Flare is being utilized to backup the No. 5 Flare, LPG tank truck loading/unloading rack (Process: 14, System: 10)

If FCC Flare is being utilized to backup the No. 5 Flare, LPG rail car loading/unloading rack (Process: 14, System: 11)

The flare gas recovery system shall be operated in full use when any of the above Process(es) and System(s) is in operation. Full use means one of two compressor trains (Process 21, System 10 and Process 21, System 11) is online at any given time, except during planned startups or shutdowns when both compressors trains shall be online.

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

[Systems subject to this condition : Process 21, System 2]

#### **D. Monitoring/Testing Requirements**

D12.15 The operator shall install and maintain a(n) infrared/ ultraviolet detector or a thermocouple to accurately indicate the presence of a flame at the pilot light.

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

**[RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997; 40CFR 60 Subpart A, 6-13-2007]**

[Devices subject to this condition : ... C1305 ...]

D323.1 The operator shall conduct an inspection for visible emissions from all stacks and other emission points of this equipment whenever there is a public complaint of visible emissions, whenever visible emissions are observed, and on a bi-weekly basis, at least, unless the equipment did not operate during the entire bi-weekly period. The routine bi-weekly inspection shall be conducted while the equipment is in operation and during daylight hours.

If any visible emissions (not including condensed water vapor) are detected that last more than three minutes in any one hour, the operator shall verify and certify within 24 hours that the



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equipment causing the emission and any associated air pollution control equipment are operating normally according to their design and standard procedures and under the same conditions under which compliance was achieved in the past, and either:

- 1) Take corrective action(s) that eliminates the visible emissions within 24 hours and report the visible emissions as a potential deviation in accordance with the reporting requirements in Section K of this permit; or
- 2) Have a CARB-certified smoke reader determine compliance with the opacity standard, using EPA Method 9 or the procedures in the CARB manual "Visible Emission Evaluation", within three business days and report any deviations to AQMD.

The operator shall keep the records in accordance with the recordkeeping requirements in Section K of this permit and the following records:

- 1) Stack or emission point identification;
- 2) Description of any corrective actions taken to abate visible emissions;
- 3) Date and time visible emission was abated; and
- 4) All visible emission observation records by operator or a certified smoke reader.

[**RULE 3004(a)(4)-Periodic Monitoring, 12-12-1997; RULE 401, 3-2-1984; RULE 401, 11-9-2001**]

[Devices subject to this condition : ... C1305 ...]

**E. Equipment Operation/Construction Requirements**

E193.3 The operator shall operate and maintain this equipment according to the following specifications:

The operator shall comply with all applicable requirements specified in Subpart A of the 40CFR60.

[**40CFR 60 Subpart A, 6-13-2007**]

[Devices subject to this condition : ... C1305 ...]

E193.18 The operator shall construct, operate, and maintain this equipment according to the following specifications:

The operator shall comply with all mitigation measures stipulated by the AQMD Certified EIR SCH # 2005111057 dated 9/15/06.

[CA PRC CEQA, 11-23-1970]

[Devices subject to this condition : ... D1306 ...]



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E193.21 The operator shall restrict the operation of this equipment as follows:

The flare may serve to backup the No. 5 Flare only when the No. 5 Flare is taken out of service during the planned shutdown periods, and all of the following criteria are met:

Except for the Fuel Gas Mix System (Process 10, System 1), the system(s) or process(es) normally routed to the FCC Flare shall be isolated such that the flare would receive only vent gas and purge gas from the system(s) or process(es) normally routed to the No. 5 Flare. In addition, the FCC Flare shall not be utilized to backup the Coker Flare or Hydrocracker Flare at the same time.

The following units shall not be in operation: Fluid Catalytic Cracking Unit, FCCU Gas Plant & FCCU Gas Compression Unit (Process 3, System 1, 2, & 3), Liquid Recovery Unit (Process 4, System 8), Alkylation Units (Process 9, Systems 1, 4, & 9), LPG Recovery & Drying Facilities (Process 10, System 2 & 3), C3 Splitter Unit (Process 4, System 9), Butane Isomerization Unit (Process 9, System 10), Hydrogen Plant No. 2 (Process 7, System 2), UOP Merox Unit (Process 12, System 8).

The following units shall not be in operation: refinery supporting operations located at INEOS POLYPROPYLENE LLC, Facility ID: 124808 (Process 1, System 1, 2, 3, 5, 6, & 9).

For Total Power, Partial Power, and Cooling Water failure scenarios, the relief loads shall not exceed the hydraulic capacity of the flare. If requested by District personnel, the operator shall provide analysis or ,if one is not available, perform hydraulic modeling analysis of the relief event to demonstrate compliance with this condition.

In each of the above failure scenarios, only the following units shall relief to the flare: No. 1 Crude Unit (Process 1, System 1), Naphtha HDS Unit (Process 5, System 5), Naphtha HDS Reactor Heater RW 0053 (Device 1433), and Naphtha Isomerization Unit (Process 9, System 8), C5 Alkylation Depentanizer Unit (Process 9, System 6), Superfractionation Unit (Process 4, System 1), LPG Tank Truck Loading/Unloading Rack (Process 14, System 10), and LPG Rail Car Loading/Unloading Rack (Process 14, System 11).

In event of a fire, the Fuel Mix Drum System (Process 10, System 1), Butane Isomerization Unit (Process 9, System 10) and Hydrogen Plant No. 2 (Process 7, System 2) may also relief to the flare in addition to the units described above.

All other relief events to the flare shall not exceed the smokeless capacity of 350,000 lbs/hr for a total of five minutes during two consecutive hours except during periods of startup, shutdown, or malfunction (NSPS Subpart A, 40 CFR 60.18). If requested by District personnel, the operator shall provide analysis, or, if one is not available, perform hydraulic modeling analysis of the relief event to demonstrate compliance with this condition.

The operator shall not utilize the FCC Flare to backup the No. 5 Flare for a period greater than 30 days, unless otherwise approved in writing by the Executive Officer.



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The operator shall notify the District a minimum of 10 days before the start of the planned shutdown of the No. 5 Flare. This notification shall indicate the estimated duration of the shutdown.

**[RULE 1303(b)(2)-Offset, 5-10-1996]**  
[Devices subject to this condition : C1305]

**H. Applicable Rules**

H23.3 This equipment is subject to the applicable requirements of the following rules or regulations:  
(Section D)

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173
VOC	40CFR60, SUBPART	GGG

**[RULE 1173, 5-13-1994; RULE 1173, 2-6-2009; 40CFR 60 Subpart GGG, 6-2-2008]**  
[Devices subject to this condition : ... D2483 ...]

H23.3 This equipment is subject to the applicable requirements of the following rules or regulations:  
(Section H)

Contaminant	Rule	Rule/Subpart
VOC	District Rule	1173
VOC	40CFR60, SUBPART	GGG

**[RULE 1173, 5-13-1994; RULE 1173, 2-6-2009; 40CFR 60 Subpart GGG, 6-2-2008]**  
[Devices subject to this condition : ... D2543 ...]

H23.12 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
Benzene	40CFR61, SUBPART	FF

**[40CFR 61 Subpart FF, 12-4-2003]**  
[Devices subject to this condition : ... C1305, D1306 ...]

H23.29 This equipment is subject to the applicable requirements of the following rules or regulations:

Contaminant	Rule	Rule/Subpart
SOX	District Rule	1118

**[RULE 1118, 11-4-2005]**  
[Devices subject to this condition : ... C1305 ...]



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**COMPLIANCE RECORD REVIEW:**

The AQMD's compliance database shows that the refinery has been cited with 12 Notices of Violation and one Notice to Comply within the last two years (6/1/2011 – 6/11/2013). *Appendix A* includes a list of the citations. All of the NOV's and NC's have been resolved to the satisfaction of the Executive Officer.

**BACKGROUND:**

Tesoro Refining & Marketing Company LLC, Tesoro Los Angeles Refinery – Carson Operations (formerly BP West Coast Product LLC, Carson Refinery) submitted applications A/N 553163 and 553168 to replace A/Ns 549635 and 549637, which were submitted by BP on April 9, 2013 before Tesoro bought the BP Carson Refinery on June 1, 2013. Tesoro proposes to connect two Pressure Safety Valves (PSVs) located on east and west stabilizer off-gas compressors (devices D352 and D353) of Mid-Barrel Desulfurizer Unit to FCCU Flare.

The Mid-Barrel Desulfurizer Unit (MBDU) is used to remove sulfur, nitrogen and trace metals from mid-boiling range distillates such as straight-run diesel and stove oil. The charge material and hydrogen gas react in the presence of a catalyst in the reactor (RPV 3900). The sulfur and nitrogen in the charge material react with hydrogen to form hydrogen sulfide (H<sub>2</sub>S) and ammonia (NH<sub>3</sub>). The products from the reactor enter Reactor Effluent Flash Drum (RPV 3909) and are separated into liquid and gas phases. The liquid stream is routed to the stabilizer column (RPV 3903) which fractionates the liquid stream into appropriate boiling range fractions. The bottom desulfurized product from the stabilizer is used for blending to make gasoline. The hydrogen rich gas from Reactor Effluent Flash Drum is sent to Recycle Gas Amine Scrubber (RPV 3901) for removal of H<sub>2</sub>S by absorption in methyldiethanolamine (MDEA). The H<sub>2</sub>S-free hydrogen-rich gas is then recycled back for reuse in the reactor section. The overhead sour gas from the stabilizer is sent to Stabilizer Overhead Accumulator (RPV 3911), Stabilizer Off-Gas Compressors (RW 0035-087.32 and RW 0034-087.32), Stabilizer Release Gas Drips Separator (RPV 3917) and then Stabilizer Release Gas Amine Scrubber (RPV 3904). The H<sub>2</sub>S contained in the Stabilizer off-gases is removed by reacting with MDEA in Stabilizer Release Gas Amine Scrubber. The off-gases are then discharged into the refinery's fuel gas system through Stabilizer Release Gas Amine Knockout Drum (3916). MBDU's P&ID BF-1900-29767-S1 and BF-1900-29767-S2 are included in *Appendix B*.

A release from atmospheric relief valves in the MBDU occurred on January 12, 2013. Under normal operating conditions the stabilizer tower off gas is routed thru the compressors and sent into the refinery fuel gas system. The unusual low ambient temperature and cooling water temperature due to the turn-around caused a salt deposit to form and plugged Stabilizer Off-gas Compressor Aftercooler (RPV 3955) which caused back pressure to the Stabilizer Overhead Accumulator. Two PSVs (19PSV5045 and 19PSV5047)—one located on West Stabilizer Off-Gas Compressor (device D352) and other on East Stabilizer Off-gas Compressor (device D353), relieved into atmosphere. The 19PSV5045 opened approximately 15 seconds and 19PSV5047 opened intermittently for about 50 minutes. In order to prevent future occurrences of atmospheric release from the Stabilizer Overhead Accumulator, the refinery proposes to tie-in the two PSVs to FCCU Flare.



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The refinery operates and maintains five general service flares. The use of flares to combust hydrocarbon vapors, that could not otherwise be captured or recovered, is limited to emergencies, turnarounds, startups and shutdowns, and essential operational needs as required by District Rule 1118. Under normal operating conditions the MBDU is lined up to vent emergency relief loads into the FCCU Flare in accordance to Condition S56.1 and S58.3. PFD and PI&D for the FCC Flare system can be found in *Appendix C*. The FCC Flare system includes a knockout drum (RPV 2132) for separation of liquids from the flare gas to prevent the flaring of liquid hydrocarbons that may be entrained in the gas stream. In addition, a water seal drum (RW 7000) with a backpressure of approximately 2.2 psig (5 feet water head) is installed on the FCC flare header line between the knockout drum and the FCC flare. Under normal operating conditions, the water seal drum isolates the FCC flare stack from the flare gas recovery system (FGRS) compressors. During an event that surpasses the ability of the FGRS to recover hydrocarbon vent gases, the excess (non-recoverable) hydrocarbon gases are vented to flare. If the volume and/or pressure of flare vent gases are great enough to surpass the water seal, the FCC flare header line becomes temporarily isolated from the FGRS compressors. This design feature allows the FGRS to continue recovering gases from the header lines associated with the other flares.

As pressure increases in the flare header line, the internal water column inside the water seal drum is pushed down until the flare header pressure is great enough to blow the water seal. When the water seal is blown or lost, water gets pushed over the internal baffle wall inside the water seal drum into the outer chambers inside the water seal drum. Water is then pumped out by the auto pumps (RW-6885-289.09 and RW-6886-289.09) into the initial flare header knock out drum. The auto pumps are not “pumps” in the typical sense as pumping action is caused by the use of pressurized natural gas rather than using rotors, diaphragms or other mechanical means.

Currently, the MBDU is permitted to vent to the FCCU Flare via connections from the following equipment:

Stabilizer Overhead Accumulator	RPV 3911
Reactor Effluent Flash Drum	RPV 3909

While the FCC unit and the FCC flare are in turn-around and the flare is offline (for example during the atmospheric release event in January, 2013), other units which are normally lined up to the FCC flare are required to be lined up to a “back up” flare. Hydrocracker Flare acts as a backup to the FCC flare.

**EMISSIONS:**

*I. Criteria Pollutant Emissions*

a. Fugitive Emission

Connecting the two PSVs to FCCU flare will require the installation of additional piping and corresponding fugitive components. The refinery submitted the pre-modification fugitive count and number of components to be removed and added due to this project for the post-modification fugitive count for the MBDU (see *Appendix D* for details). Table 1 shows the pre-modification and post-modification fugitive emissions for the MBDU. The pre-modification fugitive potential to emit (PTE) was 17995.3 *lb/yr* or 49.99 *lb/day* (30-day average). The post-modification PTE was 18132.6 *lb/yr* or 50.37 *lb/day*. The emission increase is 0.38 *lb/day* for the proposed modification of the MBDU.



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The last fugitive counts for MBDU on file were provided to the District for the previous application AN 460573. Using this count, the PTE for the MBDU was determined to be 89.2 *lb/day* using the old emission factors (CAPCOA 1999). The current pre-modification fugitive counts would result in 88.8 *lb/day* using the same emission factors (see calculations in Appendix D). BP has verified that the components numbers provided under AN 460573 to be inaccurate. The pre-modification counts provided in this application obtained after the previous owner, BP, completed a re-inventory of all fugitive components at the refinery as part of a settlement agreement in 2006. Therefore, the pre-modification count shown in Table 1 is considered to be the most up-to-date and accurate count for MBDU.

**Table 1 – Pre- and Post- Modification Fugitive PTE from MBDU**

Source Unit		Service	Emission Factor lb/yr	Pre-modification		Post-modification	
				Counts	Emission lb/yr	Counts	Emission lb/yr
Valves	Sealed bellows	All	0	54		59	
	SCAQMD Approved I&M Program	Gas/Vapor	4.55	600	2727.44	600	2727.44
		Light Liquid	4.55	166	754.59	166	754.59
		Heavy liquid	4.55				
Pumps	Double Mechanical Seals or Equivalent Seals	Light Liquid	46.83	3	140.48	3	140.48
	Single Mechanical Seal	Heavy Liquid	46.83	26	1217.46	26	1217.46
Compressor		Gas/Vapor	9.90	4	36.36	4	36.36
Flanges ANSI/API standards		All	6.99	743	5193.71	761	5319.53
Connectors		All	2.86	2271	6498.20	2275	6509.65
PRVs	Closed vent system	All	0	21		21	
Drains	P-Trap or Seal Pot	All	9.09	74	672.63	74	672.63
Other		All	9.09	83	754.44	83	754.44
<b>Total counts</b>				<b>4045</b>		<b>4072</b>	
Annual Emission, lbs/yr					<b>17995.30</b>		<b>18132.57</b>
Hourly Emission = (Annual)/(52×7×24), lb/hr					2.06		2.08
Daily Maximum = (Annual)/(52×7), lbs/day					49.44		49.81
30-day Average = (Annual)/(12×30), lbs/day					<b>49.99</b>		<b>50.37</b>

Operating schedule: 52 weeks/year, 7 days/week, 24 hours/day

b. Additional PSV Release to FCC Flare

The flare capacity analysis was conducted by the refinery and determined whether or not the receiving flare (FCC Flare system) has the available capacity to receive the potential increase in load that could occur due to the proposed connections of the two PSVs from MBDU. Each flare system in the refinery, including FCCU Flare, receives flare gases under what are referred to as “common failure scenarios”. Common Failure Scenarios include but are not limited to: plant-wide power failure, process unit blockage in scenarios, fire scenarios, cooling lower failures, etc... Tesoro/BP indicates that relieves from PSVs 19PSV5045 and 19PSV5047 is a unique relieving scenario which is not part of any common release scenarios. Under the only scenario in which the two PSVs could relieve (closed outlet, or “blocked outlet” case), the FCC flare has more than adequate available capacity to receive the gases. Additionally, there are no significant impacts to the flare header when these valves are tied to the closed system. The Flare Connection Summary analysis is included in *Appendix E*.



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*II. Toxic Air Contaminant (TAC) Emissions and Health Risk Impacts*

The Rule 1401 Health Risk Assessment (HRA) associated with the new PSVs tie-in to the flare system was conducted by the applicant. The Tier I HRA results are shown in Table 2 (see *Appendix F* for calculations). The TAC emission increases were estimated from the stabilizer release gas composition and fugitive emissions increase associated with this project. The toxic air contaminants (TACs) emitted by the stabilizer accumulator include Propylene, 1,3-butadiene and H<sub>2</sub>S, which are TACs listed in Rule 1401 Table 1. The weight fractions and emission increase from the proposed modification to the MBDU are shown in Table 2. Neither the cumulative cancer/chronic hazard nor acute hazard index will exceed 1. Therefore, the MICR and hazardous indices are below the limits of Rule 1401 and 212.

**Table 2. TAC Emission Increase and Pollutant Screening Index (PSI)**

TAC	Mass %	E (lb/hr)	E (lb/yr)	PSL <sub>acute</sub> (25 meter)	PSL <sub>cancer/chronic</sub> (25 meter)	PSI <sub>acute</sub>	PSI <sub>cancer/chronic</sub>
Propylene	0.01	1.84×10 <sup>-6</sup>	0.02		9.92×10 <sup>4</sup>		1.63×10 <sup>-7</sup>
1,3-Butane	Negligible	-	-		1.90×10 <sup>-1</sup>		
H <sub>2</sub> S	17.72	2.78×10 <sup>-3</sup>	24.32	2.10×10 <sup>-2</sup>	3.31×10 <sup>2</sup>	0.13	7.35×10 <sup>-2</sup>
<b>Total</b>						0.13	7.35×10 <sup>-2</sup>

**RULE EVALUATION:**

**PART 1: SCAQMD REGULATIONS**

**Rule 212: Standards for Approving Permits and Issuing Public Notice**

*Amended  
11/14/97*

The MBDU and FCCU Flare are not located within 1000 feet of a school. The emission increase of VOC associated with connecting the PSVs in MBDU to FCCU Flare system is 0.38 *lb/day* which does not exceed the daily maximum specified in subdivision (g) of this rule. Finally, the modified permit unit does not have an emission increase of TACs which would result in the cumulative increase in MICR (Maximum Individual Cancer Risk) greater than or equal to one in a million. Therefore, a public notice is not required.

**Rule 401: Visible Emissions**

*Amended  
11/9/01*

The proposed tie-in of PSVs in MBDU to the FCC Flare system is not expected to cause visible emissions under normal operating conditions. Compliance is expected.

**Rule 402: Nuisance**

*Adopted  
5/7/76*

Nuisance complaints are not expected under normal operating conditions. Compliance is expected.

**Rule 407 Liquid and Gaseous Air Contaminants**

*Amended  
4/2/82*

The MBDU emits only VOC emissions from its fugitive emission sources. Under non-flaring event, FCCU Flare is fired on only natural gas which is used to purge the flare stack and maintain the pilot flame. Emergency venting due to equipment failure and process upset to the flare is not subject to the emission limits of this rule. Compliance is expected.



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**Rule 409**  
*Amended*  
8/7/81

**Combustion Contaminants**

The MBDU emits only VOC emissions from its fugitive emission sources. Under non-flaring periods, FCCU Flare is fired on only natural gas which is used to purge the flare stack and maintain the pilot flame. Compliance is expected.

**RULE 1118**  
*Amended*  
11/4/05

**CONTROL OF EMISSIONS FROM REFINERY FLARES**

The purpose of Rule 1118 is to monitor and record data on refinery and related flaring operations, and to control and minimize flaring and flare related emissions.

Tesoro submitted Rule 1118 Flare Monitoring and Recording Compliance Plan application 553129 with its change of ownership application. This application replaces the compliance plan approved for the previous owner of the refinery. BP's Rule 1118 Compliance Plan dated August 30, 2010 that was approved on April 17, 2012 under application A/N 458527 specifies FCCU Flare as a general service flare. During normal operation, only natural gas, which is used to purge the flare stack and to keep the pilot lit, is combusted by the flare. The flare system is equipped with a Panametrics gas flow meter and a data acquisition system in accordance to the requirement of Rule 1118. Tesoro will be required to submit a revised flow diagram showing the new connections of the MBDU to the flare after the completion of construction as specified by Rule 1118(c)(3)(E). Tesoro will continue monitoring and gather data on flaring events as specified by the approved plan. The proposed tie-in of PSVs in MBDU to the FCC Flare system is not expected to change the facility's ability to comply with this rule. Compliance is expected.

**Rule 1123:**  
*Amended*  
12/7/90

**Refinery Process Turnaround**

The refinery is subject to the requirements of this rule during a process turnaround. The MBDU is expected to comply with this rule in future process turnarounds.

**Rule 1173:**  
*Amended*  
2/6/09

**Control of Volatile Organic Compound Leaks and Releases from Components at Petroleum Facilities and Chemical Plants**

The refinery has an on-going Leak Detection And Repair (LDAR) program to meet all applicable requirements of the rule, such as: Identification Requirements (e), Operator Inspection Requirement (f), Maintenance Requirements (g), Atmospheric Process PRD Requirements (h), Recordkeeping and Reporting Requirements (i), and Test Methods. All of the fugitive components in MBDU and FCC Flare system are expected to comply with to this rule.

**REG XIII**  
*1301*  
*Amended*  
12/7/1995

**New Source Review**

General

The provisions of this regulation shall apply to the modification of an existing source which may cause the issuance of any nonattainment air contaminant, any ODC, or ammonia at any facility. This regulation is applicable to the MBDU.



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1303  
Amended  
12/6/2002

**Requirements**

(a) Best Available Control Technology (BACT)

According to SCAQMD BACT Guideline, BACT is required only when there is an emission increase greater than one (1.0) pound per day. In this application, the emission increase due to the new tie-in of PSVs is 0.38 *lb/day*. Therefore, the requirement of BACT is not required. However, the proposed tie-in will require adding only five new valves, 22 flanges and four connectors as shown by the "Number of Components Added" in *Appendix D*. All of the valves will be bellow-sealed and flanges will meet ANSI/API standards. Therefore, BACT will be installed on the new fugitive components.

(b) The VOC emission increase of 0.38 *lb/day* multiplied by the offset ratio (1.2) is 0.46 *lb/day*. Therefore, the project to connect two PSVs in MBDU to the FCCU Flare does not require emission offsets. Modeling is not required for VOC emissions, which are the only criteria pollutant emitted by the MBDU. The flare emissions are not impacted by the proposed modification.

The baseline for the MBDU will be updated to the post-modification PTE.

**Rule 1401**  
Amended  
9/10/10

**New Source Review of Toxic Air Contaminants**

The MBDU could emit several toxic air contaminants listed in Table 1 of Rule 1401, such as Propylene, 1,3-Butadiene and H<sub>2</sub>S. Therefore, the MBDU is subject to all applicable requirements of this rule. The replacement application A/N 553163 for the proposed modification to MBDU was deemed completed on June 20, 2013 and the original application A/N 549635 submitted by the previous owner BP was deemed complete on May 5, 2013. Both deem complete dates make the MBDU subject to the version of this rule that was amended on September 10, 2010.

MICR and Cancer Burden/Chronic Hazard Index

The MBDU is expected to comply with this rule because the Tier I cumulative cancer/chronic hazard index for the TAC increases is below 1 as shown in Table 2. There is no TAC increase for FCCU Flare.

Acute Hazard Index

The MBDU is expected to comply with this rule because the Tier I cumulative acute hazard index for the TAC increases is below 1 as shown in Table 2. There is no TAC increase for FCCU Flare

Risk Per Year

The risk per year shall not exceed 1/70 of the maximum allowable risk specified in this rule at any receptor locations in residential areas.

The MBDU and FCCU Flare are expected to comply with all applicable requirements of this rule.



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**REG XVII Prevention of Significant Deterioration (PSD)**

*Amended  
8/13/99*

The proposed project will only impact VOC emissions at this facility. VOC is not an attainment pollutant for the South Coast Air Basin. Therefore, PSD analysis is not required.

**REG XX Regional Clean Air Incentives Market (RECLAIM)**

Tesoro Los Angeles Refinery-Carson Operation is a cycle II RECLAIM facility. The facility is expected to continue complying with the requirements of this regulation. There is no emission of NO<sub>x</sub> and SO<sub>x</sub> associated with the new Tie-in of PSVs to the FCC Flare system. Furthermore, FCCU Flare is exempt from the monitoring, reporting, and recordkeeping requirement of this rule.

**REG XXX Title V**

Tesoro Los Angeles Refinery-Carson Operation is subject to Reg XXX, and a Title V permit for the facility was issued on September 1, 2009. The proposed modification is to allow connections of two PSVs in MBDU to the refinery's FCC Flare system. It is resulted in an emission increase of 0.38 *lb/day* of VOC. The cumulative emission increase of VOC from all of the De Minimis Significant Revisions issued for BP up-to-date included the subject applications equals to 9.54 *lb/day*, which is not greater than 30 *lb/day* threshold level. Therefore, the proposed revision to Tesoro Los Angeles Refinery-Carson Operation's Title V permit is a De Minimis Significant Permit Revision under Rule 3000. Accordingly, the proposed revision is subject to the 45 day EPA review process. However, the public noticing requirements under Rule 3006 is not required.

**PART 2: STATE REGULATIONS**

**CEQA California Environmental Quality Act**

The CEQA Applicability Form (400-CEQA) submitted by the applicant indicates that the project does not have any impacts which trigger the preparation of a CEQA document. Therefore, the expected impacts of the project on the environment are not significant and thus preparation of an Environmental Impact Report (EIR) is not required.

**PART 3: FEDERAL REGULATIONS**

**40CFR60 STANDARDS OF PERFORMANCE FOR NEW STATIONARY SOURCES**

**Subpart A General Provisions**

FCCY Flare (C1305) is subject to this subpart as specified in the Permit Condition E193.3. §60.18 (c) through (f) apply to flares and set standards of the visible emission, the maximum tip velocity and the net heating value of the flare gases. The proposed tie-in of PSVs in MBDU to the FCC Flare system is not expected to impact the flare operation as discussed above. Continued compliance with this regulation is expected.



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**Subpart Ja Standards of Performance for Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After May 14, 2007**

FCCU Flare is currently subject to NSPS Subpart Ja. The proposed tie-in of PSVs in MBDU to the FCC Flare system is not expected to change the facility's ability to comply with this regulation.

**Subpart GGG Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for which Construction, Reconstruction, or Modification Commenced After January 4, 1983, and on or Before November 7, 2006**

The MBDU and FCC Flare systems are subject to this subpart as specified in the Permit Condition H23.3. The equipment in these systems include compressors, valves, pumps, pressure relief devices, sampling connectors, open-ended valves or lines. §60.592 requires each owner or operator subject to the provisions of this subpart shall comply with the requirements of §§60.482-1 to 60.482-10. In general, the equipment leak inspection and monitoring requirements of District Rule 1173 are more stringent than requirements of §60.482-1 to §60.482-10. However, this subpart requires monthly inspection for valves in gas and light liquid services while quarterly inspection is specified by Rule 1173. Other pertinent requirements are incorporated into BP's leak detection and repair (LDAR) Program for fugitive components. Compliance with this regulation is expected.

**Subpart GGGa Standards of Performance for Equipment Leaks of VOC in Petroleum Refineries for Which Construction, Reconstruction, or Modification Commenced After November 7, 2006**

Changes in fugitive components associated with this tie-in will cause a small net increase in fugitive component emissions. This proposed modification to the MBDU does not trigger NSPS GGGa because the cost for the proposed modification is expected to be below the "capital expenditure" thresholds specified by this subpart.

**40 CFR 61 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS  
Subpart FF National Emission Standard for Benzene Waste Operations**

§61.342 Standards: General

The total annual benzene (TAB) quantity from Tesoro Los Angeles Refinery-Carson Operation's waste streams is greater than 10 Mg/yr (11 ton/yr). Therefore, the facility is subject to the control requirements of this regulation per § 61.342 (b).

Tesoro has chosen to comply with the "2 Mg" compliance option at §61.342(c) of this NESHAP. This option allows the exemption of the following benzene containing wastes from the waste management and control requirements:

- Waste streams with a flow-rated annual average benzene concentration of less than 10 ppmw[§61.342(c)(2)]; and
- Process wastewater streams with a flow rate less than 0.02 liters per minute or an annual quantity of less than 10 Mg/year [§61.342(c)(3)(i)]; or
- Waste streams with a total annual benzene quantity of 2.0 Mg/yr or less if the operator does not exempt process wastewater streams with a flow rate less than



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0.02 liters per minute or an annual quantity of less than 10 Mg/year as allowed at §61.342(c)(3)(i); [§61.342(c)(3)(ii)].

FCCU Flare (C1305) and Flare K.O. Drum (C1306) are currently tagged with this subpart. The knockout drum is required to comply with the requirements described in the Section J in the Facility Permit under 40CFR 40CFR61 Subpart FF\_02, 12-4-2003 and is subject to the 500 ppmv VOC limit of one of the individual drain system standards of §61.346. The proposed tie-in of PSVs in MBDU to the FCC Flare system is not expected to change the facility's ability to comply with this regulation. Continued compliance is expected.

**40CFR 63 NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES**

**Subpart CC National Emission Standards for Hazardous Air Pollutants From Petroleum Refineries**

Several of fugitive emissions sources in both the MBDU and FCCU Flare are in "organic HAP service" as defined at §63.641 of this regulation. As a result, both permit units are subject to this regulation. The requirements for this subpart are included in the Section J in the Facility Permit under 40CFR 63 Subpart CC, #5A 6-23-2003. Continued compliance with these requirements is expected.

**RECOMMENDATION/CONCLUSION:**

Issuance of Permits to Construct for the MBDU (Process 5, System 2) and FCC Flare system (Process 21, System 2) are recommended subject to the conditions shown on pages 5 to 14.

### **List of Appendices in Evaluation:**

- A Compliance History
- B Mid-Barrel Desulfurizer Unit P&IDs
- C FCC Flare system PFD and PI&D
- D Mid-Barrel Desulfurizer Unit Fugitive Counts
- E Flare Connection Summary Sheet
- F Rule 1401 Health Risk Assessment

# **APPENDIX A**

## Compliance History

## **APPENDIX B**

Mid-Barrel Desulfurizer Unit P&IDs

## **APPENDIX C**

FCC Flare system PFD and PI&D

## **APPENDIX D**

Mid-Barrel Desulfurizer Unit Fugitive Counts

## **APPENDIX E**

### Flare Connection Summary Sheet

## **APPENDIX F**

### Rule 1401 Health Risk Assessment

