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| SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT <i>ENGINEERING & COMPLIANCE</i> APPLICATION PROCESSING AND CALCULATIONS | PAGES 16 | PAGE 1 |
| | APPL. NO. 326115, 497329 | DATE 11/2/2011 |
| | PROCESSED BY: Cynthia Carter | CHECKED BY |

**CONVERTING FROM PERMIT TO CONSTRUCT TO
PERMIT TO OPERATE
AND
A PO NO PC APPL**

COMPANY NAME, LOCATION ADDRESS:

ConocoPhillips, Facility ID 800363
1660 W. Anaheim Street
Wilmington, CA 90744

EQUIPMENT DESCRIPTION:

Additions or modifications to the equipment description are underlined and **bolded**. Deletions to the equipment description and conditions are noted in ~~strikeouts~~. (Please note: *some* the following equipment will be moved from Section H to Section D of the facility permit.)

Section D of ConocoPhillips' Facility Permit, ID# 800363

| Equipment | ID No. | Connected To | Source Type/ Monitoring Unit | Emissions And Requirements | Conditions |
|---|--------|--------------|---------------------------------|---|---|
| Process 3: CATALYTIC REFORMING | | | | | P13.2 |
| System 1: CATALYTIC REFORMING UNIT 80 | | | | | S4.1, S11.1, S13.6, S15.2, S15.3, <u>S31.2</u> |
| REACTOR, NO. 1, 80D-101, (SPHERICAL TYPE), DIAMETER: 12 FT A/N: 326630 <u>497329</u> | D165 | | | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |
| REACTOR, NO. 2, 80D-102, SHERICAL TYPE, DIAMETER: 14 FT A/N: 326630 <u>497329</u> | D166 | | | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |
| REACTOR, NO. 3, 80D-103, SHERICAL TYPE, DIAMETER: 18 FT A/N: 326630 <u>497329</u> | D167 | | | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |
| REACTOR, NO. 4, 80D-104, SHERICAL TYPE, DIAMETER: 18 FT A/N: 326630 <u>497329</u> | D168 | | | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |
| COLUMN, STABILIZER, 80D-105, HEIGHT: 100 FT 6 IN; DIAMETER: 6 FT A/N: 326630 <u>497329</u> | D169 | | | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |

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| Equipment | ID No. | Connected To | Source Type/ Monitoring Unit | Emissions And Requirements | Conditions |
|--|--------|--------------|---------------------------------|--|------------|
| Process 3: CATALYTIC REFORMING | | | | | P13.2 |
| ACCUMULATOR, 80-F-102, LENGTH: 20 FT; DIAMETER: 5 FT A/N: 326630 497329 | D170 | | | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |
| TANK, SURGE, 80-F-103, LENGTH: 20 FT; DIAMETER: 12 FT A/N: 326630 497329 | D171 | | | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |
| COMPRESSOR, 80-GB-101, REFORMER RECYCLE GAS A/N: 326630 497329 | D174 | | | | |
| VESSEL, SEPARATOR, 80-F-101, REFORMATE, LENGTH: 20 FT; DIAMETER: 8 FT A/N: 326630 497329 | D1515 | | | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |
| TANK, 80F-151, 4,4,4- TRICHLOROETHANE PERCHLOROETHYLENE, DIAMETER: 2 FT; HEIGHT: 5 FT A/N: 326630 497329 | D1516 | | PO no PC | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |
| FUGITIVE EMISSIONS, MISCELLANEOUS A/N: 326630 497329 | D1579 | | | HAP: (10)[40CFR 63 Subpart CC, #5A, 6-23-2003] | H23.2 |
| FRACTIONATOR, 80-D-300, REFORMATE, HEIGHT: 70 FT; DIAMETER: 7 FT 6 IN A/N: 326115 497329 #Permit to Construct Issued: 02/23/95 | D1373 | | | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |
| ACCUMULATOR, 80-F-300, REFORMATE FRACTIONATOR OVERHEAD, LENGTH: 18 FT; DIAMETER: 5FT 6IN A/N: 326115 497329 #Permit to Construct Issued: 02/23/95 | D1374 | | | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |
| TANK, 80-F-301, REFORMATE CONDENSATE, HEIGHT: 9FT 6IN; DIAMETER: 2FT 6IN A/N: 326115 497329 #Permit to Construct Issued: 02/23/95 | D1375 | | | HAP: (10)[40CFR 63 Subpart UUU, #1, 4-20-2006] | |

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CONDITIONS:

The following permit conditions shall apply to the subject equipment in order to comply with all applicable District, State, and Federal standards. Additions and deletions to the conditions are noted in underlines and strikeouts, respectively.

~~S4.1~~ The following condition(s) shall apply to all affected devices listed under Section H of this system for fugitive emissions of volatile organic compounds (VOC):

All components are subject to District Rule 1173 and 40CFR60, Subpart GGG.

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.

All new valves greater than 2-inch size and major components in VOC service as defined by Rule 1173, except those specifically exempted by 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.

The operator shall provide to the District, no later than 60 days after initial startup, a plot plan or process instrumentation diagrams with a listing showing by functional grouping, location, type, accessibility, and application of each new valve in VOC service.

All new valves in VOC service except those specifically exempted by Rule 1173, shall be bellow-sealed valves for 2-inch and smaller sizes, except 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), and retrofits with space limitations.

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

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, then the operator shall revert to a quarterly inspection program with the approval of the executive officer. This condition shall not apply to bellow sealed 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.

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

[Systems subject to this condition: Process 2, System 1, 3; ~~Process 3, System 1, 3~~; Process 4, System 2; Process 5, System 1; Process 18, System 1, 2]

Note: System condition will be removed and be replaced with S31.2 because the equipment will be located in Section D. Operator provided P&IDs.

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S31.2 The following BACT requirements shall apply to VOC service fugitive components associated with the devices that are covered by application number(s): 326109 modified after 7/22/94, 326166 modified after 11/4/93, and **326115**:

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.

All new valves greater than 2-inch size and major components in VOC service as defined by Rule 1173, except those specifically exempted by 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, a leak greater than 500 ppm but less than 1,000 ppm measured as methane above background as measured using EPA Method 21, shall be repaired within 14 days of detection. Components shall be defined as any valve, fitting, pump, compressor, pressure relief device, diaphragm, hatch, sight-glass, and meter, which are not exempted by Rule 1173.

All new valves in VOC service ~~shall be of leakless type,~~ except those specifically exempted by Rule 1173, **shall be bellow-sealed valves for 2-inch and smaller sizes, except 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 valve failure could pose safety hazard (e.g. drain valves with valve stems in horizontal position), **and retrofits with space limitations, and valves not commercially available.**

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, then the operator shall revert to a quarterly inspection program with the approval of the executive officer. This condition shall not apply to bellow sealed 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 60 days after initial startup, a plot plan or process instrumentation diagrams with a listing showing by functional grouping, location, type, accessibility, and application of each new valve in VOC service.~~

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

[Systems subject to this condition : Process 2, System 1, 3; **Process 5, System 1**; Process 18, System 1, 2]

Note: Application added to improved condition, it will be used since the equipment will no longer be in Section H. Operator provided P&ID, child condition removed.

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~~S11.1 The operator shall comply with all applicable mitigation measures stipulated in the “Statement of Findings, Statement of Overriding Considerations, and Mitigation Monitoring Plan” document which is part of the AQMD Certified Subsequent Environmental Impact Report dated 18 nov 1994 for this facility.~~

~~———— This condition shall only apply to equipment listed in Section H of this facility permit.~~

~~———— [CA PRC CEAQ, 11-23-1970]~~

~~———— [Systems subject to this condition: Process 2, System 3, 4; Process 3, System 1, 3; Process 4, System 2, 4, 5; Process 5, System 1; Process 6, System 1; Process 8, System 3; Process 18, System 1, 2]~~

Note: Condition no longer needed, CEQA mitigation is complete for this system.

S13.6 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 1, System 2; Process 2, System 1, 2, 3, 4, 5; Process 3, System 1, 3]

S15.2 The vent gases from all affected devices of this process/system shall be vented as follows:

All emergency vent gases shall be directed to a vapor recovery system or/and blowdown flare system except Device IDs D1, D7, D210, D213, D214, D219, D644, D645, D646, D773, D775 TO D785, D1367, D1370, D1673 that vent to the atmosphere and Device ID D772 that normally vents to heater D1349 when hydrogen is being produced and vents to atmosphere when hydrogen is not produced.

This process/system shall not be operated unless the above air pollution control equipment is in full use and has a valid permit to receive vent gases from this system.

[RULE 1303(a)(1)-BACT, 5-10-1996]

[Process 1, System 1, 2; Process 2, System 1, 2, 3, 4, 5; Process 3, System 1, 3; Process 4, System 1, 2; Process 5, System 1; Process 6, System 1; Process 8, System 1, 2; Process 11, System 1; Process 13, System 4, 6; Process 18, System 1, 2]

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S15.3 The vent gases from all affected devices of this process/system shall be vented as follows:

All sour gases under normal operating conditions shall be directed to the fuel gas treating unit.

This process/system shall not be operated unless the fuel gas treating unit 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 1, System 1, 2; Process 2, System 1, 5; Process 3, System 1, 3; Process 4, System 1, 2; Process 6, System 1; Process 8, System 1, 2; Process 18, System 1, 2]

DEVICE CONDITIONS

H. Applicable Rules

H23.2 This equipment is subject to the applicable requirements of the following rules or regulations:

| Contaminant | Rule | Rule/Subpart |
|-------------|---------------|--------------|
| VOC | District Rule | 1173 |

[RULE 1173, 5-13-1994, RULE 1173, 6-1-2007]
[Devices subject to this condition: D556, D1565, D1573, D1575, D1577, D1579, D1581, D1583, D1587, D1590, D1591, D1596, D1597, D1600, D1601, D1602, D1604, D1605, D1606, D1607, D1608, D1609, D1611, D1612, D1613, D1617, D1618, D1619, D1620, D1623, D1800, D1801, D1802, D1803, D1804]

BACKGROUND:

ConocoPhillips Los Angeles Refinery operates a refinery as two separate locations in the city of Carson and Wilmington. At the Carson Plant crude oil is processed in the crude unit where it is heated and distilled into various hydrocarbon components which are further processed downstream at the Wilmington Plant. The Wilmington Plant is a major producer of fuel products, including gasoline for Southern California. This evaluation is for the Wilmington Plant where it is part of the NO_x and SO_x RECLAIM Program. In addition, Wilmington’s initial Title V permit was issued on July 1, 2009.

This evaluation covers an application that altered their Catalytic Reformer Unit 80 to comply with the California Air Resources Board (CARB) Phase II as listed in Table 1. The purpose of the project was to add a fractionation section in order to reduce benzene and T90 in the unit.

This evaluation also covers a permit to operate without a permit to construct (PO no PC) that was received on March 26, 2009 for an alteration to COP’s chloride tank (device ID D1516). The tank is an existing tank that is under the current permit, but the material listed is 1, 1, 1-trichloroethane (TCA). Currently, the tank stores perchloroethylene (Perc).

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A field evaluation was conducted on August 17, 2010 to inspect Units 80, 100, and 118. (See Field Evaluation in [Attachment I](#) for more details). Verification of Unit 80's reformate splitter (device ID D1373, D1374, D1375) was completed. Although the construction has been completed, this part of the unit is not in service since they do not have to remove additional benzene from the stream. The last time the reformate splitter was used was around June 2010. The unit's equipment was working in good operating condition.

The facility has shown compliance and is currently in compliance with their permit conditions for the Catalytic Reforming Unit.

Table 1- Submitted Applications

| A/N | Date Received | Equipment | Device ID | Requested Action | PC Issue Date | Previous A/N |
|--------|---------------|-----------------------------|-----------|--|---------------|--------------|
| 326115 | 3/13/97 | Catalytic Reforming Unit 80 | P3S1 | • Install ^{new} fractionation section | 5/29/1997 | 287971 |
| 497329 | 3/26/2009 | Perc Tank 80F-151 | D1516 | • Change of Material | N/A | 326630 |

PERMIT HISTORY

The previous Permit to Operate of the Catalytic Reforming Unit 80 (D37316) was issued to Unocal, the previous owner (facility ID# 13189), on April 05, 1991. In order to comply with CAAAs and CARB requirements for reformulated gasoline, Unocal had completed two modifications to the process.

On May 16, 1994, Unocal submitted a Permit to Construct application no. 293064 for modifying Catalytic Reforming Unit 80. In order to reduce benzene in the gasoline, Unocal replaced a pump and installed new pipelines for Unit 80 reforming process. A Permit to Construct was granted to Unocal in form of a facility permit on August 08, 1994.

On December 16, 1994, Unocal submitted a Permit to Construct application no. 298618 for adding a splitting column and associated heat exchangers to Catalytic Reforming Unit 80. A Permit to Construct was granted to Unocal in form of facility permit on April 06, 1995.

On March 10, 1997, Tosco Refining Company (Facility ID# 800363), the new owner of this refinery facility, submitted this application for change of ownership of Catalytic Reforming Unit 80. No alternation has been made to the permit unit since the previous P/C was issued under A/N 298618.

COMPLIANCE RECORD REVIEW:

As of November 1, 2011 a check of the AQMD Compliance Database for the past two years showed that this facility was issued 9 Notice of Violations (NOVs) and 1 Notice to Comply (NTC). However, all the NOVs are back into compliance except for two NOVs. COP has fixed violations NOV # P29865 and P26986. The final compliance determination is subject to District verification.

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FEE EVALUATION:

ConocoPhillips does not have any outstanding fees for the application that is being converted from P/C to P/O.

The fees paid for the application submitted are as follows:

Table 2-Application Fees Submitted

| A/N | Equipment | BCAT/ CCAT | Type | Status | Fee Schedule FY 08-09 | Fee Required, \$ | Fees Paid, \$ |
|--------|--------------------------------------|---------------|------|--------|-----------------------------|---------------------|---------------|
| 497329 | Catalytic Reforming Unit (Perc Tank) | 329708 | 30 | 20 | E | \$5,148.93 | \$5,148.93 |
| | PO no PC Penalty | -- | -- | -- | -- | \$2,574.47 | \$2,574.47 |
| | | | | | Total: | \$7,723.40 | \$7,723.40 |
| | | | | | Net Fee Due: | | \$0.00 |

PROCESS DESCRIPTION:

(Please refer to the original PC's engineering evaluation of application no. 298618 for detailed information)

Perc Tank:

The purpose of Tank-151 is to provide perchloroethylene (Perc) to the reformer feed stream upstream of an exchanger. The design pressure is 180 psig at 500F. The tank has a relief valve set at 160 psig connected to the recovery system. The tank is purged with nitrogen and natural gas to maintain the pressure around 1-2 psig. Approximately 345 gallons of Perc is used per year.

EMISSIONS:

*Since the **total** fugitive emissions were never accounted for, the pre-modification emissions are being **updated** at this time for the previous application (A/N 298618) for NSR baseline emissions. According to the previous application (A/N 298618) for P3S1, the project added fugitive components. Originally, the VOC emission increase for the project was estimated to be 15 lb/day. Because the calculations are now done with the CAPCOA's correlation equation method^a, the VOC emissions increases for the PC are 6.5 lb/day. Please note that the emission increase is a result of an administrative correction. For more details on the fugitive components and emissions, see [Attachment II](#).*

Table 3 shows a summary of the affected permit units' pre and post modifications emissions with an increase of VOC of 6.5 lb/day.

^a SCAQMD's Guidelines for Fugitive Emissions Calculations June 2003

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Table 3: Re-calculation of Pre and Post-Modification Fugitive VOC Emissions

| A/N | Equipment | VOC Emissions | | | | | |
|--------|-----------|---|---------------------------|--|---------------------------|--|--------|
| | | Pre-Modification (for A/N C37376) ^b | | Post-Modification (for A/N 298618 & 326115) | | Change from Pre-Modification and Post-Modification | |
| | | lb/yr | lb/day (30-day avg) | lb/yr | lb/day (30-day avg) | lb/yr | lb/day |
| 326115 | Unit 80 | 75,327.99 | 209.24 | 77,684.12 | 215.79 | 2,339.84 | 6.5 |

Perc Tank Emissions Calculations

This tank is pressurized, so emissions from breathing losses are negligible. Working losses are controlled with a vapor recovery system (vapors are routed back to the tank that is filling this tank) with an estimated efficiency of 95%

$$\text{Uncontrolled Working Losses (lb/yr)} = 0.001 * Mv * Pva * Q * Kn * Kp * Kb$$

- Where $Mv = 164 \text{ lbs/lb-mole}$
- $Pva = 14.2 \text{ mmHg at } 68F = 0.27 \text{ psia}$
- $Q = 345 \text{ gallons/yr} = 8.2 \text{ barrels/yr}$
- $Kn \text{ (for turnovers } \leq 36) = 1$
- $Kp \text{ (for all organic fluids except crude)} = 1$
- $Kb \text{ (vent setting correction factor)} = 0.94$

$$R1=Lw= 0.0010 * 164 * 0.27 * 8.2 * 1 * 1 * 0.94 = \mathbf{0.34 \text{ lb/yr}}$$

Controlled Working Losses

$$R2=R1 * 0.05 \text{ (Working losses vented to vapor recovery system, assuming 95\% destruction efficiency)}$$

$$R2= \mathbf{0.02 \text{ lb/yr}}$$

RULES EVALUATION:

^b Since there is a permit linkage with another permit unit, AN C37376 will be updated (see NSR sheet for A/N 298618)

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PART 1 STATE REGULATIONS

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| California Environmental Quality Act (CEQA) | |
| | <p>CEQA requires that the environmental impacts of proposed projects be evaluated and that feasible methods to reduce, avoid or eliminate identified significant adverse impacts of these projects be considered.</p> <p>This evaluation action is to simply convert the P/C to P/O under A/N 326115 with no changes in emissions. Since there is no change to the emissions after the P/C was issued, no further CEQA analysis is required. Condition S11.1 will now be removed because the CEQA mitigation is complete for this system.</p> <p><u>Perc Tank:</u> The CEQA Applicability Form (400-CEQA) indicates that the modification did not have any impacts which would have triggered the preparation of a CEQA document. The expected impacts on the environment are not significant; therefore a CEQA analysis is not required.</p> |

PART 2 SCAQMD REGULATIONS

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| Rule 212 | Standards for Approving Permits | November 14, 1997 |
| | <p>These modifications met all the criteria in Rule 212 for permit approval. Because this project was part of the Reformulate Gasoline Project, it was a significant increase of VOC emissions and a public notice was required. ConocoPhillips has complied with the requirements. The modifications were designed so it can operate without emitting air contaminants in violation of Division 26 of the State Health and Safety Code or in violation of AQMD's rules and regulations.</p> <p>No further public notice is necessary.</p> <p><u>Perc Tank:</u> As for the Perc tank, the modified source is not located within 1000 feet of any school and the cancer risk from the Perc emissions are less than one in a million. Therefore, a public notice is not required.</p> | |
| Rule 401 | Visible Emissions | November 9, 2001 |
| (b)(1) | <p>No visible emissions have been reported and are not expected under normal operating conditions. Continued compliance is expected with proper operation and maintenance.</p> | |
| Rule 402 | Nuisance | May 7, 1976 |
| | <p>No nuisance complaints have been reported and are not expected provided that the operation is conducted according to design. Continued compliance with Rule 402 is expected.</p> | |
| Rule 404 | Particulate Matter-Concentration | February 7, 1986 |
| | <p>This rule requires particulate matter discharged into the atmosphere be less than</p> | |

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| | the standard listed in Table 404(a) of this rule. The Catalytic Reforming Unit does not have PM emissions. Therefore, continued compliance is expected. |
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| Rule 1123 | Refinery Process Turnarounds | December 7, 1990 |
| | <p>The permit unit is subject to the requirements of Rule 1123 per Condition S13.6. This rule requires that during refinery process turnarounds, the vapors released from process vessels are collected and contained for disposal until the vessel pressure is below 5 psig (or within 10% above the minimum gauge pressure of vapor collection, whichever is lower).</p> <p>If inert gas displacement or vacuum eduction is used for the process turnaround, a plan is required to be submitted to the Executive Officer describing the procedure, disposition of displaced or educed gases, and the identifiable criteria for the stage of the procedure where the disposition is changed from a control facility to atmospheric venting. The facility is currently in compliance with this rule and is expected to continue to operate in compliance with this rule.</p> | |

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| Rule 1173 | Fugitive Emissions of Volatile Organic Compounds | February 6, 2009 |
| | <p>This Rule specifies leak control, identification, operator inspection, maintenance, and recordkeeping requirements for valves pumps, compressors, pressure relief valves, and other components from which fugitive VOC emissions may emanate.</p> <p>No new fugitive components will be installed. Therefore, continued compliance with rule 1173 is expected.</p> <p><u>Perc Tank:</u> Perchloroethylene is not considered a VOC. Therefore, the requirements of this regulation do not apply to the tank.</p> | |

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| REG XIII | New Source Review (NSR) | May 3, 1991 |
| | <p>New Source Review requirements apply to new, modified or relocated sources.</p> <p>There are no increases in emissions at this time. Original VOC calculations estimated the increase in emissions to be 15 lb/day, but will now be updated to 6.5 lb/day (see Emission Section for more details). The requirements of this rule were imposed when the Permit to Construct was issued. No additional requirements apply.</p> | |

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| REG XIII | New Source Review (NSR) | May 3, 1991 |
| | <p><u>Perc Tank</u></p> <p>Changing the material did not result in an increase of any nonattainment emissions. Perchloroethylene is an exempt compound (Rule 1302). Therefore, BACT and emission offsets are not required.</p> | |

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| Rule 1401 | New Source Review of Toxic Air Contaminants | March 7, 2008 |
| | <p>This rule has specific limits for maximum individual cancer risk, cancer burden, and noncancer acute and chronic hazard index from new permit units, relocations, or modifications to existing permit units which emit toxic air contaminants listed in Table I of this rule.</p> <p>Rule 1401 applies to new, modified, or relocated permit units that emit TACs.</p> <p>The requirements of this rule were imposed when the Permits to Construct were issued. No additional requirements apply.</p> <p><u>Perc Tank</u> The perc emissions are below the Screening Emissions Levels listed (<5.44 lb/yr) in the Risk Assessment Procedures for Rules 1401 and 212. Therefore, the requirements of this regulation do not apply.</p> | |

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| Regulation XVII | PREVENTION OF SIGNIFICANT DETERIORATION (PSD) | |
| | <p>As of July 25, 2007, the USEPA signed a new Limited PSD Delegation agreement with SCAQMD. SCAQMD now has the PSD responsibility for all new PSD sources and all modifications to existing PSD sources where the applicant is requesting to use SCAQMD's existing Regulation XVII to determine PSD applicability for a modification (and not the recent calculation methodology adopted by EPA as part of the NSR Reform).</p> <p>Since application number 326115 was issued a P/C before July 25, 2007, this application is not applicable to this regulation.</p> <p><u>Perc Tank:</u> Since this permit action does not have an increase in emissions of any attained criteria pollutants, a PSD applicability is not required.</p> | |

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| Regulation XX | RECLAIM | May 6, 2005 |
| | <p>ConocoPhillips is a RECLAIM facility. Therefore, it is subject to Regulation XX. Since this permit action (PC to PO conversion) will not result in an emission increase in RECLAIM pollutants, there are no RECLAIM applicable requirements.</p> <p><u>Perc Tank:</u> Since this permit action will not result in an emission increase in RECLAIM pollutants, there are no RECLAIM requirements applicable to this modification.</p> | |
| Regulation XXX | Title V | |

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| | <p>ConocoPhillips has been designated as a Title V facility. On July 1, 2009, the initial permit became effective.</p> <p style="text-align: center;">These applications will be considered a “Minor Permit Revision”. Meaning that the permit revision does not: require RACT, violate a regulatory requirement, require any significant change in monitoring terms or conditions in the permit, require relaxation of any recordkeeping, or reporting requirement, or term, or condition in the permit, result in an emission increase of RECLAIM pollutants, result in an increase of emissions subject to NSR or HAP, change a permit condition to avoid an applicable requirement, install a new permit unit subject to NSPS, or modify or reconstruct an existing permit unit resulting in new or additional NSPS and/or NESHAP requirements</p> <p>Since this proposed permit is applicable for a minor permit revision, R3003(j)(1)(S) requires an EPA 45 day review.</p> <p>Therefore, the requirements of this regulation have been met and ConocoPhillips is expected to continue to comply.</p> |
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PART 3 FEDERAL REGULATIONS

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| 40 CFR Part 60 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 |
| §60.590 | <p>Applicability and designation of affected facility. In accordance with §60.590(b), any affected facility (petroleum refinery) that commences construction or modification after January 4, 1983 and on or before November 7, 2006 is subject to the requirements of this subpart.</p> <p>Since the Catalytic Reforming Unit has been subject to Subpart GGG, it will continue to be subject to this regulation and continued compliance is expected.</p> |
| 40CFR Part 63 Subpart CC | NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS FOR SOURCE CATEGORIES |
| §63.640 Applicability and designation of affected source. | <p>Applicability: ConocoPhillips Wilmington Refinery meets both criteria of subparagraph (a)(1) and (a)(2) of this regulation. Basically, this refinery emits 25 tons or more of hazardous air pollutants (HAP) and is considered a major source as defined in section 112(a) of the Clean Air Act. Secondly, this refinery does emit some of HAP listed in table 1 of this regulation.</p> <p style="text-align: center;">{§63.648 & §63.649}</p> |
| 63.640(c)(4) | <p>Equipment leak (fugitive) components: The permit unit lists a Fugitive Emissions Device that is tagged with Subpart CC. Therefore, the requirements for equipment leaks</p> |

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| 40CFR Part 63 Subpart UUU | NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS) Catalytic Cracking Units, Catalytic Reforming Units and Sulfur Recovery Units |
| §63.1561 | Applicability: ConocoPhillips Wilmington Refinery meets the criteria subparagraph (a) of this regulation. Basically, this refinery emits 25 tons or more of hazardous air pollutants (HAP) and is considered a major source as defined in section 112(a) of the Clean Air Act. |
| 63.1562(a): | The catalytic reforming unit, Unit 80, is an existing affected source at a petroleum refinery. |
| 63.1562(b)(2): | This catalyst reforming unit regenerates catalyst and hence is an affected source. |
| 63.1563(b): | Being an existing affected source, ConocoPhillips Wilmington Refinery was required to bring this catalytic cracking unit into compliance with this subpart by April 11, 2005. |
| 63.1566: | The emission limits of this subpart do not apply per 63.1562(f)(5) because during initial depressurization the stream was routed to a fuel gas system. |
| 63.1567(a)(1): | For existing semi-regenerative catalytic reforming unit, COP has elected to comply with Table 22 (reduce uncontrolled emissions of hydrogen chloride (HCL) to a concentration of 30 ppmv, corrected to 3% O2. According to their performance test conducted on May 9, 2006, the average total HCl concentration at 3% O2 was 0.46 ppmv. Continued compliance is expected. |
| | are applicable. The device is tagged with [HAP]: (10) [40CFR 63 SUBPART CC, #5A.5-25-2001 |
| | Because of §63.640(q), it allows the permitting authority (SCAQMD) to allow consolidation of the monitoring, recordkeeping, reporting requirements of this subpart overlap with SCAQMD (Rule 1173) regulations' monitoring, recordkeeping, reporting requirements. Continued compliance is expected. |

CONCLUSION:

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Based on the above evaluation ConocoPhillips is in compliance with all required rules and regulations and is expected to continue to comply. ConocoPhillips is also in accord with the permit equipment and conditions. Therefore, the following is recommended:

| A/N | Recommendation |
|--------|--|
| 326116 | To consolidate to A/N 497329 |
| 497329 | Issue Permit to Operate with conditions listed in the Conditions Section |

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ATTACHMENTS:

- I. AQMD Field Evaluation (8/17/2010)
- II. AQMD Fugitive Emissions Calculations

**SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
ENGINEERING AND COMPLIANCE DIVISION (FIELD REPORT)**

| | | | |
|---|--|--|---|
| NAME OF APPLICANT: ConocoPhillips | | DATE OF INSPECTION: 8/17/2010 | |
| MAILING ADDRESS: 1660 W. Anaheim St., Wilmington, CA | | PERMIT APPL. NO(S): 326115, 326116, 328166 | |
| EQUIPMENT LOCATION (ADDRESS): Same as above | | A.P.C.D. ZONE NO.: Zone 1 | |
| REASON PERMIT IS REQUIRED: | <input checked="" type="checkbox"/> NEW CONSTRUCTION | <input type="checkbox"/> CHANGE OF OWNERSHIP | <input type="checkbox"/> CHANGE OF LESSEE |
| | | <input type="checkbox"/> CHANGE OF LOCATION | <input type="checkbox"/> EQUIPMENT ALTERATION |
| DATE CONSTRUCTION AUTHORIZED: | BY | TIME SPENT MAKING INSPECTION: | FROM: 9:00AM TO: 11:10 AM |
| USUAL OPERATING SCHEDULE FOR THIS EQUIPMENT: 24 hrs | | | |
| WEATHER: Hot | WIND: | ESTIMATED BASIC COST: | A.P.C EQUIPMENT: \$ |
| NAMES & TITLES OF PERSONS CONTACTED BY ENGINEER: Marshall Waller, Senior Consulting Engineer | | | |
| FOR DUST AND FUME PROBLEMS ONLY: | PROCESS WEIGHT(S) | LBS/HR | ALLOWED LOSSES: LBS/HR |
| | | | ESTIMATED LOSSES: LBS/HR |

Official Equipment Description, Process Description and Findings:

Observations

AQMD Visitors: Engrs: Janice West, Meredith Hankins, Connie Yee, Inspectors: Gale Jones, and Cathy Ragland.
ConocoPhillips' Escorts: Marshall Waller and Scott Zerga

Our group met with ConocoPhillips' process engineer, Huss Nassan, for unit 80- Catalytic Reforming Unit. He briefly went over the PFD. The PC to PO conversion is for their reformat splitter (device IDs D1373, D1374, D1375). Huss said that this part of the unit is currently not in service since they don't have to remove additional benzene from the stream. The last time the reformat splitter was used was about 3 months ago. Unit 80 uses diesel to convert the product to a higher octane. Once the process is done the product goes to Unit 60 Pennax and/or production (tankage).

A walk thru of the unit gave us a chance to see some of the major vessels of the unit. The unit's equipment was working in good operating condition.

While we were in the area of Unit 80, Marshall pointed out the ammonia system that he submitted applications for. Marshall explained to me that corporate wants to connect the aqueous ammonia tank PRV to their flare system for their worker's safety. They would like to connect their anhydrous ammonia tank PRV, but cannot due to California law.

We continued on to see Unit 100- Catalytic Reforming Unit. Maijan Jamshidi, process engineer, took us around the unit. This unit does the same thing as unit 80, where it increases the product's octane level, but instead of diesel it uses steam. Unit 99 is considered the pre-feed for Unit 100. It takes out all the "poisons" from Carson's naptha feed, such as nitrogen, sulfur, and metals. This pre-feed is treated in order not to damage the expensive catalyst in the reactors. The purpose of looking at this unit was to look at the reformat splitter (device ID D754). This is also not being used because other vessels do the job. According to Ms. Jamshidi, it has not been in service > 5 years. She will double check on why it isn't being used, but would still like the vessel to be included in the permit. The unit's equipment was working in good operating condition.

Finally, we met with Unit 118 Hydrogen Production Process Engineer, Scott McArther. I needed to look at the unit's SCR standby anhydrous ammonia unit (device ID C1352). A quick walk around of the unit was showed. Their desulfurizers were not in service due to the fact they hardly use any refinery gas. They mostly use natural gas which has no need to be desulfurized. Their hydrogen

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production produces hydrogen, carbon monoxide and carbon dioxide. Their standby anhydrous ammonia unit consisted of 2 cylindrical gas tanks. If the aqueous ammonia injection system is not working, the operator has to manually connect the anhydrous tanks to the line in order for the SCR's NOx levels to remain controlled. There are 4 extra tanks on the side of the ammonia skid. The unit's equipment was working in good operating condition.

Side note: In addition, Marshall will check on the flow for the ammonia tanks' records that he provided to make sure what he provided was actually the ammonia flow and not just the air flow. Marshall also provided me with the fugitives for Units 80 and 100.

Conclusions/ Recommendations

Based on my observations and submitted records that show permit compliance, compliance has been met in accordance to the Permit to Construct and a Permit to Operate for each subject unit should be issued.

Fugitive Component Count
Process Unit: U-80 Reformer (P3:S1)

| Source Unit | Service | No. Of Existing Components (1) | Modifications | | | Emission Factor from Correlation Equations(5) (lbs/year) | Net Emissions Change (lbs/year) | Previous emissions | |
|--|---|--------------------------------|---|---------------------------------|------------|--|---------------------------------|--------------------|----------|
| | | | No. of New Components to be Installed (2) | No. of Components to be Removed | Net change | | | | |
| Valves | Sealed Bellows | All | 399 | 39 | | 438 | 0.00 | 0 | 0 |
| | SCAQMD Approved I & M Program | Gas / Vapor | 2364 | 55 | | 2419 | 4.55 | 10996.148 | 10746.13 |
| | | Light Liquid (3) | 2230 | | | 2230 | 4.55 | 10137.003 | 10137 |
| | | Heavy Liquid (4) | | | | 0 | 4.55 | 0 | 0 |
| | > 8 inches | | | | 0 | 4.55 | 0 | 0 | |
| Pumps | Sealless Type | Light Liquid (3) | | | | 0 | 0.00 | | 0 |
| | Mechanical Seal | Light Liquid (3) | 36 | 4 | | 40 | 46.83 | 1873.0159 | 1685.714 |
| | Double Mechanical Seals or Equivalent Seals | Heavy Liquid (4) | 14 | | | 14 | 46.83 | 655.55556 | 655.5556 |
| | Single Mechanical Seals | Heavy Liquid (4) | | | | 0 | 46.83 | 0 | 0 |
| Compressors | Gas / Vapor | 2 | | | 2 | 9.09 | 18.179171 | 18.17917 | |
| Connectors | All | 9068 | | | 9068 | 2.86 | 25947.017 | 25947.02 | |
| Flanges (ANSI 16.5-1988) | All | 3357 | 268 | | 3625 | 6.99 | 25339.417 | 23466.05 | |
| Pressure Relief Valves | All | 35 | 3 | | 38 | 0.00 | 0 | 0 | |
| Process Drains with P-Trap or Seal Pot | All | | 5 | | 5 | 9.09 | 45.447927 | 0 | |
| Other (including fittings, hatches, sight-glasses, and meters) | All | 294 | | | 294 | 9.09 | 2672.3381 | 2672.338 | |
| Emission Increase | | | | | | | 77684.121 | 75327.99 | |

- (1) Any component currently installed prior to the modification.
- (2) Any new component proposed to be installed due to the modification; this also includes new components to be installed to replace existing components.
- (3) Light liquid and gas/liquid streams: Liquid or gas/liquid stream with a vapor pressure greater than that of kerosene (>0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatile class present at 20% by volume.
- (4) Heavy Liquid: streams with a vapor pressure equal to or less than that of kerosene (< 0.1 psia @ 100°F or 689 Pa @ 38°C), based on the most volatile class present at 20% by volume.
- (5) Correlation Equations based on Screening Value (SV) of 500ppmv

Note: All new source units are subject to SCAQMD BACT and EPA NSPS with monthly inspection and maintenance (I&M) and ≤500 ppm by OVA.