

**ENGINEERING EVALUATION  
CONOCOPHILLIPS SAN FRANCISCO REFINERY; PLANT 16  
APPLICATION 10116**

**1.0 BACKGROUND**

ConocoPhillips has applied to amend the facility Major Facility Permit, in the form of a minor modification, in order to incorporate an allowance for 11 combustion devices to operate without normal selective catalytic reduction (SCR) abatement, as long as all applicable emission limits and other requirements are satisfied. SCR is an abatement technology used to reduce NOx emission rates from combustion operations. The eleven affected sources, the associated SCR systems and permit conditions are:

| source    | description             | SCR system | permit condition # |
|-----------|-------------------------|------------|--------------------|
| S-43      | U200 B-202 Furnace      | A-4        | 1694, Part D.1     |
| S-351     | U267 B-601/602          | A-6        | 1694, Part B.1     |
| S-352/355 | Gas Turbine/Duct Burner | A-13       | 12122, Part 3      |
| S-353/356 | Gas Turbine/Duct Burner | A-14       | 12122, Part 4      |
| S-354/357 | Gas Turbine/Duct Burner | A-15       | 12122, Part 5      |
| S-371/372 | U228 B-520/521 Furnaces | A-16/A-17  | 1694, Part C.1     |
| S-438     | U110 H1 Furnace         | A-46       | 1694, Part E.1     |

Copies of Conditions 1694 and 12122 are attached.

These sources are each subject to a permit condition that requires abatement with SCR at all times. The proposed amendment would modify this requirement for the purpose of planned or emergency maintenance, as long as applicable emission rate limits for NOx are not exceeded. Such maintenance is required periodically to maintain SCR operation. For example, ammonia injection systems associated with the SCR system may require washing or other maintenance to eliminate plugging of the system. In some cases such maintenance can be performed without removing the heater from service, and while maintaining compliance with emission limits.

Each source is equipped with a NOx continuous emission monitor (CEM) that allows verification of compliance with NOx emission rate limits, although the permit conditions for S-371, S-372 and S-438 do not explicitly require such monitors. Nonetheless, the facility Major Facility Permit requires monitoring of NOx at each of these sources with a CEM. Also, the District CEM procedure (Section 5.1) in the Manual of Procedures allows periods of CEM inoperation up to 15 consecutive days, with no overall limit on the number of days of inoperation per year. Nonetheless, the proposed amendments require that the CEMs operate during any period when SCR abatement is not used on these sources.

**1.1 Emission Increase**

Because each source is subject to a NOx emission rate limit imposed in an NSR permit evaluation, and because none of these limits will be changed, no annual average emission increase will be considered to occur, and no change will be made to the facility cumulative increase. Also, permitted daily emissions will not increase because refinery sources are assumed to operate

24 hr/day. Thus, if the emission rate limit is not increased, and the source is not physically modified to increase exhaust flowrate, the resulting daily emissions will also not increase.

Because no annual average or daily emission increase is permitted, no NSR requirements (e.g. BACT, offsets) are applicable to this application.

## **2.0 CHANGES TO MAJOR FACILITY PERMIT**

The specific proposed changes to the facility Major Facility Permit are:

### **2.1 Amend Condition 1694, Part D.1 for S-43:**

- D. S-43 Coking Furnace (Unit 200 B-202) and S-44 (Unit 200 B-201 PCT Reboil Furnace)
1. Nitrogen oxide emissions from the S-43 Coking Furnace (Unit 200 B-202) shall be abated by Selective Catalytic Reduction Unit A-4; at all times, except that S-43 may operate without SCR abatement on a temporary basis for periods of planned or emergency maintenance. A District-approved NOx CEM shall monitor and record the S-43 NOx emission rate whenever S-43 operates without abatement. All emission limits applicable to S-43 shall remain in effect whether or not it is operated with SCR abatement. [BACT, Cumulative Increase]

No other reference to S-43 in the Major Facility Permit requires amendment because the substance of Part D.1 remains as it is described in Section IV of the permit (abatement requirement) and because the numbering of the condition is not changed.

### **2.2 Amend Condition 1694, Part B.1 for S-351:**

- B. S-351 PREHEATER
1. The S-351 heater shall be abated by the A-6 SCR unit at all times; except that S-351 may operate without SCR abatement on a temporary basis for periods of planned or emergency maintenance. A District-approved NOx CEM shall monitor and record the S-351 NOx emission rate whenever S-351 operates without abatement. All emission limits applicable to S-351 shall remain in effect whether or not it is operated with SCR abatement. [BACT, Cumulative Increase]

No other reference to S-351 in the Major Facility Permit requires amendment because the substance of Part B.1 remains as it is described in Section IV of the permit (abatement requirement) and because the numbering of the condition is not changed.

### **2.3 Amend Condition 12122, Part 3 for S-352 and S-355**

3. The exhaust from S-352 and S-355 shall be abated at all times by SCR unit A-13; except that S-352 and S-355 may operate without SCR abatement on a temporary basis for periods of planned or emergency maintenance. A District-approved NOx CEM shall monitor and record the 352 and S-355 NOx emission rate whenever 352 and S-355 operate without abatement. All emission limits applicable to 352 and S-355 shall remain in effect whether or not they are operated with SCR abatement. [BACT, Cumulative Increase]

No other reference to S-352 or S-355 in the Major Facility Permit requires amendment because the substance of Part B.1 remains as it is described in Section IV of the permit (abatement requirement) and because the numbering of the condition is not changed.

#### 2.4 Amend Condition 12122, Part 4 for S-353 and S-356

4. The exhaust from S-353 and S-356 shall be abated at all times by SCR unit A-14, except that S-353 and S-356 may operate without SCR abatement on a temporary basis for periods of planned or emergency maintenance. A District-approved NOx CEM shall monitor and record the 353 and S-356 NOx emission rate whenever 353 and S-356 operate without abatement. All emission limits applicable to 353 and S-356 shall remain in effect whether or not they are operated with SCR abatement. [BACT, Cumulative Increase]

No other reference to S-353 or S-356 in the Major Facility Permit requires amendment because the substance of Part B.1 remains as it is described in Section IV of the permit (abatement requirement) and because the numbering of the condition is not changed.

#### 2.5 Amend Condition 12122, Part 5 for S-354 and S-357

5. The exhaust from S-354 and S-357 shall be abated at all times by SCR unit A-15, except that S-354 and S-357 may operate without SCR abatement on a temporary basis for periods of planned or emergency maintenance. A District-approved NOx CEM shall monitor and record the 354 and S-357 NOx emission rate whenever 354 and S-357 operate without abatement. All emission limits applicable to 354 and S-357 shall remain in effect whether or not they are operated with SCR abatement. [BACT, Cumulative Increase]

No other reference to S-354 or S-357 in the Major Facility Permit requires amendment because the substance of Part B.1 remains as it is described in Section IV of the permit (abatement requirement) and because the numbering of the condition is not changed.

#### 2.6 Amend Condition 1694, Part C.1 for S-371 and S-372:

##### C. S-371 AND S-372 FURNACES

1. The S-371 furnace shall be abated by the A-16 SCR unit at all times, and the ~~The~~ S-372 furnace shall be abated by the A-17 SCR unit at all times, except that S-371 and S-372 may operate without SCR abatement on a temporary basis for periods of planned or emergency maintenance. A District-approved NOx CEM shall monitor and record the NOx emission rates from these heaters whenever they operate without abatement. All emission limits applicable to S-371 and S-372 shall remain in effect whether or not they are operated with SCR abatement. [BACT, Cumulative Increase]

No other reference to S-371 or S-372 in the Major Facility Permit requires amendment because the substance of Part C.1 remains as it is described in Section IV of the permit (abatement requirement) and because the numbering of the condition is not changed.

#### 2.7 Amend Condition 1694, Part E.1 for S-438:

## E. S-438 FURNACE

1. The S-438 furnace shall be abated by the A-46 SCR unit at all times-, except that S-438 may operate without SCR abatement on a temporary basis for periods of planned or emergency maintenance. A District-approved NOx CEM shall monitor and record the S-438 NOx emission rate whenever S-351 operates without abatement. All emission limits applicable to S-438 shall remain in effect whether or not it is operated with SCR abatement.

[BACT, Cumulative Increase]

No other reference to S-438 in the Major Facility Permit requires amendment because the substance of Part E.1 remains as it is described in Section IV of the permit (abatement requirement) and because the numbering of the condition is not changed.

### 3.0 DEMONSTRATION OF MINOR REVISION

This evaluation will demonstrate that the proposed changes to the facility Major Facility Permit constitute a minor revision of that permit. The definition of a minor revision to a major facility permit appears in Regulation 2, Rule 6:

- 2-6-215 Minor Permit Revision:** Any revision to a federally enforceable condition on a major facility review permit which:
- 215.1 is not a significant permit revision; and
  - 215.2 is not an administrative permit amendment.
  - 215.3 Deleted

Thus, a minor revision is any revision that is neither significant, nor administrative. These definitions follow:

- 2-6-201 Administrative Permit Amendment:** A non-substantive amendment to a major facility review permit. The following amendments are administrative amendments: changes in recordkeeping format that are not relaxations of applicable requirements, the correction of typographical errors, changes in permit format that are not alterations of applicable requirements, changes in source descriptions that are not alterations of applicable requirements, changes in the descriptions of applicable requirements that add detail but do not affect substantive requirements, deletion of requirements containing sunset dates that have passed, the identification of administrative changes at a facility (such as a replacement of the facility's responsible official or a change in ownership or operational control of the facility which involves no physical or operational changes to the facility), the deletion of sources, the approval of a District rule into the SIP, the imposition of more frequent emission monitoring requirements, and changes to applicable requirements and related monitoring that are not federally enforceable.

It may be argued that the proposed amendments are administrative because they do not relax any emission limit. However, because the proposed amendments have the potential to change a non-compliant condition (operation without SCR) to a compliant condition, they will not be considered to be administrative.

- 2-6-226 Significant Permit Revision:** Any revision to a federally enforceable condition contained in a major facility review permit that can be defined as follows:

- 226.1 The incorporation of a change considered a major modification under 40 CFR Parts 51 (NSR) or 52 (PSD);
- 226.2 The incorporation of a change considered a modification under 40 CFR Parts 60 (NSPS), 61 (NESHAPS), or Section 112 of the Clean Air Act (HAP);
- 226.3 Any significant change or relaxation of any applicable monitoring, reporting or recordkeeping condition;
- 226.4 The establishment of or change to a permit term or condition allowing a facility to avoid an applicable requirement, including:
  - 4.1 a federally enforceable emission limit assumed in order to avoid classification as a modification under any provision of Title I of the federal Clean Air Act, or
  - 4.2 an alternative hazardous air pollutant emission limit pursuant to Section 112(i)(5) of the Clean Air Act;
- 226.5 The establishment of or change to a case-by-case determination of any emission limit or other standard;
- 226.6 The establishment of or change to a facility-specific determination for ambient impacts, visibility analysis, or increment analysis on portable sources; or
- 226.7 The incorporation of any requirement promulgated by the U. S. EPA under the authority of the Clean Air Act provided that three or more years remain on the permit term.

Each of these items is addressed here:

**226.1** Because no change to existing emission limit is proposed, the proposed amendments do not constitute a modification for NSR or PSD

**226.2** According to the facility Major Facility Permit, all the sources in this application are subject to the fuel gas H<sub>2</sub>S limit in NSPS Subpart J. In addition, turbines S-352, S-353 and S-354 are subject to the NO<sub>x</sub> exhaust concentration and fuel sulfur content limits in NSPS Subpart GG. The proposed amendments do not involve any physical modifications to the sources in this application, and even if they were modified, they would not be subject to any other requirements in the NSPS. Also, the facility Major Facility Permit indicates that these sources are not potentially or currently subject to any NESHAP or MACT requirements. Thus, these sources are not modified in accordance with the NSPS, NESHAP or Section 112 standards.

**226.3** The proposed amendments do not include any relaxations of monitoring, reporting or recordkeeping requirements.

**226.4** Although the abatement of sources with associated abatement devices is an applicable requirement, the basis for this requirement is compliance with a specified emission limit. If compliance does not require operation of the abatement devices, then relaxation of the abatement requirement is not substantive. Regulation 2-6-226.4 specifically cites relaxation of emission limits as examples of "avoiding an applicable requirement". Thus, the proposed amendments will not be considered to allow avoidance of an applicable requirement.

**226.5** The proposed amendments do not include a change or establishment of a case-by-case determination of an emission limit or other standard. All existing emission limits will remain in effect at all times currently specified.

**226.6** No facility-specific determination of ambient impacts or facility-specific visibility analysis is associated with the proposed amendments, and none has been performed for the sources in this application.

**226.7** No new federal requirements are incorporated into the Major Facility Permit as a result of the proposed amendments.

Therefore, the proposed revision is not a significant revision of the Major Facility Permit and may be considered a minor permit revision.

#### **4.0 CEQA and Other Regulations**

This application is categorically exempt from CEQA in accordance with Regulation 2-1-312.1 because the proposed permit condition amendments apply to permitted equipment and do not involve permitted emission increases or physical modifications. No Appendix H form is provided because no physical modifications or site development are proposed. The only potential impacts are related to air quality. As discussed in Section 1.0, no emission increase is permitted since all existing emission limits will remain in effect at all times. Not operating SCR systems when not necessary to achieve compliance with emission limits will result in a reduction in ammonia slip emissions.

As discussed in Section 3.0 all sources in this application will remain subject to the same District and federal requirements.

#### **5.0 PERMIT CONDITIONS**

The changes to permit conditions described in Section 2.0 have already been made in the District Databank.

#### **6.0 RECOMMENDATION**

Submit a minor revision to U.S. EPA to the Major Facility Permit for ConocoPhillips, including the amendments to Permit Conditions 1694 and 12122 shown in Section 2.0.

By: \_\_\_\_\_

**J. Julian Elliot**  
**Senior Air Quality Engineer**

JE:je  
10116.doc