Bay Area Air Quality Management District

939 Ellis Street
San Francisco, CA 94109
(415) 771-6000

Permit Evaluation
and
Statement of Basis
for
MAJOR FACILITY REVIEW PERMIT
Reopening – Revision 3

for

ConocoPhillips – San Francisco Refinery
Facility #A0016

Facility Address:
1380 San Pablo Avenue
Rodeo, CA 94572

Mailing Address:
1380 San Pablo Avenue
Rodeo, CA 94572

July 2005

Application 12601

Application Engineer: Brenda Cabral
Site Engineer: Brenda Cabral

TABLE OF CONTENTS

Title V Statement of Basis

A. Background

This facility is subject to the Operating Permit requirements of Title V of the federal Clean Air Act, Part 70 of Volume 40 of the Code of Federal Regulations (CFR), and BAAQMD Regulation 2, Rule 6, Major Facility Review because it is a major facility as defined by BAAQMD Regulation 2-6-212. It is a major facility because it has the "potential to emit," as defined by BAAQMD Regulation 2-6-218, more than 100 tons per year of a regulated air pollutant.

Major Facility Operating permits (Title V permits) must meet specifications contained in 40 CFR Part 70 as contained in BAAQMD Regulation 2, Rule 6. The permits must contain all applicable requirements (as defined in BAAQMD Regulation 2-6-202), monitoring requirements, recordkeeping requirements, and reporting requirements. The permit holders must submit reports of all monitoring at least every six months and compliance certifications at least every year.

In the Bay Area, state and District requirements are also applicable requirements and are included in the permit. These requirements can be federally enforceable or non-federally enforceable. All applicable requirements are contained in Sections I through VI of the permit.

The District issued the initial Title V permit to this facility on December 1, 2003.

Revision 1: On December 15, 2003, the District reopened the permit to amend flare and Regulation 9-10 requirements, correct errors, and incorporate some new sources and permit conditions. The revised permit was issued December 16, 2004, without objection from EPA. EPA did submit comments on the permit in a letter dated October 8, 2004, which the District committed to address in future actions.

Revision 2: A number of issues raised by EPA in its October 8 comment letter were addressed in a second revision to the permit. (Note that EPA commented on five refineries in this letter. Not all comments concern this facility.) In addition, some issues raised in the refinery's appeal to the December 16, 2004 permit and some refinery comments on that permit were addressed. The District published the draft Revision 2 permit for public comment on April 14, 2005. Those revisions have not yet been finalized.

Revision 3: In response to petitions to reconsider its decision to not object to Revision 1, EPA issued an order on March 15, 2005. That order directed the District to reopen the permit to address possible deficiencies that EPA had identified based upon the petitions. The District sent a formal notice of reopening to the facility on May 12, 2004. In this action the District is publishing a new draft permit, Revision 3, to address the deficiencies identified in the March order that were not already addressed in Revision 2.

The draft permit for this action reflects the Revision 2 changes that were proposed on April 14, 2005. These draft changes to the permit are shown in "~~strikeout~~/underline" format. The changes that are proposed in this action are shown in "~~double strikeout~~/double underline." In this action,

the District is soliciting public comment only on the revisions proposed in this action, i.e., those shown in double strikeout and underline. When the permit is finalized, the tracking marks will be removed.

This statement of basis discusses the changes made by this reopening. It also provides additional analysis supporting certain applicability determinations. Where the additional analysis did not result in a permit change, the analysis is provided for information only. The permit is not being reopened with respect to those issues.

This statement of basis does not address the factual and legal basis for any other permit terms. These are addressed in the comprehensive statements of basis that were prepared for the initial issuance of the permit and subsequent reopenings and revisions. These are available on request.

B. Facility Description

The facility description can be found in the statement of basis that was prepared for the reopening issued on December 16, 2004. It is available on request from the Engineering Division of the District.

C. Permit Content

Additional information concerning the legal and factual basis of the Title V permit conditions is presented below. The information is organized by the relevant section of the Title V permit.

I. Standard Conditions

No changes to Section I are proposed.

II. Equipment

No changes to this section are proposed in this action.

III. Generally Applicable Requirements

No changes to this section are proposed in this action.

IV. Source-Specific Applicable Requirements

This section of the permit lists the applicable requirements for permitted or significant sources. These applicable requirements are contained in tables that pertain to one or more sources that have the same requirements. The order of the requirements is:

- District Rules
- SIP Rules (if any) listed following the corresponding District Rules. SIP rules are District rules that have been approved by EPA into the California State Implementation Plan. SIP rules are "federally enforceable" and a "Y" (yes) indication will appear in the "Federally

Enforceable" column. If the SIP rule is the current District rule, separate citation of the SIP rule is not necessary and the "Federally Enforceable" column will have a "Y" for "yes". If the SIP rule is not the current District rule, the SIP rule or the necessary portions of the SIP rule are cited separately after the District rule. The SIP portions will be federally enforceable; the non-SIP versions will not be federally enforceable, unless EPA has approved them through another program.

- Other District requirements, such as the Manual of Procedures, as appropriate.
- Federal requirements (other than SIP provisions)
- BAAQMD permit conditions. The text of BAAQMD permit conditions is found in Section VI of the permit.
- Federal permit conditions (unless they have been assigned a District permit condition number, in which case they are included as BAAQMD permit conditions). The text of Federal permit conditions, if any, is found in Section VI of the permit.

Section IV of the permit contains citations to all of the applicable requirements. The text of the requirements is found in the regulations, which are readily available on the District's or EPA's websites, or in the permit conditions, which are found in Section VI of the permit. All monitoring requirements are cited in Section IV. Section VII is a cross-reference between the limits and monitoring requirements. A discussion of changes to monitoring is included in Section C.VII of this permit evaluation/statement of basis.

Complex Applicability Determinations

Applicability of 40 CFR 63, Subpart A to S398, Flare

S398, Flare, was built after 1973 and is therefore subject to 40 CFR 63, Subpart J. On page 18 of EPA's Order, EPA notes that the requirements of NSPS Subpart A have been excluded for S398, Flare. The requirements of Subpart A have been added to the table except for the following sections, which do not apply:

- 60.11(b) Compliance with opacity standards in this part…: (applies only to opacity standards)
- 60.11(c) The opacity standards set forth in this part…: (applies only to opacity standards)
- 60.11(e) For the purpose of demonstrating initial compliance, opacity observations…: (applies only to opacity standards)
- 60.13 Monitoring: (applies only to continuous monitoring systems, which are not required on this flare)
- 60.18 Control Devices: (applies only to control devices used to comply with applicable subparts of parts 60 and 61)

Applicability of 40 CFR 63, Subpart J to S296, Flare

On page 17 of EPA's Order, EPA states that the "BAAQMD must reopen the Permit to address the changes that have occurred at Flare S-296."

S296 was first permitted with a nominal capacity of 692 tons/hr on 1977. In 1996, Conoco replaced the flare tip with a new one of a different make. The new flare tip has a nominal capacity of 845 tons/hr.

The District has invited the facility to provide additional information to support its position that the flare has not been modified. The facility has not provided the demonstration to date. Based

on the record currently before it, the District has determined that the increased capacity is a modification that increases the flare's hourly potential to emit. Such a modification makes the source subject to NSPS. Therefore, the requirements of Subpart J and Subpart A (as described above for S398, Flare) have been added to Section IV of the permit. Additional information obtained during the comment period may affect the District's determination.

40 CFR 63, Subpart R, National Emission Standards for Gasoline Distribution Facilities (Bulk Gasoline Terminals and Pipeline Breakout Stations)

On page 25 of EPA's Order, EPA states that: "the Permit fails to comply with the requirements of 40 C.F.R. § 70.7(a)(5) by excluding a discussion of the applicability of 40 C.F.R. 63, Part 63, subpart R, and potentially fails to comply with 40 C.F.R. § 70.6(a)(1), which requires that a title V permit include operational requirements and limitations that assure compliance with all applicable requirements."

Sources affected by NESHAPS Subpart R, Section 63.420 are either bulk gasoline terminals or pipeline breakout stations. "Bulk gasoline terminal" means any gasoline facility that receives gasoline by pipeline, ship or barge. "Pipeline breakout station" means a facility along a pipeline containing storage vessels used to relieve surges or receive and store gasoline from the pipeline for reinjection and continued transportation by pipeline or to other facilities. Conoco has no bulk gasoline terminals and no pipeline breakout stations. Therefore, it is not subject to Subpart R.

Other Changes to permit

BAAQMD Regulation 6-311 was added to the tables for cooling towers because it was inadvertently omitted in drafting Revision 2. Compliance with this standard in discussed in the evaluation for Application 10349, which is included in the Statement of Basis for Application 12433.

"Future Effective Dates" that have passed have been removed.

Exemption of Flares from Regulation 8

On page 20 if EPA's Order, EPA states that the District must either conduct a design review of the refinery flares to better demonstrate that the flares consistently meet a 90% control efficiency to qualify for the Regulation 8-1-110.3 exemption from Regulation 8-2 or include Regulation 8-2 as an applicable requirement for those sources. The Order further provides that the permit lacks periodic monitoring for compliance with permit conditions added to ensure that flares are properly operated. Neither of these changes is necessary.

In issuing the permit, the District determined that on the basis of available information, refinery flares when properly operated easily meet a 90% reduction efficiency. In response to concerns previously raised by EPA, the District added permit conditions to ensure the flares are operated in a manner consistent with the operational parameters assumed in determining that they qualify for the exemption. Because the permit conditions were not intended to ensure compliance with an applicable requirement, however, they should not have been identified as federally enforceable; the District has modified the permits to reflect this conclusion. For the same reason, periodic monitoring to ensure compliance with the permit conditions is not necessary.

The District has previously explained that the design of the flares has been dictated by requirements of another agency charged with ensuring the protection of refinery workers and that a properly operating flare so designed will consistently meet the 90% reduction efficiency by a significant margin. In the Order EPA provides no discussion of its apparent rejection of the explanations and supporting information previously submitted by the District in support of the permits as written.

In response to the Order, the District undertook further consideration of this issue and on reconsideration has determined that Regulation 8, Rule 2 does not apply to refinery flares and therefore there is no need to consider whether the flares qualify for an exemption from Regulation 8 requirements under section 110.3. This determination is driven by a review of the regulatory history of this provision, which demonstrates that Regulation 8-2 was never intended to apply to refinery flares. Unfortunately, focus on the question whether refinery flares qualify for the Regulation 8-1-110.3 exemption has masked the more fundamental applicability issue.

Moreover, even if it is assumed that that flares are generally subject to Regulation 8-2, which would trigger an analysis of whether the flares qualify for an exemption under Regulation 8-1-110.2, the benefits of a design review are not apparent. EPA did not rely upon the studies referenced by the petitioners. It would be inappropriate to do so because the studies do not provide a basis for making conclusions regarding the performance of refinery flares. In fact, the District is not aware of any credible data that suggests a properly operating refinery flare will not achieve combustion efficiencies significantly better than 90%; nor is it clear how a design review would address such issues if they existed.

Finally recent events – the District's adoption of the Flare Control Rule (Regulation 12, Rule 12) – obviate any need or purported benefit from application of Regulation 8-2 or the exemption criteria in Regulation 8-1-110.3 to refinery flares. The course of the rulemaking was arduous due to the complexities of regulating these sources, which are first and foremost safety devices used when there is a need to release refinery gases to avoid more serious consequences. While it is clear that minimizing the use of flares is possible – and the new regulation requires just this – the mechanism for achieving this result required careful crafting. The refinery is now in the process of developing a Flare Minimization Plan, with the first quarterly status report due in mid-October 2005. Requiring the District and the refineries to engage in competing exercises such as the design review called for by EPA is unnecessary and will detract from the effort to implement the rule.

Finally, in adopting the flare control rule, the District adopted an amendment to Regulation 8, Rule 2, to clarify that the rule does not apply to refinery flares. This amendment was intended to reflect existing regulatory policy. The amendment is consistent with the underlying logic of Regulation 8-2 as a requirement of general applicability intended to fill gaps until source-specific regulations are adopted. In the case of the flare control rule, it was not strictly necessary, given that flares have never been subject to Regulation 8-2. However, the District expects this amendment will put to rest any uncertainty regarding applicability.

<u>Monitoring for NSPS Subpart J at Flares</u>

The Orders for Chevron and Valero state that the District must either impose the requirements contained in 40 CFR § 60.105(a)(3) or (4), or add monitoring to assure compliance with Chevron permit Condition 18656, Part 7 and Valero Condition 20806, Part 7 (referred to below as "prohibitory conditions"). The Orders for Tesoro and ConocoPhillips indicate EPA's intent to treat those permits similarly in the near future. The District interprets the Order, in this respect, to assert the need for monitoring to determine whether the refineries are properly claiming that certain flares continue to be exempt from the H2S standard of § 60.104(a)(1), i.e., that the flares are not used to combust gases on a "routine" basis. The Order does not assert that the exemption has been improperly claimed, but rather that Title V monitoring is required to verify on an ongoing basis whether the exemption is properly claimed. As explained below, the District in Revision 3 is proposing to delete the prohibitory conditions, and is otherwise deferring response on this issue until there is new guidance from EPA.

Regarding this issue, the Order reflects views expressed in earlier comments from EPA. In an October 6, 2004, letter responding to these comments, the District affirmed the importance of determining applicability of Subpart J on a continuing basis but noted that, as a Title V matter, the imposition of monitoring is authorized only for requirements determined to be applicable. The District reasoned that therefore, to the extent a flare is, as a factual matter, exempt per § 60.104(a)(1), then the H2S standard of Subpart J is not applicable and Title V monitoring is not authorized. The October 6 letter sought clarification from EPA on three points: 1) articulation of the broader Title V implementation principle being asserted by EPA, 2) the legal rationale for that principle, and 3) EPA's plan for ensuring national consistency. To date, EPA has not addressed the first two points.

Concurrent with the March 15, 2005, Orders, EPA also issued guidance addressing the same issue. This guidance would have served to address the District's concern regarding national consistency. However, on May 16, 2005, EPA issued a brief statement withdrawing the March 15 guidance and stating that new guidance would be issued "in the upcoming weeks." The District interprets this to mean either that EPA is reconsidering its position or, at the least, that the new guidance will serve to clarify EPA's position and rationale. The District therefore believes the most efficient course is to defer its response to the Orders until new guidance is issued.

Regarding the prohibitory conditions referred to above, the District will propose deletion of these conditions (Condition 18255) because they are neither required nor helpful. The District initially believed these conditions might obviate the need to resolve the disagreement over monitoring for applicability of Subpart J described above. This belief has proven false. Judging from the March 15 Orders, the effect was merely to transpose the very same monitoring issue onto the new prohibitory conditions themselves. In general, there is no requirement in Title V or the implementing regulations to impose such prohibitions. Whether the exemption from the Subpart J H2S standard has been properly claimed is determined based upon actual events at the refinery, not upon what the refinery is legally authorized to do. Consistent with this principle, if "routine" flaring does occur, then the flare is subject to the H2S standard of Subpart J and the monitoring requirements of § 60.105(a) regardless of whether any such prohibition exists in the Title V permit. The prohibitory conditions are simply redundant. Deletion of the conditions should facilitate further discussions on this issue by returning the focus to the exemption language of Subpart J.

V. Schedule of Compliance

A schedule of compliance is required in all Title V permits pursuant to BAAQMD Regulation 2-6-409.10 that provides that a major facility review permit shall contain the following information and provisions:

"409.10 A schedule of compliance containing the following elements:

10.1 A statement that the facility shall continue to comply with all applicable requirements with which it is currently in compliance;

10.2 A statement that the facility shall meet all applicable requirements on a timely basis as requirements become effective during the permit term; and

10.3 If the facility is out of compliance with an applicable requirement at the time of issuance, revision, or reopening, the schedule of compliance shall contain a plan by which the facility will achieve compliance. The plan shall contain deadlines for each item in the plan. The schedule of compliance shall also contain a requirement for submission of progress reports by the facility at least every six months. The progress reports shall contain the dates by which each item in the plan was achieved and an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted."

No changes to this section are proposed in this action.

VI. Permit Conditions

Monitoring for Condition 18255, Flares

The District will propose deletion of the portions of Condition 18255 that were imposed to assure compliance with the exemption in Regulation 8-1. The District has determined that this regulation does not apply to flares. See the discussion above on Exemption of Flares from Regulation 8.

VII. Applicable Limits and Compliance Monitoring Requirements

This section of the permit is a summary of numerical limits and related monitoring requirements that apply to each source. The summary includes a citation for each monitoring requirement, frequency, and type. The applicable requirements for monitoring are completely contained in Sections IV, Source-Specific Applicable Requirements, and VI, Permit Conditions, of the permit.

PM Sources

S# & Description	Federally Enforceable Limit Citation	Federally Enforceable Limit	Monitoring
S1001, S1002, S1003, Sulfur Recovery Units	BAAQMD 6-301	Ringelmann 1 for no more than 3 min/hr	Monthly visible emissions monitoring
Refinery heaters fired on RFG	BAAQMD 6-310	0.15 gr/dscf	None

PM Sources

S# & Description	Federally Enforceable Limit Citation	Federally Enforceable Limit	Monitoring
S1001, S1002, S1003, Sulfur Recovery Units	BAAQMD 6-310	0.15 gr/dscf	None

Monthly visible emissions monitoring has been imposed on the Sulfur Recovery Units to ensure compliance with Regulation 6-301. Source testing for 6-310 is not feasible at this time because new ports would be required in the stack and it is only possible to install them during a turnaround. The first annual testing for the limit of 0.08 gr SO3 or H2SO4/dscf in 6-330, Sulfur Recovery Units, has been performed. Preliminary results show that the emissions are very low. Since any particulate is expected to be primarily acid mist, it is not expected that the sulfur recovery units will violate with the Regulation 6-310 limit.

Monitoring for Condition 18255, Flares

The District will propose deletion of the portions of Condition 18255 that were imposed to assure compliance with the exemption in Regulation 8-1. The District has determined that this regulation does not apply to flares. See the discussion above on Exemption of Flares from Regulation 8.

Periodic monitoring for the grain loading standard in BAAQMD Regulation 6-310 for units fired on refinery fuel gas.

On page 14 of EPA's order, EPA grants the petition to object and states that the District must re-analyze the question of appropriate periodic monitoring for the grain loading standard for units fired on refinery fuel gas (RFG). Specifically, the District has been directed to either add monitoring to demonstrate compliance with the limit in BAAQMD Regulation 6-310, or explain in the Statement of Basis why it is not needed.

EPA noted that the District had relied on the CAPCOA/ARB/EPA Recommendations published in 1999, which did not apply to combustion sources, and that the District had not relied on the 2001 recommendations, which did apply to combustion sources, although they addressed other fuels.

The District has determined that no periodic monitoring is required at combustion units firing refinery fuel gas.

The grain-loading limit in BAAQMD Regulation 6-310, and the grain-loading standard described under the “Periodic Monitoring Recommendations for Generally Applicable Requirements” in the 2001 CAPCOA/CARB/EPA recommendations for boilers firing natural gas is one and the same. Specifically, the PM emission rate outlined in the BAAQMD rule and the standard in the 2001 CAPCOA/CARB/EPA recommendations is 0.15 gr/dscf. However, the 2001 CAPCOA/CARB/EPA recommendations do not address PM emissions resulting from the combustion of RFG. In addition, the USEPA AP-42 does not contain any emission factors for combustion units firing RFG.

Following is an estimate of particulate emissions based on the worst-case assumption that all of the sulfur in the RFG combusted at the combustion units is emitted as PM emissions, the following emission calculations show that the PM emission rate of 0.15 gr/dscf will never be exceeded:

Conoco Phillips estimated the total sulfur in the main refinery fuel gas system to be 355 ppmv (~ 0.21 gr S/dscf)[1], based on ongoing monitoring of total sulfur.

Assuming the heating value of RFG is 1,100 BTU/dscf, the dry flue gas factor or F-factor[2] for RFG is approximately the same as natural gas i.e. 8,710 dscf/MMBTU, and that all of the sulfur is converted to sulfate (ammonium sulfate), the PM emissions exiting the combustion units at Conoco Phillips in the form of sulfate emissions is determined as follows:
= (0.21 gr S /dscf RFG) x (lb S/7000 gr S) x (dscf RFG/1100 BTU) x
(MMBTU/8710 dscf) x (10E6 BTU/MMBTU) x (lb-mol S/32 lb S) x
(lb-mol sulfate/lb-mol S) x (132 lb sulfate/lb-mol sulfate)
= 1.29E-5 lb sulfate/dscf

Converting the above mass emission rate from "pounds" of sulfate to "grains" of sulfate:
= (1.29E-5 lb sulfate/dscf) x (7000 gr sulfate/lb sulfate)
= 0.09 gr sulfate/dscf

It can be seen from above that the PM emission rate in the form of sulfate emissions is well below the PM emission limit outlined in BAAQMD Regulation 6-310 and the PM standard in the 2001 CAPCOA/CARB/EPA recommendations. Therefore, compliance is assured and no periodic monitoring is required at combustion units firing RFG.

Other changes to permit
BAAQMD Regulation 6-311 was added to the tables for cooling towers because it was omitted in error. Compliance with this standard and a demonstration that monitoring is not required is discussed in the evaluation for Application 10349, which is included in the Statement of Basis for Application 12433.

VIII. Test Methods

This section of the permit lists test methods that are associated with standards in District or other rules. It is included only for reference. In most cases, the test methods in the rules are source test methods that can be used to determine compliance but are not required on an ongoing basis. They are not applicable requirements. If a rule or permit condition requires ongoing testing, the requirement will also appear in Section VI of the permit.

No changes to the test method section are proposed.

[1] (355 moles S/10E6 moles RFG) x (7000 gr S/1 lb S) x (lb-mol S/387 dscf) x (32 lb S/lb-mol S)
= 0.21 gr/dscf

[2] Based upon the assumption of complete stoichiometric combustion of natural gas (~ RFG). In effect, it is assumed that all excess air present before combustion is emitted in the exhaust gas stream.

IX. Permit Shield:

No changes to permit shields are proposed in this revision.

X. Revision History

The revision history has been updated.

XI. Glossary

No changes to the glossary are proposed in this revision.

D. Alternate Operating Scenarios

No alternate operating scenario has been requested for this facility.

H:\pub_data\titleV\permit\evals\A0016-sob-rev2.doc