

BAAQMD Responses to EPA Comments

EPA reviewed the proposed permit for Chevron during a 45-day review period ending on September 10, 2010. In an email dated September 10, 2010, EPA provided comments on the permit. The BAAQMD provides the following responses to the EPA comments using EPA's numbering.

EPA Comment 1: EPA asked the BAAQMD to add 40 C.F.R. 60.18 (Part 60, Subpart J, Section 60.18) to Sections IV, VI, and VII of the permit (Source-Specific Applicable Requirements, Permit Conditions, Applicable Limits & Compliance Monitoring Requirements, respectively) as it relates to the Chevron Products Company Refinery flares (S-6010, S-6012, S-6013, S-6015, S-6016, S-6017, S-6019, and S-6039).

BAAQMD Response: The EPA comment raises in a slightly different context an issue it has previously raised for the San Francisco Bay Area refinery Title V permits: whether various flare requirements are applicable if flares handle only startup, shutdown, and malfunction gases. In this case, EPA has asked the BAAQMD to add 40 CFR § 60.18 to flare requirements for Chevron.

Section 60.18 contains "requirements for control devices used to comply with applicable subparts of 40 CFR parts 60 and 61." It applies "only to facilities covered by subparts referring to this section." The section imposes both design and operating standards for flares and includes the following requirements: (1) flares must be designed for and operated with no visible emissions, (2) flares must be operated with a flame present at all times, (3) steam-assisted flares must be used only when the net heating value of gas being combusted exceeds 300 Btu/scf, and (4) steam-assisted flares must be designed and operated so that the exit velocity is less than 60 ft/sec or less than 400 ft/sec if gas heating value exceeds 1000 Btu/scf or less than a velocity determined by an equation.

The text of Section 60.18 indicates that it is not independently applicable and applies only if the Chevron flares are "control devices used to comply with applicable subparts of 40 CFR parts 60 and 61." This is a two-part test: (1) if a particular flare was constructed after the effective date of such a subpart or is otherwise subject to the subpart, and (2) the flare is being used as a "control device," then the requirements would appear to apply.

There is no evidence that the flares at the Chevron refinery are being used as control devices. BAAQMD Regulation 12, Rule 12, Flares at Petroleum Refineries, requires the use of all feasible measures to minimize the frequency and magnitude of flaring. The rule also requires reporting and causal analysis for flaring events. The flaring reports from this refinery covering the period from 2004 to the present show no instances of "routine" flaring. The best available data, therefore, do not support the idea that flares are being used as control devices and, as a result, § 60.18 does not apply.

This position is consistent with the position that the BAAQMD has taken in the past. EPA commented on earlier versions of the Chevron permit, saying that other requirements found in subparts of parts 60 and 61 apply. In connection with Revision 3 of the Chevron permit, EPA commented that flares should be made subject to the monitoring requirements for flares in the Standards of Performance for Petroleum Refineries (NSPS Subpart J) at 40 CFR § 60.105(a)(3) or (4). Per the Consent Decree all of Chevron's flares are subject to NSPS subpart J. However, the flares are also exempt from the Subpart J hydrogen sulfide limit and associated monitoring requirements pursuant to 40 CFR § 60.104(a)(1), which exempts "process upset gases or fuel gas that is released to the flare as a result of relief valve leakage or other emergency malfunctions

The BAAQMD has also concluded that even if application of 40 CFR § 60.18 were somehow directed through “applicable subparts of 40 CFR parts 60 and 61,” the section would not apply to the Chevron refinery flares because the regulatory history of the section indicates that it is intended to apply to industrial flares that operate continuously. Although the language of the section is sufficiently broad and vague as to allow an argument that it applies to refinery emergency relief flares (because it refers simply to “flares”), application to these flares would be contrary to the regulatory history, to the technical justification for the primary operative provisions - which set minimum Btu content standards for flared gases and limit flare exit velocity, and to practical considerations related to enforceability. In addition, both the BAAQMD and EPA have adopted or proposed alternative requirements that would address concerns about flaring of “routine” gases in these flares.

The requirements in § 60.18 were originally found in Subparts VV, NNN and Kb of 40 CFR Part 60 and Subparts L and V of Part 61. EPA consolidated and revised the requirements in 1986 in response to a petition from the Chemical Manufacturers Association asking EPA to reconsider the exit velocity limitations on flares used as control devices to comply with Subpart VV of 40 CFR Part 60. (See 51 Fed. Reg. 2699, January 21, 1986.) That petition was prompted by an EPA study on flare efficiency (*Evaluation of the Efficiency of Industrial Flares: Test Results*, EPA-600/2-84-095, May 1984). (See 50 Fed. Reg. 14941, April 16, 1985.) According to the study:

This study was limited to measuring the combustion efficiencies of pipe flares burning propane-nitrogen mixtures at steady operating conditions with and without steam injection, in the absence of wind.

The study concluded that with stable flames, high combustion efficiencies were achieved in the pilot-scale flares. According to the study, stable flames could be achieved at low velocities with a gas heating value as low as 300 Btu/ft³. At higher velocities, higher heating value was required for a stable flame. The study therefore supports the idea that steady-state flare operation can result in high destruction efficiencies for flares used as control devices. It also provides the basis for the minimum Btu content and exit velocity requirements of § 60.18. For a flare serving a gas flow of relatively stable volume and composition, these design and operating requirements ensure high combustion efficiency.

The Chevron Products Company, like the other four San Francisco Bay Area refineries, employs a refinery fuel gas system to capture gases from process vents and relief valves and route them to the refinery fuel gas system for use in refinery process heaters and furnaces. This fuel gas system operates as a control device. Flares serve the refinery fuel gas systems to prevent direct release of these gases when the refinery fuel gas system cannot control them during periods of startup, shutdown, or malfunction. The Chevron flares primarily serve a safety function and must handle intermittent flows that could involve extremely large volumes, high flow rates, and uncertain composition, particularly in the case of a major power outage, unit or plant shutdown, or catastrophic failure. The design and operating requirements for such a flare are different than those for a flare with steady operating conditions and predictable flows and gas composition.

EPA’s comment appears to be motivated by a concern that the refinery flares could be used to burn “routine” gases.¹ With a refinery fuel gas system served by a flare, it is certainly physically possible to send gases that are generated by routine processes to the flare by shutting down compressors or otherwise limiting the capacity of the fuel gas system to capture gases and send them to refinery combustion units. Under these circumstances, the flare could be said to be operating as a “control

¹ One argument advanced for § 60.18 applicability is that commingling of “routine” and “upset” gases during flaring of upset gases means that relief flares are acting as control devices for the routine gases and are therefore subject to § 60.18. It is certainly true that during refinery upsets leading to flaring, some routine gases that would otherwise go into the fuel gas system might be flared, particularly if the fuel gas system is affected by the upset. However, the routine gases would not be flared but for the upset and are therefore upset gases.

device” without meeting requirements that ensure efficient combustion. But § 60.18 was never intended to address this situation, and its application in this context would create several problems.

The first problem is that § 60.18 imposes design and operation requirements. Design must necessarily precede the construction of a flare. In this case, design of many of the Bay Area refinery flares occurred long before EPA thought to apply § 60.18 to all of the Chevron flares. There is nothing in the regulatory history of § 60.18 that suggests that the section’s requirements were intended to apply to flares associated with refinery fuel gas systems. Instead, as discussed, the requirements appear to have been intended to apply to “steady state” operation.

The second problem is that there is no easy way to know if § 60.18 would be a reasonable standard for existing refinery flares associated with fuel gas systems. EPA has not undertaken rulemaking to determine whether the standard should be clarified and applied to relief flares serving refinery fuel gas systems. Without rulemaking and the fact finding that would be part of such an effort, it can’t be known whether the gas heating value requirements and exit velocity limits of § 60.18 are reasonable requirements for refinery relief flares.

A third problem is that, if applied to flares on refinery fuel gas systems, applicability of § 60.18 would be intermittent and would turn on the nature and origin of the gases being sent to the flare at a given moment. This raises enforceability questions that can only be resolved through a mechanism that requires examination of the cause of each flaring event. However, both the BAAQMD and EPA have recognized this problem and undertaken regulatory efforts to address the issue. The BAAQMD adopted Regulation 12, Rule 12, Flares at Petroleum Refineries on July 20, 2005. The rule requires the use of all feasible measures to minimize the frequency and magnitude of flaring and requires causal analysis of flaring events. EPA has undertaken a similar effort with 40 CFR Part 60, Subpart Ja.

BAAQMD is not adding § 60.18 to the flare requirements in the permit.

EPA Comment 2: EPA asked the BAAQMD to let it know the compliance status of the flares identified in Appendix F of the Consent Decree. EPA would appreciate you forwarding electronic copies of schedules of activities described under subparagraph 54.a.ii of the Consent Decree.

BAAQMD Response: According to its Title V Permit Chevron is complying with 60.104(a)(1), which is an option in 54.a.ii.

EPA Comment 3: EPA asked the BAAQMD to clarify how the following process heaters and boilers are complying with Section F (NO_x Emission Reductions from Heaters and Boilers) of the Consent Decree and its NO_x Control Plan: S-4038, -4039, -4040, -4155, -4131, and -4133. While clarification may be available in the NO_x Control Plan and its updates, please forward them as attachments to the Statement of Basis.

BAAQMD Response: According to Section F paragraph 35 of the Consent Decree the NO_x Control Plan would be sent to EPA and it doesn’t mention sending a copy to BAAQMD.

EPA Comment 4: EPA asked the BAAQMD to identify the equipment to which Appendix E and subparagraph 43.b. of the Consent Decree refer with the proper equipment ID number. Also, please clarify the compliance status of these equipment with subparagraph 43.c.

BAAQMD Response: For the equipment identified in Appendix E the Cogeneration Unit’s Turbines are sources S-4350 and S-4352, the Cogeneration Unit’s Duct Burners are S-4351 and S-4353, and the Marine Loading Vapor Recovery Unit is A-900. The other Thermal Oxidizers were too vague to identify.

Additional information may be needed to properly identify this equipment. As for the compliance status of this equipment with respect to subparagraph 43c is not known to the BAAQMD since this section appears to require Chevron to submit an AMP to EPA and not the BAAQMD.

EPA Comment 5: EPA asked the BAAQMD to let it know the refinery's compliance status with its 6BQ compliance option and the most recent results of its quarterly benzene determination made pursuant to paragraph 78 of the Consent Decree. Also, I would appreciate you forwarding electronic copies of schedules of activities made pursuant to subparagraph 78.d.

BAAQMD Response: It appears that paragraph 78 requires Chevron to submit this information to EPA and the appropriate Plaintiff-Intervenor. I am unaware of this information being submitted to the District.

EPA Comment 6: EPA requested the CO emission limit for FCCU S-4285 of 500 ppmv CO on a 1-hour average basis based on Part 6 of Condition #11066 seems to be missing from Table VII.C.2.1. Please add as appropriate.

BAAQMD Response: This correction has been proposed in the permit.

EPA Comment 7: EPA requested that the district forward electronic copies of 1) any summary records of corrective action taken in response to LDAR audits conducted pursuant to paragraph 86 of the Consent Decree and 2) the PMO Plan and its annual updates described in subparagraph 51.a. of the Consent Decree.

BAAQMD Response: To my knowledge, this information has not been submitted to the district.