

Adopt Proposed Amendments to Rule 4311 (Flares)

San Joaquin Valley Air Pollution Control District
Governing Board Meeting
December 17, 2020

Overview

- Rule 4311 sets emission limits and reporting requirements for a variety of flaring operations
- Flaring is a high temperature oxidation process used to burn primarily hydrocarbons of waste gases from industrial operations
 - Flares typically have a destruction efficiency of 98% or higher
 - Used within variety of processes, including oil and gas production, landfill operations, and wastewater treatment
- Flares primarily act as a safety device during unforeseeable and unpreventable situations, and as an emission control device for VOCs
- Two general types of flares: elevated and ground flares
- Operators avoid flaring due to high costs - often implement feasible alternatives



Image credit: Getty Images, 2018

District Rule 4311

- District Rule 4311 (Flares) adopted June 2002, amended in 2006, again in 2009 to add new requirements, including annual reporting and flare minimization practices
 - Rule limits emissions of NO_x, VOCs, and SO_x from the operation of flares
- Current requirements for operations with flares include:
 - NO_x limits as low as 0.068 lb-NO_x/MMBtu for major NO_x and VOC sources
 - Proper operation requirements (i.e., ignition system, heat sensors, etc.)
 - Flare minimization plans
 - Reporting of unplanned flaring event within 24 hours, annual reporting, and reporting of when monitoring system is not operating
 - Vent gas composition monitoring
 - Video monitoring

Attainment Plan Commitments

- Significant emission reductions needed to meet federal standards - commitment in *2018 PM2.5 Plan* to evaluate further emissions reduction opportunities from flares beyond already strict limits
 - Additional low NOx flare emission limitations for existing and new flaring activities at Valley facilities to the extent that such controls are technologically achievable and economically feasible
 - Additional flare minimization requirements to the extent that such controls are technologically achievable and economically feasible
 - Expand applicability of the rule by removing the exemption for non-major sources
 - Plan evaluation estimated 0.05 ton NOx/day emission reduction through implementation of low NOx flare installation requirements
- District staff have conducted comprehensive review of air district rules, lowest emission limits being achieved nationwide, and costs and feasibility of most effective emission control technologies available

Proposed Rule 4311 Amendments

- Remove non-major source exemption
- Remove landfill exemption
- Add new emissions requirement based on annual throughput threshold that, if exceeded, would require ultra-low NOx technology
 - Oil and Gas Related Flares: 25,000 MMBtu/yr threshold
 - Controls 65% of gas flared
 - Landfill Flares: 90,000 MMBtu/yr threshold
 - Controls 93% of gas flared
 - Digester/Wastewater Treatment Flares: 100,000 MMBtu/yr threshold
 - Controls 77% of gas flared
- Annual throughput thresholds based on applicability of ultra-low NOx technology for different flaring processes (industry-specific considerations) and costs

Proposed Rule 4311 Amendments (cont'd)

- Operators of flares subject to new requirements must do one of the following:
 - Install an ultra-low NO_x flare by December 31, 2023, or
 - Comply with enforceable permit limit below applicable annual throughput threshold by January 1, 2024
 - Must install ULN flare within one year if exceed permitted annual threshold for two consecutive calendar years beyond January 1, 2024
- New ultra-low NO_x requirements would be in addition to current requirements, including flare minimization plans
- Installation of ultra-low NO_x flare technology would be required for flares that combust 65% of gas in Valley

Cost-Effectiveness & Socioeconomic Impacts

- Cost-effectiveness of Rule 4311 requirement to install ULN flare ranges depending on current permitted limit, size of flare, and gas throughput
 - Estimated cost-effectiveness between \$52,500-\$157,000 per ton NO_x reduced
 - Operators may be able to comply through implementation of alternative uses for flare gas (i.e. power generation, sale of gas, etc.) as more cost-effective compliance option
- Socioeconomic Impact Analysis conducted by third-party consultant, Eastern Research Group (Staff Report, Appendix D)
 - Units affected in multiple industries (oil and gas, landfills, wastewater treatment)
 - COVID-19 adjusted baselines and multiple recovery scenarios used in modeling
 - Impact projected to be less than significant using Board and CARB-approved methodology

Emissions Reductions Achieved

- Estimated emission reductions would be achieved beginning in 2024
 - 0.19 tpd (37.2%) of NO_x
 - 0.39 tpd (30.4%) of VOC
 - 0.03 tpd (19.4%) of PM_{2.5}
- Additional reductions may occur as a result of beneficial alternative use of flare gas
 - Not quantified for State Implementation Plan emissions reduction credit at this time

Public Process to Amend Rule 4311

- Scoping Meeting held August 17, 2017
- *2018 Plan for the 1997, 2006, and 2012 PM2.5 Standards*
 - Adopted: November 15, 2018
- Flare operator workgroup meetings
 - October 2017, April 2019, July 2019, and August 2020
- Public workshops held November 13, 2019; July 30, 2020; September 24, 2020; and October 8, 2020
- Regular updates at Citizens Advisory Committee (CAC), Environmental Justice Advisory Group (EJAG), and District Governing Board meetings
 - Consensus support received from CAC on proposed rule
- Through AB 617, District has invited community steering committee feedback
- Draft rule published for public review on October 2, 2020
- Proposed rule published for public review on November 17, 2020
- Ongoing opportunities for public input throughout the process

Significant Comments

Comment: District, CARB, and PUC should support efforts to eliminate flaring through implementation of alternative use projects, such as generation of electric power exported to the grid. PUC limits prevent this use for some operations.

Response:

- Proposed amendments to Rule 4311 are designed to encourage flare operators to find beneficial alternative uses of gas combusted or deploy cleanest flaring technologies to achieve additional NOx emission reductions from flaring
- District supports alternative uses of flare gas for beneficial purposes and will support opportunities for these types of projects

Significant Comments

Comment: More time should be provided for the Authority to Construct (ATC) permit application submittal upon triggering the requirement to install an ultra low-NOx flare

Response:

- District understands that additional time may be needed to submit an ATC permit application, and in response is proposing to extend the timeframe in updated proposed amendments for submitting the required ATC application from March 1 to April 15 of the applicable year
- District will work with affected operators during permitting process

Recommendations

1. Adopt proposed amendments to Rule 4311 (Flares)
2. Authorize Chair to sign attached Resolution