

**PROPOSED RULE 1118.1. CONTROL OF EMISSIONS FROM NON-REFINERY FLARES**

(a) Purpose

The purpose of this rule is to reduce NO<sub>x</sub> and VOC emissions from flaring produced gas, digester gas, landfill gas, and other combustible gases or vapors and to encourage alternatives to flaring.

(b) Applicability

This rule applies to owners and operators of flares that require a SCAQMD permit at facilities, including, but not limited to, oil and gas production, wastewater treatment facilities, landfills, organic liquid loading stations, and tank farms.

(c) Definitions

- (1) ANNUAL THROUGHPUT means the volume of gas or vapor in million standard cubic feet (MMscf) that is combusted in a flare or flare station in one calendar year, excluding gas used solely to maintain the pilot light.
- (2) ASSIST GAS means a higher heating value gas required for complete combustion of the gas or vapor stream being routed to the flare burner.
- (3) BIOGAS includes digester gas or landfill gas produced by the breakdown of organic matter in the absence of oxygen.
- (4) CAPACITY is the maximum volumetric flow rate of gas or vapor that the flare or flare station is rated to process in units of scf per minute or the maximum heat input rate the flare or flare station is rated to process in units of million British thermal units (MMBtu) per hour.
- (5) CAPACITY THRESHOLD is the percentage of the capacity used to flare gas and is the metric used to define when an owner or operator of a flare or flare station must take action to reduce NO<sub>x</sub> emissions and/or reduce the throughput to the flare.
- (6) DIGESTER GAS means a gas produced from either mesophilic or thermophilic digestion of biodegradable waste, consisting of methane, carbon dioxide and traces of other contaminant gases.
- (7) FACILITY is as defined by Rule 1302 – Definitions.

- (8) FLARE means a combustion device that oxidizes combustible gases or vapors, where the combustible gases or vapors being destroyed are routed directly into the burner without energy recovery.
- (9) FLARE STATION means two or more flares situated on a single pad, served by one or more common gas blowers, and equipped with one common fuel meter.
- (10) HEAT INPUT means the higher heating value of the fuel to the flare measured as Btu per hour.
- (11) LANDFILL GAS means any raw gas derived through a natural process from the decomposition of waste deposited in a landfill.
- (12) OPEN FLARE means an unshrouded flare.
- (13) ORGANIC LIQUID means any liquid containing volatile organic compounds (VOC).
- (14) OTHER FLARE GAS includes, but is not limited to, gases from facilities handling organic liquids, such as tank trucks, rail cars, and bulk terminal loading and offloading, or tank farm degassing.
- (15) OXIDES OF NITROGEN (NO<sub>x</sub>) means nitric oxide and nitrogen dioxide.
- (16) PRODUCED GAS is organic compounds that are both gaseous at standard temperature and pressure and are associated with the production, gathering, separation or processing of crude oil.
- (17) PROTOCOL means a SCAQMD approved test protocol for determining compliance with emission limits for applicable equipment.
- (18) REGENERATIVE ADSORPTION SYSTEM means a system used to remove impurities from combustible gases or vapors consisting of several media trains that are regenerated by purging with gas, typically used with biogas or produced gas.
- (19) REGENERATION GAS means the purge gas from a regenerative adsorption system.
- (20) RELOCATE means to remove an existing source from one facility in the SCAQMD and to install that source on another non-contiguous facility. RELOCATE does not include a Various Location Flare.
- (21) STATEMENT OF INTENT means a written document from an owner or operator of a flare subject to this rule indicating the action that will be taken once a flare surpasses the Table 2 Capacity Threshold for two consecutive years.

- (22) VARIOUS LOCATIONS FLARE means any portable flare permitted to operate at different locations in the SCAQMD.
  - (23) VOLATILE ORGANIC COMPOUND (VOC) is as defined in Rule 102 – Definition of Terms.
- (d) Requirements
- (1) An owner or operator that submits an application to install a flare after [date of adoption] or replaces or relocates an existing flare shall meet the applicable NO<sub>x</sub>, VOC, and carbon monoxide (CO) emission limits specified in Table 1.

**Table 1 – Emission Limit**

Flare Gas	NO <sub>x</sub>	CO	VOC
	pounds/MMBtu		
Digester gas <sup>1</sup>	0.025	0.06	0.038
Landfill gas <sup>1</sup>	0.025	0.06	0.038
Produced gas	0.018	0.06	0.008
Other flare gas	Parts per million @ 3% oxygen		Destruction Efficiency
	30	10	99%

1. Compliance with emission limits shall be demonstrated when combusting 100% biogas (e.g. with no regeneration gas)

- (2) An owner or operator of a flare or flare station installed prior to [date of adoption] shall:
  - (A) Demonstrate compliance with the emission limits in Table 1, or
  - (B) Calculate the percent capacity pursuant to subparagraph (g)(1)(D) for each flare or flare station. The owners or operator of a flare or flare stations with an annual percent capacity that surpasses Capacity Thresholds in Table 2 shall:
    - (i) Submit a notification to the Executive Officer, no later than 30 days after the end of the calendar year.
    - (ii) Submit a Statement of Intent to the Executive Officer, no later than 60 days after two consecutive calendar years surpassing the Capacity Threshold in Table 2, specifying one of the following compliance options:
      - (A) Flare throughput reduction pursuant to paragraph (d)(3), or

- (B) Flare replacement or modification pursuant to paragraph (d)(4).

**Table 2 - Capacity Thresholds by Gas Flared**

Flare Gas	Threshold
Any gas combusted in an open flare	5%
Digester gas	70%
Landfill gas	20%
Produced gas	5%

- (3) An owner or operator that submitted a Statement of Intent to reduce the flare throughput shall complete the following pursuant to the schedule set forth in Table 3, with potential extension(s) pursuant to subdivision (e):
  - (A) Submit a notification to the Executive Officer that includes the following:
    - (i) Alternative method(s) to reduce flare throughput below Capacity Threshold; and
    - (ii) Timetable to implement and operate the alternative method.
  - (B) Submit increments of progress reports which shall include:
    - (i) Actions completed;
    - (ii) Actions yet to be completed; and
    - (iii) Any changes to the original notification.
  - (C) Reduce the percent capacity of the flare or flare station below the Table 2 thresholds.
  - (D) The notification submitted under subparagraph (d)(3)(A) shall be considered a plan within the meaning of Rule 306 – Plan Fees.

**Table 3**

Requirement	Schedule
Submit notification pursuant to paragraph (d)(3)(A)	6 months from surpassing the annual Capacity Threshold for two consecutive years
Submit increments of progress reports pursuant to (d)(3)(B)	12 months from surpassing the annual Capacity Threshold for two consecutive years, and annually thereafter, until flaring is reduced below Table 2 threshold
Reduce flaring below Table 2 thresholds	36 months from surpassing the annual Capacity Threshold for two consecutive years

- (4) An owner or operator that submitted a Statement of Intent to replace or modify the flare or flare station shall complete the following pursuant to the schedule set forth in Table 4, with potential extension(s) pursuant to subdivision (e):
  - (A) Submit a new flare permit application to the SCAQMD;
  - (B) Replace or modify the flare or flare stations to meet Table 1 emission limits; and
  - (C) Complete the compliance determination.

**Table 4**

Requirement	Schedule
Submit permit application	6 months from surpassing the annual Capacity Threshold for two consecutive years
Complete flare installation	18 months after SCAQMD permit issued
Complete compliance determination	180 days after completion of flare installation

- (5) An owner or operator of a flare subject to this rule shall perform maintenance in accordance with the manufacturer's schedule and specifications;
- (e) Extension provision
- (1) An owner or operator of a flare subject to this rule may submit a request to the Executive Officer for an extension from the schedule in paragraphs (d)(3) and (d)(4), at least 60 days prior to the schedule deadline for the requirement. The time extension request shall include:
    - (A) The permit number or application number of the flare requiring the extension;
    - (B) The reason(s) a time extension is needed;
    - (C) Increments of progress completed and yet to be completed pursuant to the compliance schedule; and
    - (D) The length of time requested.
  - (2) Approval of Time Extensions  
 The Executive Officer or designee shall review the request for the time extension and approve or reject the request within 60 days of receipt, based on the following criteria:
    - (A) The owner or operator provides sufficient details identifying the reason(s) a time extension is needed; and

- (B) The owner or operator demonstrates to the Executive Officer that there are specific circumstances beyond the control of the owner or operator that necessitate additional time to comply. Such a demonstration may include, but is not limited to, providing detailed schedules, engineering designs, construction plans, permit applications, purchase orders, economic burden, and technical infeasibility.
- (f) Source Tests
- (1) Within 12 months from *[Date of Adoption]* an owner or operator of a flare subject to paragraph (d)(1) or complying with subparagraph (d)(2)(A) or paragraph (h)(2) shall determine the applicable NO<sub>x</sub>, VOC, and CO emissions by conducting an initial source test, and source testing every five years thereafter, pursuant to paragraph (f)(4).
- (A) At least 90 days prior to a scheduled source test, submit a source test protocol to the Executive Officer for approval; and
- (B) Conduct a source test according to the approved protocol. If prior to rule adoption, a source test was conducted pursuant to an approved protocol and demonstrated compliance with Table 1 emission limits, the owner or operator may instead conduct the next source test within five years from anniversary date of that prior source test.
- (2) Unless requested by the SCAQMD, after the approval of the initial source test protocol, the owner or operator of a flare subject to this rule is not required to resubmit a source test protocol for approval pursuant to subparagraph (f)(1)(A) if:
- (A) The flare and its method of operation have not been altered in a manner that requires a permit alteration; and
- (B) Rule or permit emission limits have not become more stringent since the previous source test.
- (3) All compliance determinations pursuant to paragraph (d)(1) and paragraph (h)(2) shall be calculated:
- (A) Using a SCAQMD approved test protocol averaged over a period of at least 15 minutes of flare operation;
- (B) After flare start up; and
- (C) In as-found operating condition.

- (4) NO<sub>x</sub>, CO, and VOC emissions in pounds per MMBtu of heat input shall be determined using the pollutant concentrations measured according to paragraph (f)(5) and the gas composition measured according to paragraph (f)(6) and calculated using the procedures in 40 CFR Part 60, Appendix A, Method 19, Sections 2 and 3, or another SCAQMD approved test method.
- (5) NO<sub>x</sub>, VOC, and CO concentrations shall be determined according to the following methods:
  - (A) NO<sub>x</sub> and CO concentration shall be determined pursuant to SCAQMD Method 100.1 – Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling; and
  - (B) VOC concentration shall be determined pursuant to SCAQMD Method 25.1 or 25.3 – Determination of VOC Emissions from Stationary Sources.
- (6) Gas composition shall be calculated according to the following methods:
  - (A) ASTM Method D-3588 – Standard Practice for Calculating Heat Value, Compressibility Factor, and Relative Density of Gaseous Fuels; and
  - (B) ASTM Method D-1945 – Standard Test Method for Analysis of Natural Gas by Gas Chromatography; or
  - (C) ASTM Method D-7833 – Standard Test Method for Determination of Hydrocarbons and Non-Hydrocarbon Gases in Gaseous Mixtures by Gas Chromatography.
- (7) All compliance determinations by the owner or operator of the flare shall be made using an independent contractor pursuant to SCAQMD Rule 304, subdivisions (k) and (l) to conduct source testing, which is approved by the Executive Officer under the Laboratory Approval Program for the applicable test methods.
- (8) Emissions determined to exceed any applicable limits established by this rule shall constitute a violation of this rule.
- (9) Records of source tests shall be maintained for five years or until the next source test is performed, whichever occurs later, and shall be made available to SCAQMD personnel upon request. The source test report(s) shall identify whether the source test was conducted pursuant to a SCAQMD approved protocol and clearly identify the model and serial numbers of the specific flare(s) tested. In the absence of a flare model and serial number, a detailed description of the flare and its location shall be included.

## (g) Monitoring, Recordkeeping, and Reporting Requirements

- (1) The owner or operator of a flare complying with paragraph (d)(2)(B) of this rule shall:
  - (A) Within 90 days of [*Date of Adoption*], install and operate a fuel meter for each gas or vapor, excluding pilot gas, routed to every flare or flare station, unless metering system is currently installed.
  - (B) Within 90 days of [*Date of Adoption*], equip each fuel meter, required under subparagraph (g)(1)(A), that requires dependable electric power to operate with a permanent supply of electric power that cannot be unplugged, switched off, or reset except by the main power supply circuit for the building and associated equipment or the flare's safety shut-off switch.
  - (C) The continuous electric power to a fuel meter required under subparagraph (g)(1)(A) and (g)(1)(B) shall not be shut off unless the flare is not operating or is shut down for maintenance or safety.
  - (D) Each fuel meter shall be calibrated based on the manufacturer recommended procedures within 90 day of installation or [*Date of Adoption*], whichever is sooner, and annually thereafter.
  - (E) Beginning January 1, 2019, or when fuel meter is installed pursuant to subparagraph (g)(1)(A), determine the percent capacity of the flare or flare station and maintain records documenting the percent capacity determinations as follows:
    - (i) Total annual throughput in units of MMscf/year and/or total annual heat input in units of MMBtu/year shall be calculated by summing throughput and/or heat input of the gas at the end of each calendar year as follows:
      - (A) Throughput shall be measured and recorded at least once per month by the flare-specific non-resettable fuel meter(s);
      - (B) Heat input of the flare gas shall be measured and recorded at least once per month pursuant to (f)(6) or weekly using a portable nondispersive infrared detector, calibrated per manufacturers specifications.
    - (ii) Capacity shall be based on:



- (A) Manufacturer designation and if not known or available, the permit limits will be deemed the capacity;
- (B) The combined capacity of all flares in a flare station.
- (iii) Annual percent capacity shall be calculated at the end of each calendar year by one of the following metrics:
  - (A) By volume:

$$Percent\ Capacity_{MMscf} = \frac{Total\ Annual\ Throughput\ \left(\frac{MMscf}{year}\right) / 525,600\ \frac{minutes}{year}}{Capacity\ (MMscf/minute)} \times 100\%$$

- (B) By heat input:

$$Percent\ Capacity_{MMBtu} = \frac{Total\ Annual\ Heat\ Input\ \left(\frac{MMBtu}{year}\right) / 8760\ \frac{hour}{year}}{Capacity\ (MMBtu/hour)} \times 100\%$$

- (F) An owner or operator of the flare or flare station that fails to measure or record the monthly throughput or heat input value in compliance with the provisions above, the percent capacity shall be presumed to be one-hundred percent (100%).
- (2) The owner or operator of a flare subject to this rule shall:
  - (A) Demonstrate the NOx emissions of the flare(s) or flare station are less than 30 pounds per month if validating compliance pursuant to subparagraph (h)(2), and shall maintain monthly records documenting maximum NOx emissions of less than 30 pounds per month as follows:
    - (i) NOx emission shall be determined by an approved source test pursuant to paragraph (f)(4);
    - (ii) Throughput shall be measured and recorded at least once per month by the flare-specific non-resettable fuel meter(s);
    - (iii) Heat input of the flare gas shall be measured and recorded pursuant to paragraph (f)(6); and
    - (iv) Calculated as follows:

$$\text{Monthly pounds of NOx Emitted} = \frac{\text{pounds NOx}}{\text{MMBtu}} \times \frac{\text{MMscf}}{\text{month}} \times \frac{\text{Btu}}{\text{scf}}$$

- (B) Demonstrate operating hours of the flare are less than 200 hours per year if validating compliance pursuant to subparagraph (h)(3), maintain monthly recordkeeping of flare use using an installed calibrated non-resettable totalizing time meter.
  - (C) Maintain a copy of the manufacturer's, distributor's, installer's or maintenance company's written maintenance schedule and instructions and retain a record of the maintenance activity for a period of not less than three years, which shall be made available upon request.
  - (D) Display in an accessible location on the flare the model number and the rated heat input capacity of the flare on a permanent rating plate for any flare installed, relocated, or modified after [*Date of Adoption*].
  - (E) Provide the manufacturer's maintenance instructions, maintenance records, and the source test report(s) to the Executive Officer upon request.
  - (F) Maintain all written or electronic records required by this rule for at least five years, which shall be made available upon request.
- (h) Exemptions
- (1) The provisions of this rule shall not apply to owners or operators of flares:
    - (A) At petroleum refineries, sulfur recovery plants, and hydrogen production plants subject to SCAQMD Rule 1118 – Control of Emissions from Refinery Flares;
    - (B) Routing 100% natural gas directly into the flare burner to oxidize combustible gases or vapors and are subject to SCAQMD Rule 1147 – NOx Reductions from Miscellaneous Sources NOx emission limits;
    - (C) At facilities subject to Rule 1109.1 – Refinery Equipment.
    - (D) At a landfill that has ceased accepting waste and generates less than 2,000 MMscf of landfill gas per calendar year; or
    - (E) Various Location Flares that are operated in compliance with SCAQMD Rules and Regulations.

- (2) An owner or operator of a flare subject to this rule that emits less than 30 pounds per calendar year shall not be required to meet the emission limits in Table 1 provided:
  - (A) The flare has a permit that specifies conditions that limits the applicable NO<sub>x</sub> emissions; and
  - (B) The flare operates in compliance with the permit condition;
  - (C) This exemption shall no longer apply in the event the flare surpasses the 30 pound per month NO<sub>x</sub> emission limit.
- (3) An owner or operator of a flare subject to this rule that operates less than 200 hours per calendar year shall not be required to meet the emission limits in Table 1 provided:
  - (A) The flare has a permit that specifies conditions that limits the operating hours; and
  - (B) The flare operates in compliance with the permit condition;
  - (C) This exemption shall no longer apply in the event the flare surpasses the 200 hours per calendar year.
- (4) An owner or operator of an open flare shall not be required to conduct source testing pursuant to subdivision (f).
- (5) Throughput, heat input, NO<sub>x</sub> emissions and time accrued during source testing pursuant to subdivision (f) maybe omitted from the calculation of percent capacity pursuant to subparagraph (g)(1)(D), emissions pursuant to paragraph (h)(2), or hours pursuant to paragraph (h)(3).