

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

(a) Purpose

The purpose of this rule is to reduce NO_x and VOC emissions from flaring process gas, digester gas, landfill gas, and other combustible gases or vapors and encourage alternatives to flaring.

(b) Applicability

This rule applies to owners and operators of flares that require a District 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 of the flare or flare station in units of million British thermal units (MMBtu) per hour.
- (5) CAPACITY THRESHOLD is the percentage of the capacity used to flare gas when an owner or operator of a flare or flare station must take action to reduce NO_x 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 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_x) means nitric oxide and nitrogen dioxide.
- (16) PROCESS GAS means a naturally occurring mixture of process derivative of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the earth's surface, of which its constituents include, methane, heavier hydrocarbons, and carbon dioxide.
- (17) PROTOCOL means a South Coast Air Quality Management District 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 process 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 District and installation on another non-contiguous facility. RELOCATE does not include a various location flare or a move from one facility to another facility where the two facilities have the same address and are under common ownership.
- (21) VARIOUS LOCATIONS FLARE means any portable flare permitted to operate at different locations in the District.
- (22) VOLATILE ORGANIC COMPOUND (VOC) is as defined in Rule 102 – Definition of Terms.

(d) Requirements

- (1) An owner or operator that installs a flare after [date of adoption] or replaces or relocates an existing flare shall meet the applicable NO_x, VOC, and carbon monoxide (CO) emission limits specified in Table 1.

Table 1 – Emission Limit

Flare Gas ¹	pounds/MMBtu		
	NO _x	VOC	CO
Digester gas	0.025	0.038	0.06
Landfill gas	0.025	0.038	0.06
Process gas	0.018	0.008	0.06
Other flare gas	0.036	0.038	0.06

Seeking Input

1. Emission limits for flaring Regeneration Gas to be determined when combusting by 100% biogas.

- (2) Beginning January 1, 2019, an owner or operator of a flare installed prior to [date of adoption] that does not meet the emission limits in Table 1 shall:
- (A) Calculate the percent capacity pursuant to subparagraph (g)(1)(D) for each flare or flare station.
 - (B) Submit a statement of intent to the Executive Officer, no later than 60 days after the annual percent capacity exceeds the capacity thresholds in Table 2 – Capacity Thresholds by Gas Flared, for two consecutive calendar years, specifying one of the following compliance options:
 - (i) Flare throughput reduction pursuant to paragraph (d)(3), or
 - (ii) 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%
Process gas	5%

- (3) An owner or operator that submitted a statement of intent to reduce the flare throughput pursuant to clause (d)(2)(B)(i) 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.

Table 3

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

- (4) An owner or operator that submitted a statement of intent to replace or modify the flare or flare station pursuant to clause (d)(2)(B)(ii), 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 District;
 - (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 second consecutive annual exceedance
Complete flare installation	12 months after District 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 to comply with the schedule in subparagraphs (d)(2)(C) and (d)(2)(D), 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 will review the request for the time extension and will approve or reject the time extension based on the following criteria:
- (A) The owner or operator provides sufficient details identifying the reason(s) a time extension is needed;
- (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 6 months from *[Date of Adoption]* an owner or operator of a flare subject to this rule shall demonstrate compliance with the applicable NO_x, VOC, and CO limits in paragraph (d)(1) and subparagraph (h)(2)(A) by conducting a source test, and subsequently every three years, 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) On and after *[twelve months after the Date of Adoption]*:

- (i) Conduct an initial source test according to approved protocol; or
 - (ii) If an approved protocol and corresponding source test was conducted prior to Rule adoption, and demonstrated compliance with Table 1 emission limits, the owner or operator shall conduct the next source test within three years from anniversary date of last source test. If the source test was not approved by the District, a new source test protocol shall be submitted and a new source test shall be conducted pursuant to subparagraph (f)(1)(A).
- (2) Unless requested by the District, 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 subparagraph (h)(2)(A) shall be calculated:
 - (A) Using a District 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_x, 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 District approved test method.
- (5) NO_x, VOC, and CO concentrations shall be determined according to the following methods:
 - (A) NO_x and CO concentration shall be determined pursuant to District Method 100.1 – Instrumental Analyzer Procedures for Continuous Gaseous Emission Sampling; and

- (B) VOC concentration shall be determined pursuant to District Method 25.1 or 25.3 – Determination of VOC Emissions from Stationary Sources.
- (6) Gas composition shall be determined 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 D7833 – 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 District 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 limits established by this rule through the use of any of the test methods specified in paragraph (f)(4) shall constitute a violation of this rule.
- (9) Records of source tests shall be maintained for five years and made available to District personnel upon request. The source test report(s) shall identify whether the source test was conducted pursuant to a District 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 shall be included.
- (g) Monitoring, Recordkeeping, and Reporting Requirements
 - (1) The owner or operator of a flare subject to paragraph (d)(2) of this rule shall:
 - (A) Within 90 days of [*Date of Adoption*], install and operate a non-resettable, totalizing, fuel meter for each gas or vapor 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) shall not be shut off unless the flare is not operating or is shut down for maintenance or safety.
- (D) 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).

- (ii) Capacity shall be based on manufacturer designation and if not known or available, the permit limits will be deemed the capacity;

- (iii) Annual percent capacity shall be calculated at the end of each calendar year by one of the following metrics:

- (A) By volume:

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

- (B) By heat input:

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

- (E) Report any exceedance of the Table 2 capacity thresholds within 30 days of the end of each calendar year.

- (2) The owner or operator of a flare subject to this rule shall:
- (A) Demonstrate the NO_x emissions of the flare(s) or flare station are less than 30 pounds per month if validating compliance pursuant to subparagraph (h)(2)(A), maintain monthly records documenting maximum NO_x emissions of less than 30 pounds per month as follows:
- (i) NO_x 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:

$$\text{Monthly pounds of NO}_x \text{ Emitted} = \frac{\text{pounds NO}_x}{\text{MMBtu}} \times \frac{\text{MMscf}}{\text{month}} \times \frac{\text{Btu}}{\text{scf}}$$

- (B) Demonstrate operating hours of the flare or flare station are less than 200 hours per year if validating compliance pursuant to subparagraph (h)(2)(B), 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 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 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 District 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 District Rule 1147 – NOx Reductions from Miscellaneous Sources NOx emission limits;
 - (C) At a landfill that has ceased accepting waste and generates less than 2,000 MMscf of landfill gas per calendar year; or
 - (D) Various location flares that operates no longer than 12 consecutive months at the same location.
- (2) An owner or operator of a flare subject to this rule shall not be required to meet the emission limits in Table 1 provided the owner or operator meets the provisions specified in either subparagraph (h)(2)(A) or (h)(2)(B), and the flare has a permit that specifies conditions that limits the applicable NOx emissions or the operating hours consistent with the following subparagraphs:
- (A) Operates a flare that emits less than 30 pounds per calendar month of NOx;
 - (B) Operates a flare less than 200 hours per calendar year.
- (3) An owner or operator of an open flare shall not be required to conduct source testing pursuant to subdivision (f).
- (4) Throughput, heat input, NOx emissions and time accrued during source testing pursuant to subdivision (f) can be omitted from the calculation of percent capacity pursuant to subparagraph (g)(1)(D), emissions pursuant to subparagraph (h)(2)(A), or hours pursuant to subparagraph (h)(2)(B).