

**SCAQMD RULE 1118****Purpose & Applicability**

-Monitor/Record data on flare operations and minimize flaring at petroleum refineries, sulfur recovery plants and hydrogen production plants.

**Requirements**

-Maintain pilot flame present at all times when flare is operational.

-Operate all flares in a smokeless manner. No visual emissions except for periods not to exceed a total of five minutes during two consecutive hours.

-Conduct acoustical/temperature leak survey of all pressure relief devices connected directly to flare.

-Conduct Specific Cause Analysis for any flare event, excluding planned shutdowns, planned start-ups and turnarounds with emissions exceeding: 100 lbs of VOC, 500 lbs of SO<sub>2</sub>, and 500,000 scf of vent gas combusted.

-Conduct analysis and determine the relative cause of any other flare events where more than 5,000 scf of vent gas are combusted.

-Submit detailed process flow diagrams of all upstream equipment and process units venting to each flare and a complete description and technical specifications for each flare system component.

-Submit descriptions of any equipment, processes or procedures to install or implement in order to eliminate or reduce flaring.

-Submit an evaluation of options to reduce flaring during planned shutdowns, startups and turnarounds.

-Operate all flares in a manner that minimizes all flaring and that no vent gas is combusted except during emergencies, shutdowns, startups, turnarounds or essential operational needs.

-Prevent the combustion in any flare of vent gas with an H<sub>2</sub>S concentration in excess of 160 ppm averaged over 3 hours, excluding any vent gas resulting from an emergency, shutdown, startup, process upset or relief valve leakage.

**Flare Minimization Plan**

-Submit plan no later than 90 days from the end of the calendar year with emissions exceeding the annual performance target (e.g. ≤ 0.5 tons/million barrels of crude oil). The EO may issue a Notice of Sulfur Dioxide Exceedance if performance targets are exceeded for any calendar year.

-Plan includes description and specifications for each flare, detailed process flow diagrams of all upstream equipment and process units venting to each flare.

-Policies and procedures to be implemented and any equipment improvements to minimize flaring and flare emissions and comply with performance targets for planned turnarounds, essential operations and emergencies.

-Any flare gas recovery equipment and treatment systems to be installed to comply with performance target.

-EO will make the plan available for public review for 60 days and respond to comments received prior to plan approval.

**Flare Monitoring and Recording Plan Requirements**

-Submit plan which includes the following:

a) Facility plot plan with flare location.

b) Type of flare service and information regarding capacity and O&M.

c) Type of gas used, operating flow, maximum sulfur concentration, average heating value, process flow diagrams, description of process control/vapor recovery/manufacturer specifications, sampling methods, data management/recording, installation/operation schedule of monitoring system, etc.

**Operation Monitoring and Recording Requirements**

-On or before 6 months after plan approval, start monitoring/recording flow, gas higher heating value, total sulfur concentration except when out of service due to breakdowns or planned maintenance not to exceed 14 days per 18 month period.

-Monitor presence of pilot flame using a thermocouple.

-Monitor all flares for visible emissions using color video monitors with date and time stamp, capable of recording a digital image of the flare and flame at a rate of no less than 1 frame/min.

-For emergency and general service flares, install a flow meter to measure total vent gas to each flare, install an automated sample collection system at each flare, and monitor/record pilot gas and purge gas flow to each flare.

**Notification and Reporting Requirements**

-Provide a 24 hour telephone service for public inquiries about flare events. Provide to the EO the name and number of the initial contact.

-Notify the EO by telephone within one hour of any unplanned flare event with emissions exceeding 100 lbs of VOC, 500 lbs of SO<sub>2</sub>, or exceeding 500,000 scf of flared vent gas.

-Submit a Specific Cause Analysis within 30 days identifying cause and duration of the unplanned flare event and any mitigation/corrective actions taken.

-Notify the EO at least 24 hours prior to the start of a planned flare event with emissions exceeding 100 lbs of VOC, 400 lbs of SO<sub>2</sub>, or 500,000 scf of combusted vent gas.

-Submit quarterly report to the EO within 30 days after the end of each calendar quarter which includes: required monitoring information, total daily and quarterly emissions/calculations of pollutants, description of each flare event, records of acoustical/temperature leak survey, flare monitoring system downtime periods, and copy of all written notices for reportable air releases.

**SJAPCD RULE 4311**

**Purpose**

-To limit emissions of VOC, NOx, and SOx from the operation of flares.

**Exemptions**

-Flares operated at municipal waste landfills. Subject to Rule 4642.

-Except for recordkeeping requirements, rule requirements shall not apply to sources with a PTE of less than 10 tons/year of VOC and less than 10 tons/year of NOx.

**Requirements**

-Flame shall be present at all times when combustible gases are vented through the flare.

-Outlet shall be equipped with an automatic ignition system or shall operate with a pilot flame present all times when combustible gases are vented through the flare, except during purge periods for automatic-ignition equipped flares.

-Except for flares equipped with a flow-sensing ignition system, install/operate a heat sensing device capable of continuously detecting at least one pilot flame or the flare flame.

-Flares that use flow-sensing automatic ignition systems and which do not use a continuous flame pilot shall use purge gas for purging.

-Open flare in which the flare gas pressure is less than 5 psig shall operate in a manner that meets 40 CFR 60.18. Requirements of this section shall not apply to Coanda effect flares. Flares permitted to operate only during an emergency are not subject to this.

-Ground level enclosed flares shall meet the following emission standards:

Type of Flare and Heat Release Rate in MMBtu/hr	VOC (lb/MMBtu)*	NOx (lb/MMBtu)*
Without Steam-assist		
< 10 MMBtu	0.0051	0.0952
10-100 MMBtu	0.0027	0.133
> 100 MMBtu	0.0013	0.524
With Steam-assist		
All	0.14 as TOG	0.068

\*Flares permitted to operate only during an emergency are not subject to these emission standards.

-Flaring prohibited unless it is consistent with the Flare Minimization Plan unless flaring is caused by an emergency.

-Monitor the vent gas flow to the flare with a flow measuring device.

-Operator of a petroleum refinery flare or a  $\geq 50$  MMBTU flare shall monitor vent gas composition, pilot/purge gas, water seals, and conduct general and video monitoring.

**Recordkeeping Requirements**

-Maintain records of:

- a) Compliance determination with 40 CFR 60.18, (c)(3) to (c)(8).
- b) For flares used during an emergency, maintain records of flare duration, amount of gas burned, and nature of emergency situation.
- c) Facilities claiming Rule exemption must maintain record of annual throughput, material usage, etc. to demonstrate exemption.
- d) Copy of approved FMP, annual reports submitted, and monitoring data.

**Flare Reporting**

-Notify APCO of an unplanned flare event within 24 hours after the start of the next business day or within 24 hours of their discovery.

-Notification shall include flare source identification, start date and time, and the end date and time.

-Submit annual report to the APCO summarizing all Reportable Flare Events (flaring over 500,000 scf of vent gas/day or where SOx emissions are greater than 500 lbs/day).

-Report shall include primary cause and contributing factors, prevention measures considered/implemented, explanation of emergency, and date/time/duration of event.

**Annual Monitoring Report**

-Submit annual report to the APCO which includes:

- a) Total volumetric flow in scf/day
- b) H<sub>2</sub>S content, methane content, and hydrocarbon content of vent gas composition.
- c) Volumetric flow/day of pilot/purge gas used.
- d) Flare monitoring system downtimes
- e) Calculated SO<sub>2</sub> emissions/day
- f) Flow verification report

**Compliance Determination**

-Source test ground-level enclosed flares every year to show compliance with emission standards above.

**Flare Minimization Plan**

-Submit FMP for petroleum refinery flares and flares over 5 MMBtu/hr which includes:

- a) Description and technical specifications for each flare and associated equipment.
- b) Process flow diagrams of all upstream equipment.
- c) Equipment process/procedures for plans to install/implement to eliminate/minimize flaring.
- d) Evaluation of prevention measures to reduce flaring that has occurred or may be expected to occur during planned major maintenance and startup/shutdown.

- e) Evaluation of preventative measures to reduce flaring that may be expected to occur due to issues of gas quantity/quality.
- f) Evaluation of preventative measures to reduce flaring caused by recurrent failure of air pollution control equipment, process equipment, or process to operate in a normal

-Submit an updated FMP every 5 years or update FMP addressing new or modified equipment prior to installation.

**Vent Gas Monitoring**

-Petroleum refinery flares or any flare capacities  $\geq 50$  MMBtu/hr shall monitor vent gas composition through integrated sampling, continuous analyzers or continuous analyzers employing gas chromatography.

-Monitor sulfur content using colorimetric tube system daily.

**Pilot and Purge Gas Monitoring**

-Petroleum refinery flares or any flare capacities  $\geq 50$  MMBtu/hr shall monitor volumetric flows of purge and pilot gases.

**Water Seal Monitoring**

-Petroleum refinery flares or any flare capacities  $\geq 50$  MMBtu/hr with a water seal shall monitor and record the water level and pressure of the water seal that services the flare daily.

**General Monitoring**

-Petroleum refinery flares or any flare capacities  $\geq 50$  MMBtu/hr shall comply with the following:

- a) Periods of flare monitoring system inoperation greater than 24 continuous hours shall be reported by the following working day, followed by notification of resumption of monitoring. Shall not exceed 14 days per any 18 consecutive month period.
- b) During periods of inoperation of continuous analyzers or auto samplers installed, take one sample within 30 minutes of the commencement of flaring from the header.
- c) Maintain/calibrate all monitors and recording devices.

**Video Monitoring**

-Install and maintain equipment that records a real-time digital image of the flare and flame at a frame rate of no less than one frame per minute. Image shall include an embedded date and time and equipment shall archive the images for each 24 hour period. In lieu of video monitoring, the operator may use an alternative monitoring method that provides data to verify date, time, vent gas flow, and duration of flaring events.