

Regulating Emissions

Flaring is allowed as necessary but controlled by South Coast Air Quality Management District (SCAQMD) Rule 1118 "Control of Emissions from Refinery Flares." The rule requires monitoring and reducing emissions, submission of quarterly reports, and notification to SCAQMD of flaring events.

References:

<https://www.aqmd.gov/home/rules-compliance/compliance/r1118/frequently-asked-questions>

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Points to Remember

- ✓ Flares are safety devices that prevent releasing unprocessed, flammable gases directly into the environment.
- ✓ Companies take extreme measures to minimize flaring. Flared gas is a valuable commodity and companies have an economic incentive to capture it and a regulatory compliance obligation to minimize and prevent flaring.
- ✓ Flares are strictly regulated through SCAQMD Rule 1118 and emissions are continuously measured and monitored for compliance.
- ✓ Visit beachcitiesCAER.org for instructions to sign up for your city or county emergency notifications and alerts.



Beach Cities CAER (BCCAER)

Beach Cities CAER is a non-profit public benefit organization focused on providing improved community engagement, emergency response education, and enhancing public health and safety.

We are a team of public agencies, city emergency management professionals, fire departments, schools, manufacturing industries, chemical producers and transporters in the South Bay region. Our goal is continuous improvement in the areas of community awareness, emergency preparedness and coordinated public agency and industry response programs.



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Did You Know?

Refinery flares are designed to keep both workers and the community safe.

This fact sheet explains what flares do and why they serve an important safety function in the refining process.

What is a flare?

A refinery flare is a safety device, a tall stack equipped with a burner that is used to safely destroy any excess gases that may develop during certain situations beyond the facility's control, as well as during planned shutdowns and startups. Flares are always in standby operation ready to combust gases as soon as they enter the system.

How do flares work?

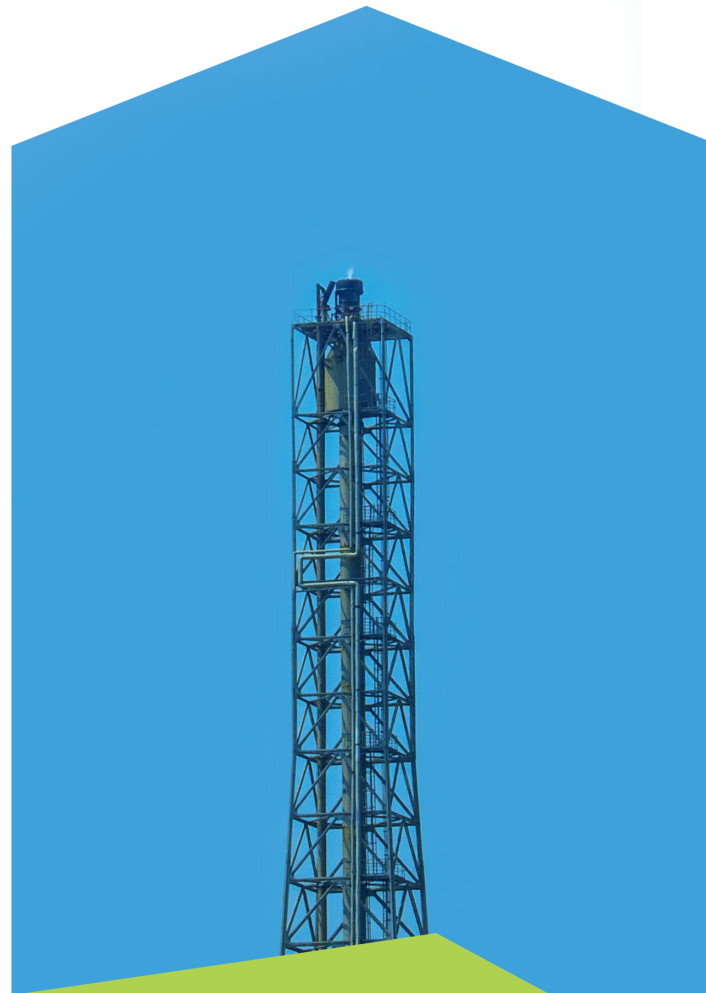
Oil refining is a dynamic process. Temperatures, pressures and other processing conditions are carefully controlled to maintain safe operations. When unexpected operating conditions or a power interruption at a refinery cause the pressure in the facility to rise, relief valves automatically open to divert the excess gases to the flare. The destruction of the excess gases during the flaring process primarily produces water and carbon dioxide; however, flare emissions can also include several other elements.

Why does flaring occur?

Flaring occurs under two circumstances: Planned and Unplanned. Planned flaring is a controlled operation to ensure safety during scheduled maintenance, the startup/shutdown of a process unit, or other activities where a refinery can reasonably anticipate the need to dispose excess gases that cannot be safely recycled into the facility. Unplanned flaring occurs to ensure safety during emergencies caused by equipment breakdown, power outage, or other upset beyond a refinery's control. The flares safely burn excess gases that could otherwise pose potential risks to workers, the community, or the environment.



Community Awareness
and
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Community Awareness and Emergency Response

What does flaring look like?

A pilot flame must be lit whenever a flare is in operation so that purge gases (used to keep air out of the flare) and vent gases can be readily combusted. The pilot flame (similar concept as a pilot in a home gas oven) is located at the tip of the flare. When excess gases are combusted in a flare, a larger flame is generally visible at the flare tip. Sometimes steam, which is used to help burn the excess gases completely, is also seen at the flare tip. However, during a flare event when steam cannot be added to the system quickly enough, or if the smokeless capacity of the flare is exceeded, smoke may also be visible at the edge of the flame.

What is the difference between smoke and steam?

Smoke is combustion-generated particulate matter which becomes entrained in air; the smaller the particle, the longer it is likely to remain suspended in air. Suspended particulates obscure visibility. Whenever smoke is generated during a flaring event, it appears immediately downstream of the flame. Steam is condensed water vapor that is added to the flare to increase mixing, thereby improving combustion of vent gases and reducing the potential for smoking. A rumbling noise can at times be heard as a result of the steam and gas mixing.

What kinds of emissions are emitted from flares and how are they measured?

Flare emissions can potentially include oxides of sulfur (SOx), oxides of nitrogen (NOx), particulate matter (PM10), carbon monoxide (CO), and reactive organic gases (ROG) including Volatile Organic Compounds (VOC). Flare emissions are monitored using Continuous Emissions Monitoring Systems (CEMS), which operate 24 hours per day and utilize specialized analyzers to track, calculate, record and store relevant data to determine emission levels.