

# Flaring and Air Quality



A key role of the [BC Energy Regulator \(BCER\)](#) is to closely review and monitor all of B.C.'s oil, gas, hydrogen, methanol, ammonia and geothermal operations, and ensure measures are in place to minimize air emissions. This process begins with the CleanBC Plan, the [Energy Resources Activities Act](#), the [Environmental Management Act](#), and associated regulations and guidance. After a project becomes operational, compliance is ensured through inspections and enforcement, when necessary.

- CleanBC ([cleanbc.gov.bc.ca](https://cleanbc.gov.bc.ca)) launched in 2018 by the province with a focus on achieving legislated climate targets and goals. Under the CleanBC Roadmap to 2030, there is an initiative to reduce methane emissions from upstream oil and gas operations by 75 per cent by 2030 relative to 2014 levels. The BCER has started to develop regulations that will ensure this reduction target is met.
- The BCER issues site specific air discharge permits under the Environmental Management Act for large oil and gas, and liquefied natural gas operations. Each permit contains requirements for limiting the release of air contaminants such as hydrogen sulphide, sulphur dioxide, nitrogen oxides, volatile organic compounds, carbon monoxide and particulate matter. Requirements to limit air contaminants for smaller operations are specified in the [Oil and Gas Waste Regulation](#) and the [Drilling and Production Regulation](#).
- There are a number of ambient air quality monitoring stations in northeastern B.C., some of which are located where oil and gas activity is prevalent. Learn more at <https://www2.gov.bc.ca/gov/content/environment/air-land-water/air/air-quality/measuring/monitoring-ne-bc>.
- Our [Air Tool](#) is an interactive web-based map that plots emissions-related permits and provides testing results from our Continuous Air Monitoring Environmental Laboratory (CAMEL).

## BCER Air Monitoring

The BCER has two mobile ambient air quality monitoring units: the Continuous Air Monitoring Environmental Laboratory (CAMEL) and the Roaming Air Monitor (RAM). We also have two portable (AreaRAE Pro Plus) air monitors the size of small suitcases that can be quickly deployed in response to incidents and complaints. The BCER also supports the operation of a fixed monitoring station that is currently located in Farmington and relies on funding from the BC Oil and Gas Research Innovation Society.

### Continuous Air Monitoring Environmental Laboratory (CAMEL)

CAMEL is a roving trailer-based monitor with a full suite of sensory equipment to measure air pollutants and meteorology. It allows the BCER to respond to air quality concerns that could be related to oil and gas development. It is designed for long term monitoring initiatives (months to years).



### Roaming Air Monitor (RAM)

RAM is a specially designed van housing equipment for monitoring air pollutants that could be associated with oil and gas development. It's capable of recording air quality levels while being driven or parked. It serves as a quick response unit for emergencies. However, it can also be used for other ambient monitoring deployments when it is not in emergency service.



## What is Flaring?

Flaring is the controlled burning of waste gas that cannot be processed or sold. Waste gas is ignited at the end of a flare stack – a long metal tube up which the gas is sent. This ignition causes the characteristic flame associated with flaring. Waste gas is uneconomic to recover or gas that is flared as a result of non-routine situations, such as maintenance activities or process upsets.

## Why is Flaring Necessary?

- Safety assurance: Flaring protects industrial sites and surrounding communities by safely burning waste gas. Flaring also occurs in non-routine situations (planned and unplanned) to safely combust waste gas.
- Pollution reduction: Glycol dehydrator waste gas can contain elevated levels of BTEX (benzene, toluene, ethylbenzene and xylene). These emissions can be significantly reduced by combusting the waste gas at a flare instead of venting it directly to the atmosphere.
- Greenhouse gas (GHG) reduction: Methane has a global warming potential (on a 100-year time horizon) that is 28 times that of carbon dioxide. Waste gas is comprised predominantly of methane and burning methane produces mainly carbon dioxide and water, which is preferable from a GHG perspective.

## Is a Visible Flame Okay?

Yes, a visible flame at the end of a flare stack is an indicator that the waste gas is burning. Many flare systems are equipped with a continuous small pilot flame, which helps ensure waste gases are reliably combusted when required.

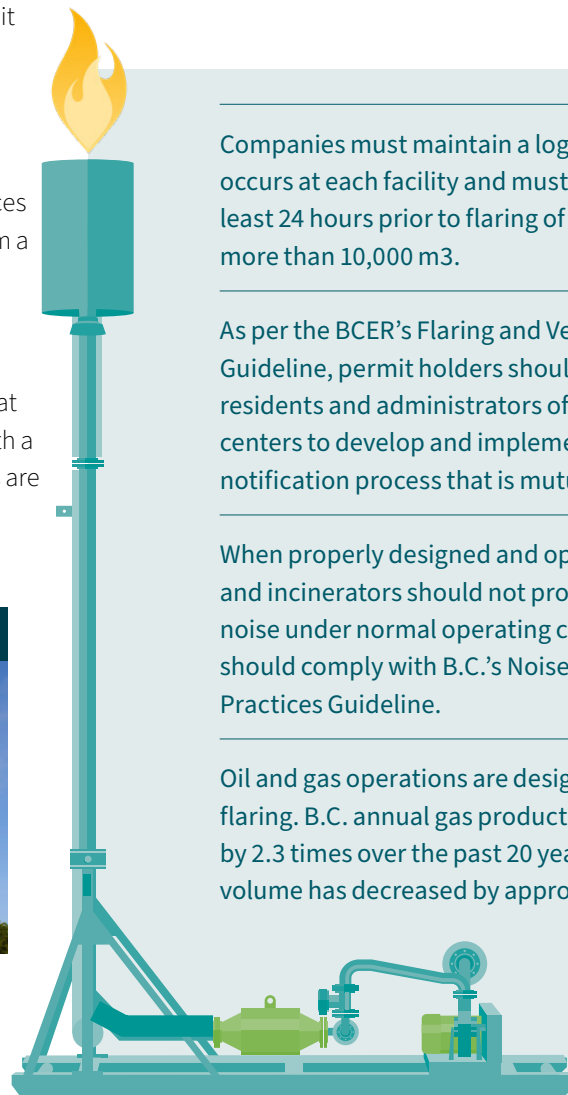


## What is Black Smoke?

Black smoke results when fuel is not being burned completely. It contains particulate matter and uncombusted hydrocarbons. Black smoke can be reduced from flares by adjusting the operating characteristics or by modifying the design of the flare system. Air or steam assisted flares are currently used at some large gas processing plants to improve combustion efficiency.

## When is Black Smoke a Problem?

The [BCER Flaring and Venting Reduction Guideline](#) indicates that flares, incinerators, and other combustion equipment should be designed and operated with no visible emissions. Except for periods not to exceed a total of five minutes during any two consecutive hours, black smoke is to be avoided. If black smoke is observed more than this threshold, the operator and/or the BCER should be notified so corrective action can be taken.



Companies must maintain a log of all flaring that occurs at each facility and must notify the BCER at least 24 hours prior to flaring of gas in a quantity more than 10,000 m3.

As per the BCER's Flaring and Venting Reduction Guideline, permit holders should consult with residents and administrators of incorporated centers to develop and implement a flaring notification process that is mutually acceptable.

When properly designed and operated, flare stacks and incinerators should not produce excessive noise under normal operating conditions and should comply with B.C.'s Noise Control Best Practices Guideline.

Oil and gas operations are designed to minimize flaring. B.C. annual gas production has increased by 2.3 times over the past 20 years while flaring volume has decreased by approximately one fifth.