

Flaring and Incineration

The Energy Resources Conservation Board (ERCB) recognizes that flaring and incineration at petroleum industry facilities are of concern to Albertans. This EnerFAQs explains why flaring and incineration are sometimes necessary and how the ERCB ensures that flaring and incineration are carried out in a manner protective of public safety and the environment.

What are flaring and incineration?

Flaring and incineration are the controlled burning of natural gas waste that is unable to be processed or sold.

- **Flaring** takes place through a flare stack—a long metal tube up which natural gas is sent. The gas is ignited at the end of the stack, causing the characteristic flame associated with flaring.
- **Incineration** takes place in a unit where waste gas is mixed with air at a controlled rate and ignited. There should be no flame visible from an incinerator, as combustion is enclosed within the unit.

What emissions do flares and incinerators produce?

When pure natural gas is burned, it primarily produces carbon dioxide (CO₂) and water vapour (H₂O). Emissions may also include small amounts of unburned fuel and other gases. If hydrogen sulphide (H₂S) is included in the waste gas stream, sulphur dioxide (SO₂) is also produced.

Does the use of incinerators result in less or cleaner emissions?

Not necessarily. Both incinerators and flares emit CO₂ as a product of burning natural gas and SO₂ as a product of burning sour gas. Generally, the amount of CO₂ or SO₂ produced through either process is the same.

What is combustion efficiency?

Combustion efficiency is the amount of hydrocarbons converted to CO₂, or H₂S converted to SO₂, and represented as a percentage. The more converted, the better the efficiency. Combustion efficiency is determined by many factors, including meteorological conditions, operator competency, and waste gas mixture. The ERCB has requirements for the minimum energy content of the gas mixture (20 megajoules per cubic metre), which has been shown to result in high combustion efficiencies. The ERCB has found that this generally results in combustion efficiencies of greater than 98 per cent.

While unburned fuel and products of incomplete combustion may be released from properly designed and operated flares, current research indicates they are still within Alberta Ambient Air Quality Objectives and pose little risk to public safety. The ERCB requires flare stacks, incinerators, and associated procedures, including those for SO₂, to be designed to comply with these objectives.

What are the Alberta Ambient Air Quality Objectives?

The Government of Alberta has set out acceptable minimal levels of safety and environmental protection related to air quality. These are called the Alberta Ambient Air Quality Objectives and are among the most stringent in Canada.

What are the ERCB's regulations regarding flaring and incineration?

The ERCB regulates flaring and incineration through performance and reporting requirements, permits, and data collection, as detailed in *Directive 060: Upstream Petroleum Industry Flaring Guide*.

A permit is required for well test flaring or incineration when the waste gas contains more than 5 per cent H₂S or the total well test volume exceeds 200, 400, or 600 thousand cubic metres, depending on the type of the well.

The ERCB requires companies to evaluate flaring and incineration at existing facilities and determine if the gas should be conserved. The operators are expected to consider the following:

- Are there residents in the area?
- Are there directly affected local residents with environmental or health concerns?
- Are there economic alternatives to burning the gas?
- Would clustering of flares be economically viable?
- Are the environmental impacts of eliminating or reducing flaring greater than the environmental benefits?

Are companies required to notify the ERCB and residents prior to flaring or incinerating?

Prior to planned, as opposed to emergency, flaring or incineration, operators are required to provide 24 hours' advance notice to the appropriate ERCB Field Centre, to all residents within a 3 kilometre (km) radius for sour gas well tests and to all residents within a 1.5 km radius for oil well tests (regardless of the H₂S content) and sweet (containing no H₂S) gas well tests.

Additional "good neighbour" notification, including notice for short-duration events, should be conducted if members of the public have identified themselves as sensitive to emissions from the facility or if they are interested in receiving notice of planned flaring or incineration for other reasons.

The ERCB expects operators to provide an information package to the public prior to planned flaring or incineration. The information package must include

- company name and contact information,
- location of the test flaring or incineration,
- duration (start date and latest expected completion date),
- expected flaring or incineration volumes and rates,
- information on the type of well (oil or gas) and, if applicable, information on the H₂S content of the gas to be burned, and
- telephone numbers of operator and ERCB Field Centre contacts.

How are flaring and incineration complaints handled?

The ERCB expects the operator to address any concerns raised by the public prior to flaring or incinerating. If, after reasonable attempts, outstanding concerns remain unresolved, the operator or the public may request the assistance of the appropriate ERCB Field Centre (see list on last page).

In situations *where a flaring or incineration permit is required* or where an application has been made for such a permit and your concerns have not been addressed by the operator, you may submit a written objection to the ERCB. The Board will consider the objection to the application.

In situations *where a flaring/incineration permit is not required* and your concerns have not been addressed by the operator, you may make a complaint to the appropriate ERCB Field Centre. ERCB staff will then respond to the complainant according to established procedures. If the operator is in compliance with *Directive 060* and has appropriately considered any unique circumstances related to the flaring or incineration and Field Centre staff determine that the planned event will be carried out in a safe manner, it will be allowed to proceed.

Additional Information

For additional information on the ERCB or its processes or if you have general questions about oil and gas in the province of Alberta, contact the ERCB's Customer Contact Centre: Monday to Friday (8:00 a.m. - 4:30 p.m.), at 403-297-8311.

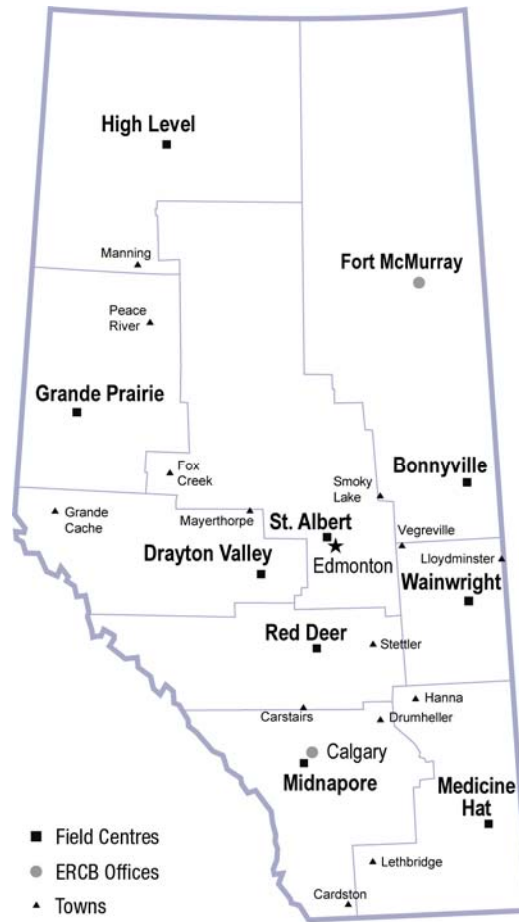
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Publications may either be viewed at the ERCB library or obtained from Information Services. Both are housed on the main floor of the ERCB head office in Calgary. Publications may also be downloaded free of charge from the ERCB Web site www.ercb.ca.

To obtain a print or CD copy of a specific publication, contact ERCB Information Services by phone (403-297-8190), fax (403-297-7040), or e-mail Infoservices@ercb.ca.



ERCB Offices

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640 – 5 Avenue SW Calgary, Alberta T2P 3G4	
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Inquiries@ercb.ca	
Fort McMurray Regional Office	780-743-7214
2nd Floor, Provincial Building 9915 Franklin Avenue Fort McMurray, Alberta T9H 2K4	
Edmonton (Alberta Geological Survey)	780-422-1927

Field Centres

Bonnyville	780-826-5352
Drayton Valley	780-542-5182
Grande Prairie	780-538-5138
High Level	780-926-5399
Medicine Hat	403-527-3385
Midnapore	403-297-8303
Red Deer	403-340-5454
St. Albert	780-460-3800
Wainwright	780-842-7570

To call the above numbers toll free, dial 310-0000.