

## FLARING, INCINERATION AND VENTING

### ***Introduction***

***Flaring*** Flaring is the controlled burning of natural gas that cannot be processed or sold. It is restricted primarily to short term well testing, well workovers, maintenance or emergency situations. The un-burnt gas passes up through a flare stack and is ignited at the top of the stack creating an open flame.

***Incineration*** Incinerating occurs when waste gas is mixed with air at a controlled rate in a combustion chamber designed to ignite and burn the gas. Therefore, there is no visible flame above the unit.

***Venting*** Venting is the release of gases directly to the atmosphere without flaring or incinerating. The practice is restricted primarily to gas streams that do not support stable combustion. Venting typically results from treatment and storage of oil, operations at natural gas wells and pipelines.

### ***Air Emissions***

When pure natural gas is burned efficiently, it produces mainly carbon dioxide (CO<sub>2</sub>) and water vapour (H<sub>2</sub>O). Incomplete combustion of the gas stream during flaring or incineration can also produce emissions of unburned hydrocarbons, particulate matter (soot and ash), volatile organic compounds (VOCs), and polycyclic aromatic hydrocarbons (PAH). Practices and technologies continue to evolve that are aimed at reducing emissions.

### ***OGC Regulations for Flaring, Incineration and Venting***

The OGC released new flaring, incinerating and venting reduction guidelines for British Columbia in February, 2008. This new guide ensures expectations are clear, consistent and create a level playing field. Its first goal is to utilize or conserve the natural gas resources. This document defines the approval criteria required to flare, incinerate or vent gas. It defines a test to eliminate or minimize the need for flaring, venting or incinerating. The volume thresholds and time limits are designed to minimize flaring.

Provisions addressed by the Guide include: best management practices documentation and regimented reporting guidelines that will result in reduced quantity of flared gas per unit production at all sources (routine and non-routine). Routine flaring is captured in the guide by: (1) requiring economic test; (2) establishing flaring volume threshold and time limits; (3) conserving solution gas, and (4) reducing emissions.

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Well Testing is covered in the guide by: (1) encouraging in-line well testing; (2) requiring economic tests; and (3) establishing flaring volume thresholds and time limits.

Gas Plant Flaring is captured in the guide with: (1) volume thresholds established; (2) efficient facility operations are addressed; (3) must not exceed six major non-routine flaring events in six months; and (4) repeat non-routine flaring will be investigated and corrected.

Examples of alternate use include:

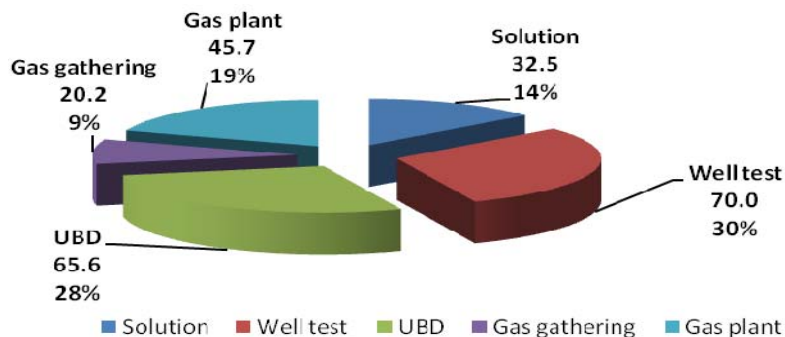
- redirect gas to a nearby natural gas plant
- temporarily inject gas back into gas cap of oil pool or into a gas reservoir
- scheduling maintenance at related oil facilities to coincide with turnaround
- use of gas for electrical generation.

The OGC requires companies to evaluate flaring and incineration at existing well sites and 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?
- Are the environmental impacts of eliminating or reducing flaring greater than the environmental benefits?

### *Activities that Result in Flaring*

There are five major activities where flaring is reported to the B.C. government. These are under-balanced drilling, well testing, oil production (solution gas), gas gathering systems, and gas processing plants. Annual flared natural gas volumes by flaring category are shown in Figure 1 (units are millions m<sup>3</sup>; 2005 data), under-balanced drilling and well testing are the two largest sources of flaring in the Province.



**Figure 1 Annual flared natural gas volumes by flaring category.**

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### ***Reducing the Emissions***

The **BC Energy Plan** set a goal of reducing routine flaring at producing wells and production facilities by 50% by 2011 and eliminating all routine associated gas flaring by 2016. Routine associated gas flaring is considered gas that meets an economic threshold for conservation.

### ***Notifying Residents Prior to Flaring or Incinerating***

Prior to planned flaring or incineration (as opposed to emergency), operators are required to provide 24 hours' advance notice to the OGC. All residents and administrators of incorporated centres must be notified when flaring exceeds 4 hours duration or the gas rate exceeds a set volume (30,000 m<sup>3</sup>/day). The notification radius is: 1 km for sites where H<sub>2</sub>S is less than 1%; 1.5 km for sites with H<sub>2</sub>S between 1 and 5%; and, 3 km for sites with greater than 5% H<sub>2</sub>S.

The OGC 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 H<sub>2</sub>S content of the gas to be burned
- telephone numbers of operator and OGC contacts.

### ***Handling Complaints***

Concerns raised by the public prior to flaring or incinerating should be addressed by the operator. However, if outstanding concerns remain, the operator or the public may request the OGC's assistance. In addition, in situations where a flaring or incineration approval is not required and public concerns have not been addressed by the operator, the public may make a complaint directly to the OGC. OGC staff will then respond to the complainant according to established procedures.

### ***Information***

The Commission has recently developed new flaring guidelines aimed at minimizing flared gas volumes resulting from upstream petroleum industry activities.

**Oil and Gas Commission: Flaring, Incinerating and Venting Reduction Guideline for British Columbia, February 6, 2008** <https://www.ogc.gov.bc.ca/>

**Canadian Centre for Energy Information Flaring: Questions and Answers**  
<http://www.centreforenergy.com/Shopping/uploads/50.pdf>