

## **Frequently Asked Questions**

*Pump it Out: The Environmental Costs of BC's Upstream Oil and Gas Industry* is a web-based guide for citizens interested in knowing more about the environmental consequences of a typical 'upstream' oil and gas project in BC. You can obtain a full copy of *Pump it Out* at West Coast Environmental Law, [or online](#). This document begins to document frequently asked questions in relation to upstream oil and gas activities.

### **Q**

**A company is flaring sour gas near my home. Should I be concerned?**

### **A**

Once a natural gas well is drilled, the company will test the well by allowing it to flow for up to 21 days in order to measure the rate, pressure and chemical contents of the gas reservoir. Companies say the longer the test, the more accurate it is. To burn off gases while the chemical content of the gases is being tested, the company will 'flare' the gas by lighting it on fire. Industry and government consider flaring to be the safest way to dispose of the gas while the testing is taking place.

A company might also flare gas at a natural gas processing facility if the gas is 'solution gas' (gas that comes to the surface with oil), if the gas is not marketable, or if the company is required to do so in an emergency. Flaring at processing facilities is becoming less common in Northeast BC.

Flaring releases a wide range of harmful substances that can damage vegetation and affect human and animal health (examples are: nitrogen oxides (NO<sub>x</sub>), sulphur dioxide (SO<sub>2</sub>), volatile organic compounds (VOCs), carbon monoxide (CO), and benzene).

Some wells (called 'sour wells') will contain hydrogen sulphide (H<sub>2</sub>S)—a poisonous gas that is acutely toxic to humans at low levels. Flaring can significantly reduce the presence of H<sub>2</sub>S, but trace amounts may still remain. At levels as low as 20 parts per million, lung irritation, and damage to eyes can occur.

A 1996 study by the Alberta Research Council found that flares don't burn efficiently and leave anywhere from 16 to 38 percent of the gases intact. Incomplete combustion can release more than 250 other hazardous air emissions known to cause cancer, or negatively affect reproduction, respiratory, or cardiopulmonary health.

BC and Alberta residents living near sour gas wells suspect flaring is responsible for a number of their health-related problems. Studies are inclusive.

There are very few examples of BC residents successfully suing an oil and gas company for health and property damage as a result of this practice. Unsuccessful residents have often found it difficult to persuade a court that there is a link between the harm they've suffered and an oil and gas company's activity.

**Q**

**When all the oil and gas is gone, who will pay for environmental liabilities?**

**A**

As owner of the oil and gas resource, the Province charges royalties to oil and gas companies for the right to explore for it, drill for it, and if successful, produce it. Unlike taxes, the province is free to bargain royalties at any rate it wishes—as owner of the resource it is not subject to any constitutional restrictions. Private owners must pay a 'freehold production tax'.

Portions of royalties can be set aside to benefit future generations and to address environmental liabilities when the oil and gas industry has left the province. As of 2002, Norway, for example, had set aside Cdn\$54 billion in royalty revenue in order to 'transfer wealth to future generations' so they may better cope with the financial challenges connected to an ageing population and an eventual decline in oil revenues. Alaska had set aside Cdn\$40 billion to conserve 'a portion of the state's revenue from mineral resources to benefit all generations of Alaskans'. Although it was capped in 1987, Alberta had set aside Cdn\$12 billion of oil and gas revenue 'for future generations of Albertans.' BC has no royalty funds set aside.

BC officials say a 'legacy fund' is unlikely in BC because BC's oil and gas revenue is smaller than in Norway, Alaska, and Alberta, and unlike those countries, BC's economy is not strong enough to avoid allocating all oil and gas revenue government services like health care.

**Q**

**I'm concerned about government cutbacks. Are oil and gas companies complying with the law today, and will the government be able to protect the environment after the cutbacks take effect?**

**A**

The BC government's current policy is to double oil and gas production in five years. To facilitate that goal, the government has begun to de-regulate the oil and gas industry. At the same time the government is cutting government staff.

In 2002, three conservation officers and three support staff were cut from oil and gas regions of the province—a 43% reduction. Also cut was a unique 2-person conservation officer team that had focussed primarily on the oil and gas industry, and the 7-person Special Waste Unit of the Ministry of Water, Land and Air Protection. The four remaining officers are responsible for investigating all industrial activities on 72% of the BC land base (the Omineca-Peace region), and must do their own administrative work. The government says it expects to issue additional layoff notices over the next two years.

Inspection data from before the cutbacks suggests there was already reason to be concerned about compliance and enforcement in the oil and gas industry. For example:

A 2002 Forest Practices Board audit of road and pipeline activities in the Ft. Nelson area found:

- Examples of significant non-compliance with the Forest Practices Code. Instances documented in the audit reflect practices that involved insufficient drainage and erosion control measures around fish streams. At four locations a company building pipelines and access roads did not apply sufficient erosion control measures. In two of these locations, there was excessive erosion of channel banks and slumping road fill entering the stream. Sediment was being transported downstream.
- Oil and gas roads can be approved under oil and gas, pipeline, land-use, or forestry legislation. Differences in legal requirements and environmental standards for roads is 'inequitable', 'confusing', and 'likely to result in a higher risk of damage to forest resources.'
- The arrangement under which the [Oil and Gas Commission](#) approves a logging plan and the Ministry of Forests enforces it, does not work effectively. The Commission generally approves a plan with the expectation that a company will comply with the FPC as the work progresses. Potential impacts to the environment are not identified in advance of the approval. Companies rely on Commission approval as completing their obligations under the Code and do not carry out Code-required assessments following the approval.
- It is unknown whether the Commission's new policy of relying on assessments instead of logging plans will achieve the same standard of environmental stewardship as the Code.
- No audit of road construction or maintenance was possible because the Oil and Gas Commission was unable to provide an accurate listing of roads in the area, or determine precisely which of the variety of legislated standards in force applied to specific road sections.

290 pipeline 'incidents' were reported to the Oil and Gas Commission in the one-year period December 31, 1999 to January 1, 2002.

In January and March of 2001 the Province conducted 540 inspections as part of a compliance review. The review found

- ‘Major’ non-compliance of 44% for activities related to stream crossings.
- Sewage disposal at campsites is ‘often poorly managed thus creating health risks for workers and the general public.’
- On many rig sites, the engineer in charge had little knowledge of BC laws.
- Of 68 campsite inspections, there were 22 cases of major non-compliance and 17 instances of minor non-compliance.
- 91 of 152 well sites were out of compliance—although most were ‘minor in nature.’
- Some drilling operations were not registering their sites as generators of special waste and were not reporting the transportation or disposal of special wastes (as required by law to do so in order for the Province to track dangerous wastes). Without this information, the authors conclude the risk to the environment could be ‘very high.’ Of seven well sites inspected, four were found to be in ‘major non-compliance’.

Oil and Gas Commission inspection statistics for the period January 2000 to December 2001 indicate:

- 146 major infractions and 1499 minor infractions in relation to wells (out of 4368 inspections).
- 239 spills at wells and other facilities.
- 44 major infractions and 128 minor infractions at compressors, batteries, processing, and other facilities out of 333 total inspections.
- 191 wells were inspected for ‘final restoration’. Of the 191 inspections, 2 are reported as major non-compliance, 146 as minor non-compliance.

A 2001 special investigation by the Forest Practices Board concluded that the Oil and Gas Commission lacks the powers to enforce non-compliance (since corrected), and that the Commission suffers from a lack of policy and procedures for compliance and enforcement. The special investigation also concluded that it extremely difficult for operators to get on-site time with government staff to ensure their operations are appropriate, and that a significant increase in oil and gas activities in recent years has put further strains on government resources.

Government data for the year 2000 shows almost six million kilograms of oil-contaminated material was trucked out of BC and dumped, untreated, into an Alberta landfill. That is enough material to fill 575 industrial dump trucks, each towing a ‘pup’ trailer behind them. There is reason to believe the actual volume of contaminated material may be considerably higher.

## Q

**I thought natural gas is a clean fuel. Why should I be concerned about environmental impact?**

## A

The 'natural gas' used by consumers in their homes and appliances is different from the 'gas' found naturally underground. In the ground, natural gas is usually a mixture of hydrocarbon and non-hydrocarbon gases and is sometimes called 'raw natural gas'. What is 'natural gas' to consumers is primarily only one component of this family—methane.

Raw natural gas is actually a mixture of methane and some or all of the following: ethane, propane, butane, pentanes, condensates, nitrogen, carbon dioxide, hydrogen sulphide, helium, hydrogen, water vapour and minor impurities.

An oil and gas company must remove these 'impurities' from the gas if the substance is to be marketable. The impurities are removed at a variety of facilities once the oil or natural gas reaches the surface. For example, in a typical gas project the company will build a structure called a 'battery' to separate the gas from oil and water, and then pipe the gas to a 'processing facility' to remove unwanted chemical substances.

The process of removing the impurities is called processing, and it is a process that has a number of serious consequences for the environment. These consequences are in addition to the ones associated with getting the gas out of the ground and transporting it to a processing facility (see *What is a Typical Upstream Oil and Gas Project, and What are the Potential Environmental Consequences?*). The environmental consequences are also different from those associated with burning natural gas once it is delivered to a consumer.

For more information and references, please consult *Pump it Out: The Environmental Costs of BC's Upstream Oil and Gas Industry* (available at West Coast Environmental Law).