



LAND, WATER, TOXIC AND NOISE ISSUES FOR COALBED METHANE IN BC

## Coalbed Methane in British Columbia

***Coalbed methane is a natural gas trapped in coal seams. Although the same product as conventional natural gas, the process of extracting it can have greater local impacts.***

In British Columbia, over 40 coalbed methane wells have been drilled, but commercial production is not yet underway. In the North, coalbed methane wells have been drilled near Hudson's Hope and Iskut and are proposed for the Telkwa coalfield.

Experience in Alberta can provide a sense of what coalbed methane development may mean for British Columbia. In 2000, Alberta had about 20 coalbed methane wells.

By the end of 2005, over 6,000 wells had been drilled, and about 50,000 wells are expected to be drilled within the next 10 years or so.

Many people in Alberta who live near coalbed methane development are experiencing water and noise problems. Gas migration from coal seams

into water wells and aquifers is a serious concern; in some communities oil and gas companies are therefore now providing water to residents. There have been cases where landowners have been able to light their well water on fire, likely because of gas migrating from nearby coal seams. Increased truck traffic and the constant drilling and servicing of wells are transforming rural communities into industrial areas.

### Land Issues

Smaller amounts of gas are extracted from coalbed methane wells than from conventional wells, so companies need more wells to earn similar profits. Up to eight wells can be required per section (640 acres or 258 hectares of land) for coalbed methane to be profitable, compared with one well per section for conventional gas. The provincial government's guidelines place no limits on the number of coalbed methane wells that can be drilled in an area; consequently potential impacts on the land can be significant.

Directionally drilling several wells from one pad (where possible) and sharing facilities and infrastructure

among companies to reduce overlap is one way of minimizing these land impacts. The impacts of coalbed methane activity could also be limited by requiring companies to share long-term development plans in advance and adhere to them.



▲ Coalbed methane well site in the Elk Valley shows that the land impact is much larger than the actual well.

CREDIT: ERIN SEXTON

# Water Issues

Coal seams contain varying quantities of water. Although some Alberta coal seams are dry, some seams in British Columbia that have been drilled produce water. This water must be pumped out of the coal seam before gas drilling to reduce the pressure so the gas will flow. While quantity and quality of water will differ from basin to basin, this produced water can contain salt or heavy metals. Ideally, produced water will be re-injected back into a disposal well to protect the environment. Sometimes, however, it is not technically possible to do so because of the geology of a region.

The provincial government's Produced Water Code of Practice only requires that companies dispose of produced water in rivers or streams. This does not adequately protect the environment and fish habitat. Detailed analysis of groundwater aquifers should be done for at least three years before development. Produced water should be re-injected underground, and surface disposal should only be allowed where the public is satisfied that disposal will not pose a risk to the environment. To minimize risk from a buildup of gas, water wells should be properly ventilated.

## Toxic Issues

After the well has been drilled, a combination of sand and chemicals is injected to fracture the coal seams and allow the gas to flow to the surface. In the U.S., these "frac fluids" have been known to migrate along the coal seams and even into local drinking water. These fluids can contaminate water and soil. The provincial government should require that toxic substances be eliminated from frac fluids to protect water.

It can take several weeks or months for significant quantities of gas to be produced from the well. During that time, the company may vent or flare small quantities of gas, which adds to air pollution. When there is enough gas, a pipeline will be connected to take the gas to market. A better practice is to eliminate venting and reduce flaring by capturing the gas from the outset by pipeline or tank.



▲ This image shows the land disturbance from a single well site in BC. In Alberta, coalbed methane development increased from 20 wells in 2000 to 6,000 in 2005. By 2025, about 50,000 wells are expected. CREDIT: DAVID THOMAS



▲ Water extracted from coal seams in BC is processed before being released back into rivers and streams, but may still cause harm to fish and aquatic species. CREDIT: DAVID THOMAS

## Noise Issues

Compressors are usually required to boost the pressure of the gas so that it can flow to a pipeline. More compressors are needed for coalbed methane than for conventional gas, and these compressors and surface water pumps can cause noise that disturbs wildlife and people. A better practice is to install state-of-the-art compressors with soundproofing technologies.

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