

Photo by Chris Schwarz,
Edmonton Journal



I have lived at my place since 1998
CBM CAME

My water dramatically changed
Whistling taps and blowing gas
Dogs repelled by the water

Sudden chemical burns to skin and eyes.

No longer able to get suds out of soaps and shampoo.

Sudden pristine sinks and toilets



What is wrong with this picture?

- Three men seriously injured on sampling day
- After contamination some companies are reluctant to “cough up the data”
- How do landowners get the gas well data from industry after the fact?
- Regulators and some proponents use lack of baseline data to exonerate industry!

Alberta Energy and Utility Board presents to labs, Jan 2005



Water Issues

- ◆ Not unique to CBM
- ◆ Impact on domestic water wells
- ◆ Groundwater contamination
- ◆ Shallow drilling, completion, and stimulation practices
- ◆ Potential dewatering impacts on overlying aquifers
- ◆ Gas migration potential
- ◆ Mixing of various water qualities
- ◆ Ongoing work with AENV – non-saline water policy
- ◆ Water analyses, measurement and monitoring

Late 2005, Industry advised the
Alberta Energy and Utilities Board:

Shallow fracturing has harmed oilfield wells
and

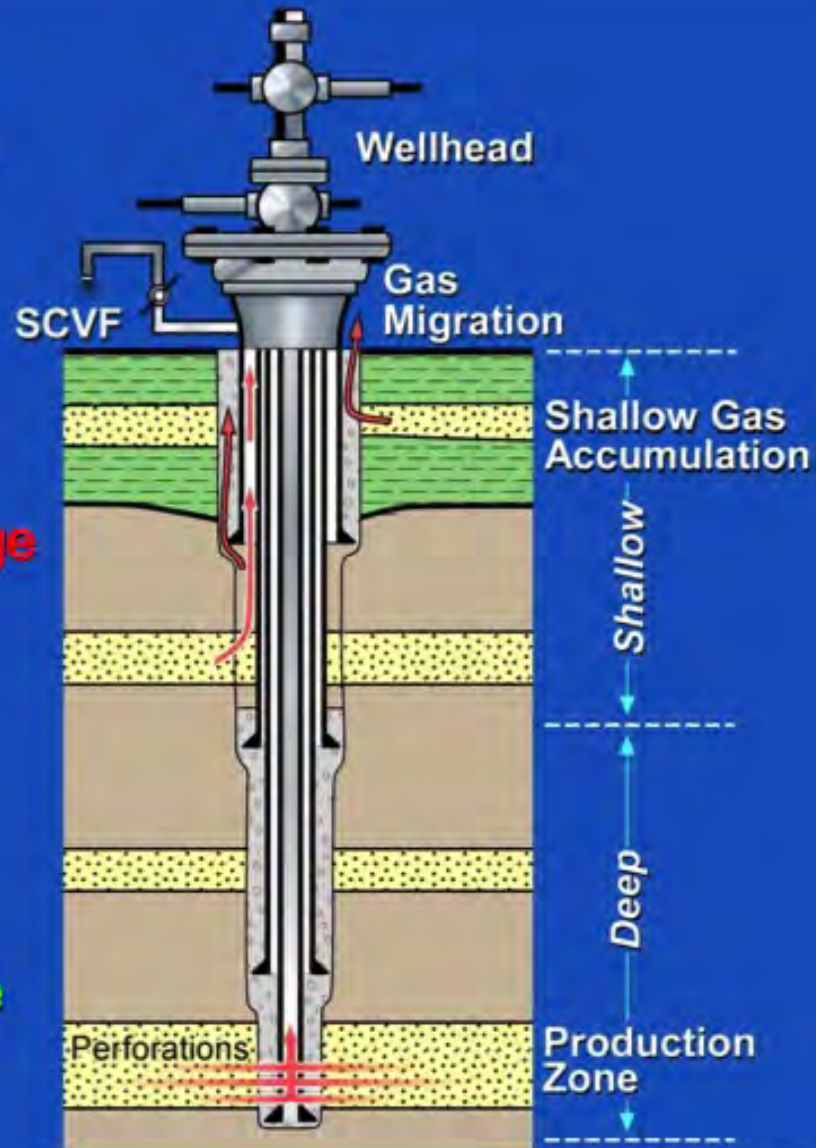
“there may not always be a complete
understanding of fracture propagation at
shallow depths”

(Alberta Energy and Utility Board created
Directive 027 January 2006)

Leakage Potential along a Well

Shallower, upper part
Higher potential for leakage

Deep, lower part
completed in
producing zones
Less potential for leakage



Levels of methane (in mg/l)
dissolved in Rosebud groundwater:

30 mg/l- 66 mg/l

risk of explosion at 1 mg/l

if the water passes through a confined space (often present in homes)

Alberta Environment Investigation

Isotopic fingerprinting results for **ethane**:

Landowner Water Wells (about 60m deep)	-40 to -46
Dr. Mayer's study CBM wells (average) (CBM wells about 600m deep)	-37
EUB study 7 CBM wells (about 250 to 700m deep)	-39 to -46
Microbial gas (Dr. Muehlenbachs, U of A):	will not produce ethane

EnCana CBM wells at Rosebud as shallow as 125.5m below surface
Encana will not provide gas samples for shallow perms & fracs

EUB 2006 CBM Water Chemistry and Water Wells in Coal Study

7/7 CBM wells produced biogenic methane

7/7 CBM wells had BTEX, heavier hydrocarbons
and many other contaminants in the produced
water

10/12 water wells in coal had no detectable levels
of biogenic or thermogenic methane (one was a
coal mine dewatering well)

11/12 water wells in coal had no BTEX, heavier
hydrocarbons, naphthalenes or other
contaminants of concern detected

Alberta Regulator still in denial

Alberta Environment found these petroleum industry contaminants, some of them very toxic, in Rosebud drinking water:

- Benzene, toluene, ethylbenzene, xylenes
- naphthalenes
- Petroleum Distillates
- Propane, butane, pentane, octanes, etc

Why are these not required testing in Alberta's
Baseline Standard?

Gas well gas vs. water well gas

Why are only gases from water wells
fingerprinted?

What will the fingerprints be matched to?

Metals

- Lost circulation
- Drilling additives
- Spills
- CBM waste water reinjection – leaks?

Can contaminate potable groundwater

Why are metals not even optional in Alberta Environment's Standard Template?

Some are toxic: mercury, arsenic, lead, etc

Is this industrial gas migration or natural?



- “serious problem”(1 out of 20 resource wells)
- Landowner blamed instead of comprehensive testing of resource wells
- Regulators misinform the public – why deny the problem?
- “I feel the EUB and other provincial regulatory agencies have been lax in protecting groundwater.” Maurice Dusseault CB Magazine Sept 19, 2006

Why Test Only for Some CBM Wells and Why So Late?

Risks to groundwater from cumulative petroleum industry impacts (conventional and non) are dramatically increasing at a frantic pace in Alberta.

Our groundwater knowledge, monitoring and baseline data are years behind.

Precautionary Principal?