Your Water Your Rights

Northern Plains Resource Council's campaign to protect water quality and quantity when oil and gas drilling moves in.

When oil and gas drilling moves in, every landowner should be thinking about how to protect the quality and quantity of the water he or she depends on. However, thinking through and implementing all the steps needed to protect your water can be overwhelming.

This factsheet is meant to provide guidelines for water quality testing procedures and how to protect your water quantity as well. Because oil and gas companies do not have to disclose the chemicals they use when drilling and fracturing a well, the suggestions inside are only guidelines and may not cover everything needed to ensure protection of your water. It's recommended that these tests for water quality and quantity are done well in advance of oil and gas development.

Why test your water?

A typical drilling rig, well pad, and wastewater pond for a deep oil and gas well.

Oil and gas drilling has the potential to contaminate your surface and groundwater in a variety of ways. Wells can blow out if not properly cased, spraying chemicals onto the land.

Drilling companies often store the chemical-laden waste water in impoundments on the surface. These frequently leak as well.

Fracking chemical trucks sometimes overturn and leak, and in some cases, the process of fracking the well can also contaminate wells and springs.

In Pavillion, Wyoming, the Environmental Protection Agency has linked the chemicals found in private wells to chemicals used to stimulate the well during fracking. These water wells are unusable for many residents in Pavillion.

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Water quality testing basics

As a landowner you should test, if possible, all sources of water including springs, wells, and surface waters. You should do this testing **before** any oil or gas development moves into the area. If the water becomes contaminated, the burden of proof is on the landowner to prove the chemicals weren't there before. The Pennsylvania Department of Environmental Protection recommends testing for the following substances:

Analyte (Inorganic)
Alkalinity
Chloride
Conductivity
Hardness
Oil and Grease
pH*
Sulfate
Total Dissolved Solids*
Residue - Filterable
Total Suspended Solids
Residue – Non Filterable

Analyte (Trace Metal)
Barium
Calcium
Iron*
Magnesium
Manganese*
Potassium
Sodium*
Strontium

Analyte (Organic)
Ethane*
Methane*

Analyte (Microbiology)
Total Coliform/E.coli

* These substances should be tested for at a minimum

Extension Service, local labs can help

Oil and gas companies usually store the fracking chemicals, drilling mud, and other wastes in ponds on the well pad.

The Montana State University extension office (406-994-7381) provides a good guide to local water quality testing facilities. You can find it at the following Web address: *http://waterquality.montana.edu/docs/WELL_EDUCATED/fact_sheets/Labs.pdf*

When using a local facility, it would be good to request the water quality substances listed above to make sure you test for the right things. The costs will probably vary depending on what you test for. Also, some labs are not certified to test for certain substances. You should inquire about this before you ask them to test your water. An example of prices from Energy Labs in Billings can be found at the following Web address: *http://www.energylab.com/asp/PricingGuide/docs/ELI_2012_Fee_Schedule_-_Water_v1-0.pdf*

Truck traffic prolific

Average number of trucks needed per well (Tolliver 2010)

Item	Number of trucks needed
Sand	80
Water (fresh)	400
Water (waste)	200
Fracking tanks	100
Rig equipment	50
Drilling mud	50
Chemical	4
Cement	15
Pipe	10
Scoria/Gravel	80
Fuel trucks	7
Fracking/Cement pump trucks	15
Workover rigs	1
Total – One direction	1,012
Total trucks	**2,024**

Land impacts are more than you think: One oil or gas drill pad and required infrastructure may disturb up to 40 acres of land. *(Louisiana Department of Natural Resources)*

Water quantity basics

"Conventional" oil and gas development (where the oil and gas is in large reservoirs underground) requires moderate quantities of fresh water to drill the well. Some pieces of machinery (drill bits, for example) must be cooled with water and drilling muds during the well-boring process.

On the other hand, "unconventional" oil and gas is trapped in tiny bubbles throughout shale and sandstone formations. Hydraulic fracturing, or "fracking," is a process needed to extract unconventional resources that is **extremely** water-intensive. In an EPA study examining the water impacts of hydraulic fracturing, "two to five million gallons of water may be necessary to fracture one horizontal well in a shale formation" *(EPA)*. The oil and gas development currently barreling across Montana is mostly unconventional oil and gas and requires fracking and large quantities of water. It is estimated that a well can be fracked up to 10 times during its life *(Susquehanna River Basin Commission)*.

Where is this water coming from?

- The company that leases your minerals may request to drill a water well on your property.

OR

- It will truck the water in from somewhere off-site.

When you are thinking of leasing your minerals, don't forget to look out for your water. Ask and look for a clause permitting water well drilling in the lease, knowing that according to Montana code, wells flowing 35 gallons per minute or less are EXEMPT from regulation outside of some restricted groundwater areas. If you don't want a water well drilled on your land, restrict this in your lease.

Know your water rights

Start a well log, and if you have surface water on your property, monitor flow levels. Contact the Department of Natural Resources and Conservation (DNRC) if you don't have your water right documentation handy. Call 406-444-6601 or you can look up DNRC on its website: *http://nris.mt.gov/dnrc/waterrights/default.aspx*

The industry can apply for water use permits, but they don't always follow the rules. Permitting for new or changed water rights takes six to nine months based on current backup at DNRC permitting system. For illegal water use, contempt of court fees are $500 to $1,500 *(DNRC)*. But it may be cheaper for the oil and gas companies to break the law and use water illegally than it is to wait out the permitting process.

Many surface waters in Montana are NOT available for appropriation of new rights (the rights are fully

Continued on back page

Continued from previous page

appropriated). These "closed" river basins include: the Upper Missouri (upstream of Great Falls), Teton, Milk, Musselshell, Jefferson, and Madison *(DNRC)*. Oil and gas developers must find water from other sources. This means that YOU, a water right holder, may be approached to change your agricultural water right to an industrial water right. Be wary of trading a decades-old water right for short-term cash.

What about water that's already been used in the hydraulic fracturing process?

Legally, the oil and gas development company that fracks the well is required to properly dispose of the contaminated water. Anywhere from 20-85% of the fluids used in fracking are left underground, but here are some common ways the industry deals with wastewater:

- **On-site:** Used fracking water, often called "flow-back," can be pooled on-site where the well is drilled. These waste collection sites resemble stock ponds and are referred to as "impoundments." Impoundments are a common and inexpensive choice for companies to dispose of wastewater. When the pond is full, hardening agents are added to the mixture. When it is deemed solid enough, the waste is buried. Though the ponds are generally lined, most eventually seep into groundwater or overflow with heavy rain or runoff.
- **Off-site:** Just as the materials were brought in by truck, wastewater may be taken to another location for treatment. It must be treated differently than water from municipal systems, because it might include heavy metals and chemicals mixed in with the fracking fluid that cannot be treated by traditional municipal systems.

Blackfeet recycling wastewater

Industry can also recycle the wastewater. In March 2012, the Blackfeet Tribe signed an agreement with Ozonix, a company that has found a way to recycle fracking wastewater and reuse it again for fracturing. Companies should strive to use recycling as a way to reduce their overall water use. *http://missoulian.com/news/state-and-regional/blackfeet-tribe-signs-with-company-to-treat-recycle-fracking-water/article_30a26474-7880-11e1-8065-0019bb2963f4.html*

Two critical steps

If you own your mineral rights, you have more leverage to make sure your water resource is protected. But even if you don't, two steps are critical:

- Have your water tested, because the burden of proof will rest on you to prove damages.
- Have your lawyer review your lease because it could have a big impact on the long-term value of your property.

References and other resources

Environmental Protection Agency (EPA), Hydraulic Fracturing Research Study, June 2012. http://www.epa.gov/safewater/uic/pdfs/hfresearchstudyfs.pdf

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Northern Plains Resource Council is a conservation and family agriculture group that organizes Montana citizens to protect our water quality, family farms and ranches, and unique quality of life.

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