

FRONTLINE



Working to protect public lands and wildlife since 1967

A case for baseline water testing

'The best counter to bad politics is good science'

—Gov. Matt Mead

Page 2

Great horned owlets are getting ready to take flight! 5

Message from the director 7



Baseline testing before drilling: A commonsense practice that should be required in Wyoming

BY CHRIS MERRILL, COMMUNICATIONS DIRECTOR



Several residents of the tiny rural community of Pavillion, Wyoming, have said for years that their domestic water wells produced good, clean,

drinking water until an oil and gas company started hydraulically fracturing or “fracking” near their homes to produce natural gas.

Some of these residents became ill after drinking their water, and some reported strange symptoms including the loss of their sense of smell and taste.

These symptoms might have been caused by the contaminated water or by the air pollution created by the gas drilling, or something else entirely—they might never know.

Several of the affected residents are farmers and ranchers whose homes and operations are amid an industrial gas field, and the water contamination might well have completely destroyed their property values and their ability to continue to safely farm and raise livestock.

In August of 2010, after the Environmental Protection Agency initiated an investigation

into the water contamination in and around the Pavillion gas field, several residents were told by the federal Agency for Toxic Substances and Disease Registry not to drink their water or use it for cooking.

And if they used their well water for showering, they were told to leave the bathroom window open to vent the explosive gas.

We now know, thanks to the ongoing EPA investigation, that as many as 23 drinking water wells in the Pavillion area are contaminated by dangerous levels of methane and other chemicals.

Some residents’ water is flammable, potentially explosive, and perhaps carcinogenic.

The EPA released a draft report of its investigation in December 2011 that included details of the chemical contamination found in test water wells that were drilled by the agency, as well as information about contaminants found in existing domestic water wells.

The investigation found that dangerous levels of cancer-causing benzene, methane, diesel-range and gasoline-range compounds, and other chemicals often associated with

fracking had contaminated the water wells.

There were trace levels of exotic organic compounds in some domestic wells including adamantanes, 2-butoxyethanol phosphate, phenols, naphthalene, toluene, and various glycols.

“Baseline testing makes sense to me. It protects industry and the environment.”

**—Rep. Joseph M. Barbuto
Wyoming House District 48
House Minority Caucus Chairman**

Pavillion resident John Fenton*, in an Op-Ed published in the *Casper Star-Tribune* in early January, described the situation this way: “The contamination from oil and gas development has made us sick and left our farms and homes worthless.”

Officials with Encana, the Canadian company that owns and operates the field, and has about 170 producing natural gas wells

Continued on page 4



Wyoming Outdoor Council

Established in 1967, the Wyoming Outdoor Council is the state's oldest statewide conservation organization. Our mission is to protect Wyoming's environment and quality of life for future generations.

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What Is Hydraulic Fracturing?

Simply put, hydraulic fracturing is a drilling technique used to release oil and gas from hard rock (usually shale) formations.

It involves creating fissures in the rock by pumping large amounts of water and chemicals (known as “fracking fluids”) under very high pressure down a wellbore into the ground. This high-pressure mix also includes what the industry calls a “proppant,” which is often just sand, and which stays in the newly created fissures and “props” them open so the gas can flow.

Among the chemicals and additives that can be found in fracking fluids are biocides to kill bacteria, anti-corrosion agents, gelling additives, polymers, various alcohols, various acids, and many other things—some of them toxic and some that are known to be carcinogenic.

—Steve Jones



“Clearly, any time you are going to be drilling through an aquifer that is an important lifeblood for a community, you need to know what the [water quality] is now and what it is after [the drilling]. Not knowing is not an excuse anymore.”

—Jim Ruby, head of the Laramie County Surface Owners Association, speaking to the *Cheyenne Tribune Eagle* in January

Continued from page 3

in the area, have argued that the methane and other chemicals found in the domestic water are not a result of gas drilling operations.

“[The EPA doesn’t] have a conclusion here; they have a probability — and we would argue that it is a very poor probability,” Douglas Hock, an Encana spokesman, said to the *Los Angeles Times* in December. “Encana didn’t put methane and benzene there in the water; nature did. And the synthetics they have found in the water, we would argue that they were likely introduced by EPA’s own testing procedures.”

Encana officials have also asserted, repeatedly, that the EPA investigation has been biased, unscientific, and politically motivated. Some Wyoming officials have also made these claims.

The Wyoming Outdoor Council, the EPA, and many others strongly disagree.

“The EPA draft report is a result of years of testing by over 20 Ph.D.s and scientists from across the country,” Fenton wrote in his January *Star-Tribune* piece. “The best known science and testing protocols were followed [and] the EPA samples were analyzed at multiple labs to ensure quality control.”

Regional EPA Administrator Jim Martin wrote, in a January 22 column in the *Star-Tribune*, that after thorough review he and the agency “stand behind the quality of our data and the validity of our scientific methods.”

“Our investigation of drinking water safety in Pavillion has been under way for three years,” Martin explained. “We have conducted four rounds of sampling. After the sampling phase, our career scientists conducted a meticulous evaluation of the

data. Their conclusions were thoroughly reviewed by EPA career managers and subjected to an initial peer review by independent experts.”

‘Not knowing is not an excuse anymore’

The EPA’s report on its investigation is still in draft form. As this newsletter goes to print the scientific peer review process is still under way. Whether real or manufactured, the uncertainty about the cause of the contamination could linger on in the news media and in the courts for years to come.

“It didn’t have to be this way,” said Steve Jones, the Wyoming Outdoor Council’s watershed protection program attorney. “And it doesn’t have to be this way in the future in Wyoming.”

If companies were required to test domestic, stock, and irrigation water wells prior to drilling and fracking—a practice known as baseline water testing—many of these kinds of uncertainties can be eliminated, Jones said.

“The practice of testing water before oil and gas development happens makes sense because it would protect residents and oil and gas companies alike,” he said. “It would also arm residents, regulators, and oil and gas companies with the information necessary to determine if water contamination exists prior to any drilling.”

This is a conclusion that the Wyoming Outdoor Council and many others have arrived at.

Jim Ruby, head of the Laramie County Surface Owners Association (he is also the executive secretary of the Wyoming Environmental Quality Council), told the *Cheyenne Tribune Eagle* in January that the controversy over the EPA’s report on

Continued on page 6

How might water contamination happen?

If aquifers were to be contaminated by the hydraulic fracturing process it is more likely, under most circumstances, that the contamination would occur as a result of a mishandling of the fluids on the surface or because of a problem with a well casing at or near the surface—rather than from a migration of the fracking fluids from deep underground.

Another way that aquifers could be contaminated by the hydraulic fracturing process is if new fissures or pathways are created for the methane (rather than the fracking fluids) to travel up to the aquifer.



If gas wells are not properly cased or if water wells in the vicinity are not properly cased—or if unused wells are not properly plugged and abandoned—drillers could unintentionally contaminate an aquifer during the hydraulic fracturing process.

—Steve Jones



Malheur NWR


Signs of Spring *Look out for owlets!*

BY SOPHIE OSBORN, WILDLIFE PROGRAM DIRECTOR



Most of us associate lengthening days and milder weather with the first signs of spring. But for bird aficionados, the earliest hint that

spring is around the corner often comes amidst blizzards and bone-chilling cold. **Great horned owls can lay their eggs as early as January in Wyoming. So, as you receive this *Frontline*, many great horned owls already are feeding this year's owlets.**

Young owls may be ready to leave the nest between the end of March and mid-May. Instead of building their own nests, great horned owls often use stick nests built by other birds of prey. Nesting early gives the owls their choice of nest sites—before hawks return from their wintering grounds to reclaim nests and begin raising their own young. So as you contemplate the usual signs of spring, don't forget to look up in the trees. You might just see a couple of owlets getting ready to take their first flight. 

Your membership at work

Improving wildlife management

In 2011 Wyoming finalized its “state wildlife action plan.” This five-year management plan outlines strategies for maintaining the health and diversity of the state’s wildlife—particularly those species with small or declining populations. To improve the process, we asked the Wyoming Game and Fish Commission to revisit the list of species of greatest conservation need yearly as opposed to every five years. The commission agreed and the annual review will now make it more likely for agency biologists to identify species that need help before it is too late.

Safeguarding the nation's first national forest

Three years ago the Forest Service attempted to use a categorical exclusion to fast-track the first oil well on the Shoshone National Forest in more than 20 years. Windsor Energy Group—a company already responsible for a notorious well blowout that polluted groundwater near Clark, Wyoming—planned to drill along the spectacular Beartooth Front. The Outdoor Council helped convince the Forest Service to opt against permitting the well under a categorical exclusion, which would have bypassed a very necessary environmental review. Now years later, after the Forest Service nearly completed the environmental assessment, the company has abandoned the project, claiming in the media that the well is no longer economically feasible. The Forest Service has now canceled the project.

The odds of winning these and other environmental protections are rarely stacked in our favor. Without your help, we won't meet the challenges or rise to the opportunities to protect Wyoming's quality of life each and every day.



Please join or renew your membership today.

Understanding groundwater is important

In addition to baseline water testing, groundwater characterization is also an important part of the puzzle, especially with new oil and gas field development. Knowing the depth and direction of the flow of groundwater can serve to inform public officials, and the public, of the movement of any underground pollution that may occur as a result of spills, accidents, or poor management practices.

—Steve Jones



Continued from page 4

Pavillion reinforces “the need to have proper water-quality monitoring in places where fracking might occur.”

Mr. Ruby’s association formed in response to the potential drilling boom in the Niobrara shale play in southeast Wyoming.

“Clearly, any time you are going to be drilling through an aquifer that is an important lifeblood for a community, you need to know what the [water quality] is now and what it is after [the drilling],” he said. “Not knowing is not an excuse anymore.”

“The need for baseline data has been underscored on a number of fronts in the past year ... the collection and analysis of baseline testing is a direction we need to explore.”

—Wyoming Gov. Matt Mead

Tom Doll, head of the Wyoming Oil and Gas Conservation Commission, has advocated baseline water testing as a best management practice for oil and gas companies, but one that can be achieved on a voluntary basis.

The oil and gas commission has been recommending for more than a year now that companies test water supply wells within a quarter mile of drilling locations.

In December of 2010, Mr. Doll told Wyoming Public Radio that the recommendation is partly in reaction to public concern.

“People have heard all kind of horror stories,” he said. “The perception is that, ‘you’re going to go out there and ruin my water well.’ This way you can certainly allay some fear by saying, ‘We now know what your well is capable of producing. We know what the water quality is.’”

But so far Doll has maintained that he believes a rule requiring baseline testing is not necessary.

The Wyoming Outdoor Council disagrees.

“We believe baseline water testing can and should be required by the state,” Jones said. “And we’re definitely not alone on this.”

Gov. Mead, other officials, willing to consider required baseline testing

Many lawmakers and state officials have, publicly and behind the scenes, indicated support for moving toward a statewide requirement.

Rep. Joseph M. Barbuto, for example, who represents Wyoming House District 48, said in an email to the Wyoming Outdoor Council that he supports a requirement for baseline water testing.

“Baseline testing makes sense to me,” Mr. Barbuto wrote. “It protects industry and the environment.”

Wyoming Gov. Matt Mead, in a written statement to the Wyoming Outdoor Council, suggested that the idea is at least worthy of consideration.

The “collection and analysis of baseline testing is a direction we need to explore,” he said.

But the governor also suggested that the devil would be in the details:

“The best counter to bad politics is good science,” Mr. Mead said. “The need for baseline data has been underscored on a number of fronts in the past year. That said, when we talk about baseline testing requirements, we must first come to a common understanding of the what-when-where-why’s of a baseline. Some constituents in water are naturally occurring. These may be present in trace amounts or large quantities. Baseline testing using the Clean Water Act as the benchmark (chemicals at parts per million) may not detect the contamination that is documented in parts per billion.”

The Wyoming Outdoor Council is encouraged that Wyoming’s leaders seem ready to have the conversation about baseline water testing, Jones said.

“We believe that when legislators, regulators, and decision makers have had a chance to consider the facts and to hear the arguments for and against required baseline water testing in Wyoming, they’ll conclude, as we have, that it makes sense,” he said.

“It’s a matter of public health and public trust and it’s the best path forward.” 

Message from the Director

LAURIE MILFORD, EXECUTIVE DIRECTOR

The Power of Continuity



The Wyoming Outdoor Council has been defending the environment for about as long as the environmental movement has been alive in the American West. The Council was on the job early. **Now, as we celebrate our 45th anniversary this year, it pays to reflect on the organization's longevity**—the institutional knowledge of our members, board, and staff. This is one of the elements that has made us successful.

Many of the Outdoor Council's achievements have taken years, even decades: water protected, solid waste disposed responsibly, crucial habitats and iconic landscapes spared from development, wildlife defended from extirpation or extinction. **Conservation is a long football game.** A player advances the ball, rallies the team, and defends. Periodically, a new player enters the game, adds to the momentum, and finishes the play. That's how it is with staff at the Council. Each builds on the gains the previous player made. And the Wyoming we all love today would not exist if not for our ability to field a great team decade after decade.

To look at a specific project, the Wyoming Outdoor Council has been laboring since the 1970s to limit oil and gas drilling on the Bridger-Teton National Forest. We're currently addressing a proposal from Houston-based Plains Exploration and Production to drill 136 wells in the Hoback Basin—the headwaters of a congressionally designated wild and scenic river and in some of the most important ungulate habitat in the lower 48 states.

But first, a bit of history: Portions of the Bridger National Forest were originally part of the Yellowstone Park Timberland Reserve, which was established in 1891. (The Bridger and the Teton parts of the forest weren't combined to make one unit until 1973.) An act of Congress made all "forest reserves" national forests in 1907, and the Bonneville—which soon became the Bridger—was created out of the reserve a few years later. Oil and gas leases were

issued, and the first well was drilled on Riley Ridge, on the southeastern flank of the Wyoming Range, in the 1960s.

In 1947, in the time between the creation of the forest and the development of Riley Ridge, Secretary of the Interior Julius Albert Krug—at the urging of several state officials—sought to protect parts of the forest around Jackson Hole from oil and gas leasing and drilling. Ultimately the Wyoming Legislature insisted on a compromise in which lands north of the 11th Standard Parallel (which runs just south of Jackson Lake) could not be drilled. Land south of that line could be developed but with restrictions to "protect the scenic and aesthetic values" of the area and with



instructions that any drilling proposal have "the absolute minimum number of roads" and the "least possible disturbance to wildlife." No wells could be drilled within 1,250 feet of any public road—essentially prohibiting development on a significant portion of the Hoback Basin. This document, the "Krug memorandum" as it was known, became the Jackson Hole Oil and Gas Lease Stipulation and is attached to all of Plains' leases.

Current staff at the Wyoming Outdoor Council would not have known about the salient details of the Krug memo had it not been for past staff member Dan Heilig, who worked at the Council for 13 years starting in 1991. And current staff at the Forest Service would not have known about

the significance of the memo, either, or made plans to apply it to a new alternative to Plains' proposal, had Lisa McGee, Dan's relief on the Outdoor Council staff, not shown it to them recently. Dan encountered the Krug stipulation some 10 years ago while writing an assessment of the oil and gas threats to the Bridger-Teton. Dan told Lisa about it, and she has been able to use it to change the game by reminding the Forest Service of its historic promise and current responsibility to safeguard the forest. **The individuals doing the work of conservation are not the same over time, but the organization is.** The organization is what gives continuity to the work of keeping Wyoming wild.

The individuals doing the work of conservation are not the same over time, but the organization is. The organization is what gives continuity to the work of keeping Wyoming wild.

Dan Heilig worked tirelessly for the Council for 13 years before passing the torch to new staff members.

Looking back at four-and-a-half decades, this is clear: The Wyoming Outdoor Council's mission is timeless, and its work is essential. Its thousands of people over the years, including members, staff, and directors—the life of the organization—are one big team. A team that can advance the ball and ultimately defend its ground—Wyoming. **Those of you who are long-time members, you should be proud of what you've accomplished.** I'm deeply humbled by those of you who have year after year donated your time, interest, and money to make Wyoming a winner.

Yours,
Laurie



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Join us to celebrate the Wyoming Outdoor Council's 45th anniversary

**Saturday, June 23
Lander, Wyoming**

The Wyoming Outdoor Council is celebrating 45 years in 2012! Everyone is invited to take part in our family friendly fun and entertainment.

Events will include:

Thursday and Friday: Wild & Scenic Film Festival sponsored by Wild Iris and Patagonia
Friday Hike in the Honeycomb Buttes

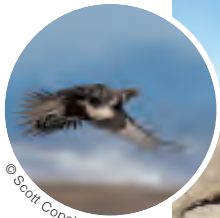
Saturday:

- Great field trips and outings
- Silent auction
- Awesome kids' activities
- Expert presentations and panel discussions
- Happy hour
- Keynote by award-winning writer, poet, and journalist, Samuel Western
- Music and dancing



Scott Kane

Courtesy Andrea Orabona



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CELEBRATE

Protecting Wyoming's environment and quality of life for future generations

Watch your mail for an invitation and registration form or check out wyomingoutdoorcouncil.org.



Annie Austin



Robin Vochy

Be a part of a great tradition by joining or renewing your membership today.

wyomingoutdoorcouncil.org

Come to Lander and help us celebrate the Wyoming Outdoor Council's 45th anniversary in honor of Tom Bell and the remarkable people who founded the organization in 1967.