EPA's Abandoned Wyoming Fracking Study One Retreat of Many

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(ProPublica [1]) — When the Environmental Protection Agency abruptly retreated on its multimillion-dollar investigation into water contamination in a central Wyoming natural gas field last month, it shocked environmentalists and energy industry supporters alike.

In 2011, the agency had issued a blockbuster draft report [2] saying that the controversial practice of fracking was to blame for the pollution of an aquifer deep below the town of Pavillion, Wy. 2013 the first time such a claim had been based on a scientific analysis.

The study drew heated criticism over its methodology and awaited a peer review that promised to settle the dispute. Now the EPA will instead hand the study [3] over to the state of Wyoming, whose research will be funded by EnCana, the very drilling company whose wells may have caused the contamination.

Industry advocates say the EPA's turnabout reflects an overdue recognition that it had over-reached on fracking and that its science was critically flawed.

But environmentalists see an agency that is systematically disengaging from any research that could be perceived as questioning the safety of fracking or oil drilling, even as President Obama lays out a plan to combat climate change that rests heavily on the use of natural gas.

Over the past 15 months, they point out, the EPA has:

- Closed an investigation into groundwater pollution in Dimock, Pa., saying the level of contamination was below federal safety triggers.
- Abandoned its claim that a driller in Parker County, Texas, was responsible for methane gas bubbling up in residents' faucets, even though a geologist hired by the agency confirmed this finding.
- Sharply revised downward a 2010 estimate showing that leaking gas from wells and pipelines was contributing to climate change, crediting better pollution controls by the drilling industry even as other reports indicate the leaks may be larger than previously thought.
- Failed to enforce a statutory ban on using diesel fuel in fracking.

"We're seeing a pattern that is of great concern," said Amy Mall, a senior policy analyst for the Natural Resources Defense Council in Washington. "They need to make sure that scientific investigations are thorough enough to ensure that the public is getting a full scientific explanation."

The EPA says that the string of decisions is not related, and the Pavillion matter will be resolved more quickly by state officials. The agency has maintained publicly that it remains committed to an ongoing national study of hydraulic fracturing, which it says will draw the definitive line on fracking's risks to water.

In private conversations, however, high-ranking agency officials acknowledge that fierce pressure from the drilling industry and its powerful allies on Capitol Hill 2013 as well as financial constraints and a delicate policy balance sought by the White House -- is squelching their ability to scrutinize not only the effects of oil and gas drilling, but other environmental protections as well.

Last year, the agency's budget was sliced 17 percent, to below 1998 levels. Sequestration forced further cuts, making research initiatives like the one in Pavillion harder to fund.

One reflection of the intense political spotlight on the agency: In May, Senate Republicans boycotted a vote on President Obama's nominee to head the EPA, Gina McCarthy, after asking her to answer more than 1,000 questions on regulatory and policy concerns, including energy.

The Pavillion study touched a particular nerve for Sen. James Inhofe, R-Okla., the former ranking member of the Senate Environment and Public Works committee.

According to correspondence obtained under the Freedom of Information Act, Inhofe demanded repeated briefings from EPA officials on fracking initiatives and barraged the agency with questions on its expenditures in Pavillion, down to how many dollars it paid a lab to check water samples for a particular contaminant.

He also wrote a letter to the EPA's top administrator calling a draft report that concluded fracking likely helped pollute Pavillion's drinking water "unsubstantiated" and pillorying it as part of an "Administration-wide effort to hinder and unnecessarily regulate hydraulic fracturing on the federal level." He called for the EPA's inspector general to open an investigation into the agency's actions related to fracking.

When the EPA announced it would end its research in Pavillion, Inhofe 2013 whose office did not respond to questions from ProPublica -- was quick to applaud.

"EPA thought it had a rock solid case linking groundwater contamination to hydraulic fracturing in Pavillion, WY, but we knew all along that the science was not there," Inhofe said in a press release issued the day of the announcement.

Others, however, wonder whether a gun-shy EPA is capable of answering the pressing question of whether the nation's natural gas boom will also bring a wave of environmental harm.

"The EPA has just put a 2018kick me' sign on it," John Hanger, a Democratic candidate for governor in Pennsylvania and the former secretary of the state's

Department of Environmental Protection, wrote on his blog [4] in response to the EPA news about Pavillion. "Its critics from all quarters will now oblige."

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Before fracking became the subject of a high-stakes national debate, federal agencies appeared to be moving aggressively to study whether the drilling technique was connected to mounting complaints of water pollution and health problems near well sites nationwide.

As some states began to strengthen regulations for fracking, the federal government prepared to issue rules for how wells would be fracked on lands it directly controlled.

The EPA also launched prominent scientific studies in Texas, Wyoming and Pennsylvania, stepping into each case after residents voiced concerns that state environmental agencies had not properly examined problems.

The EPA probe in Pavillion began in 2008 with the aim of determining whether the town's water was safe to drink. The area was first drilled in 1960 and had been the site of extensive natural gas developmentsince the 1990's. Starting at about the same time, residents had complained of physical ailments and said their drinking water was black and tasted of chemicals.

The EPA conducted four rounds of sampling [5], first testing the water from more than 40 homes and later drilling two deep wells to test water from layers of earth that chemicals from farming and old oil and gas waste pits were unlikely to reach.

The sampling revealed oil [6], methane, arsenic, and metals including copper and vanadium 2013 as well as other compounds --in shallow water wells. It also detected a trace of an obscure compound linked to materials used in fracking, called 2-butoxyethanol phosphate (2-BEp).

The deep-well tests showed benzene [7], at 50 times the level that is considered safe for people, as well as phenols -- another dangerous human carcinogen -- acetone, toluene, naphthalene and traces of diesel fuel, which seemed to show that man-made pollutants had found their way deep into the cracks of the earth. In all, EPA detected 13 different compounds in the deep aquifer [2] that it said were often used with hydraulic fracturing processes, including 2-Butoxyethanol, a close relation to the 2-BEp found near the surface.

The agency issued a draft report in 2011 [7] stating that while some of the pollution in the shallow water wells was likely the result of seepage from old waste pits nearby, the array of chemicals found in the deep test wells was "the result of direct mixing of hydraulic fracturing fluids with ground water in the Pavillion gas field."

The report triggered a hailstorm of criticism [8] not only from the drilling industry, but from state oil and gas regulators, who disagreed with the EPA's interpretation of its data. They raised serious questions about the EPA's methodology [9] and the

materials they used, postulating that contaminants found in deep-well samples could have been put there by the agency itself in the testing process.

In response, the EPA agreed to more testing [10] and repeatedly extended the comment period on its study, delaying the peer review process.

Agency officials insist their data was correct, but the EPA's decision to withdraw from Pavillion means the peer-review process won't go forward and the findings in the draft report will never become final.

"We stand by what our data said," an EPA spokesperson told ProPublica after the June 20 announcement, "but I do think there is a difference between data and conclusions."

Wyoming officials say they will launch another year-long investigation to reach their own conclusions about Pavillion's water.

Meanwhile, local residents remain suspended in a strange limbo.

While controversy has swirled around the deep well test results -- and critics have hailed the agency's retreat as an admission that it could not defend its science -- the shallow well contamination and waste pits have been all but forgotten.

The Agency for Toxic Substances and Disease Registry, the federal government's main agency for evaluating health risk from pollution, has advised Pavillion [11] residents not to bathe, cook with, or drink the water flowing from their taps. Some have reported worsening health conditions they suspect are related to the pollution. They are being provided temporary drinking water from the state in large cisterns.

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The EPA opened its inquiry in Dimock, Pa., after residents provided it with private water tests detecting contaminants and complained that state regulators weren't doing enough to investigate the cause.

When an elderly woman's water well exploded on New Year's morning [12] in 2009, Pennsylvania officials discovered pervasive methane contamination in the well water of 18 homes and linked it to bad casing and cementing in gas company wells. In 2010, they took a series of steps [13] against the drilling company involved, citing it for regulatory violations, barring it from new drilling until it proved its wells would not leak and requiring it to temporarily supply water to affected homes.

But residents said state officials hadn't investigated whether the drilling was responsible for the chemicals in their water. The EPA stepped in [14] to find out if residents could trust the water to be safe after the drilling company stopped bringing replacement supplies.

Starting in early 2012, federal officials tested water in more than five dozen homes for pollutants, finding hazardous levels of barium, arsenic and magnesium, all

compounds that can occur naturally, and minute amounts of other contaminants, including several known to cause cancer.

Still, the concentration of pollutants [15] was not high enough to exceed safe drinking water standards in most of the homes, the EPA found (in five homes, filtering systems were installed to address concerns). Moreover, none of the contaminants 2013 except methane -- pointed clearly to drilling. The EPA ended its investigation [16] that July.

Critics pointed to the Dimock investigation as a classic example of the EPA being overly aggressive on fracking and then being proven wrong.

Yet, as in Pavillion, the agency concluded its inquiry without following through on the essential question of whether Dimock residents face an ongoing risk from too much methane, which is not considered unsafe to drink, but can produce fumes that lead to explosions.

The EPA also never addressed whether drilling 2013 and perhaps the pressure of fracking 2013 had contributed to moving methane up through cracks in the earth into their water wells.

As drilling has resumed in Dimock, so have reports of ongoing methane leaks [17]. On June 24, the National Academy of Sciences published a report [18] by Duke University researchers that underscored a link between the methane contamination in water in Dimock and across the Marcellus shale, and the gas wells being drilled deep below.

The gas industry maintains that methane is naturally occurring [19] and, according to a response issued by the industry group Energy In Depth after the release of the Duke research, "there's still no evidence of hydraulic fracturing fluids migrating from depth to contaminate aquifers."

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In opening an inquiry in Parker County, Texas, in late 2010, the EPA examined a question similar to the one it faced in Dimock: Was a driller responsible for methane gas bubbling up in residents' water wells?

This time, though, tests conducted by a geologist hired by the agency appeared to confirm that the methane in the wells had resulted from drilling, rather than occurring naturally.

"The methane that was coming out of that well 2026 was about as close a match as you are going to find," said the consultant, Geoffrey Thyne, a geochemist and expert in unconventional oil and gas who has been a member of both the EPA's Science Advisory Board for hydraulic fracturing, and a National Research Council committee to examine coalbed methane development.

The EPA issued an "imminent and substantial endangerment order" [20] forcing

Range Resources, the company it suspected of being responsible, to take immediate action to address the contamination.

But once again, the EPA's actions ignited an explosive response from the oil and gas industry, and a sharp rebuke from Texas state officials, who insisted that their own data and analysis proved Range had done no harm.

According to the environmental news site Energy Wire [21], Ed Rendell, the former Governor of Pennsylvania, whose law firm lobbies on behalf of energy companies, also took up Range's case with then-EPA Administrator Lisa Jackson.

Internal EPA emails used in the EnergyWire report and also obtained by ProPublica discuss Rendell's meeting with then-EPA Administrator Lisa Jackson, though Range has denied it employed Rendell to argue on its behalf. Neither the EPA nor Rendell responded to a request for comment on the Parker County case.

In March 2012, the EPA dropped its case against Range without explanation. Its administrator in Texas at the time had been assailed for making comments that seemed to show an anti-industry bias. He subsequently lost his job. An Associated Press investigation found that the EPA abandoned its inquiry after Range threatened not to cooperate with the EPA on its other drilling-related research.

Agency critics see a lack of will, rather than a lack of evidence, in the EPA's approach in Parker County and elsewhere.

"It would be one thing if these were isolated incidents," said Alan Septoff, communications director for Earthworks, an environmental group opposed to fracking. "But every time the EPA has come up with something damning, somehow, something magically has occurred to have them walk it back."

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So where does this leave the EPA's remaining research into the effects of fracking?

The agency has joined with the Department of Energy, U.S. Geological Survey and the Department of Interior to study the environmental risks of developing unconventional fuels such as shale gas, but those involved in the collaboration say that little has happened.

That leaves the EPA's highly anticipated national study on hydraulic fracturing [22].

When the EPA announced it was ending its research in Pavillion, it pointed to this study as a "major research program."

"The agency will look to the results of this program as the basis for its scientific conclusions and recommendations on hydraulic fracturing," it said in a statement issued in partnership with Wyoming Gov. Matt Mead.

That national study will concentrate on five case studies [23] in Pennsylvania,

Texas, North Dakota and Colorado.

It will not, however, focus on Pavillion or Parker County or Dimock.

Nor will it devote much attention to places like Sublette County, Wy., where state and federal agencies have found both aquifer contamination and that drilling has caused dangerous levels of emissions and ozone pollution.

It will be a long time before the EPA's national study can inform the debate over fracking. While the agency has promised a draft by late 2014, it warned last month that no one should expect to read the final version before sometime in 2016, the last full year of President Obama's term.

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