

High Country News

For people who care
about the West

Gas industry secrets and a nurse's story

by Eric Frankowski, July 28, 2008

http://www.hcn.org/wotr/gas-industry-secrets-and-a-nurses-story/print_view

This July, an emergency room nurse named Cathy Behr wanted to tell Colorado's Oil and Gas Conservation Commission the story of how she nearly died after being exposed to a mystery chemical from a gas-patch accident.

Regulators said she wasn't scheduled to testify and they didn't want to hear it. But anyone concerned about natural gas development should listen.

Behr, who works in southern Colorado, at Durango's Mercy Regional Medical Center, fell ill last April after being exposed for 10 minutes to a gas-field worker who had come into the ER, his clothes damp and reeking. He'd come into contact with one of the "secret formulas" drillers use to hydraulically fracture oil- and gas-bearing formations.

Within minutes of inhaling the nauseating fumes coming off the worker, Behr lost her sense of smell. (She later told her story to the Durango Herald, a daily paper that has done excellent reporting on the incident: durangoherald.com.) The ER was locked down and the room ventilated by firefighters. But when Behr went home after her 12-hour shift, she still couldn't smell anything. Then the headache she'd developed got worse. A week later, her liver, heart and lungs began to shut down. She spent 30 hours in intensive care.

Although the company that makes the frac'ing fluid provided Behr's doctors with what it calls "Material Data Safety Sheets" at the time of the incident, it refused to provide more specific information to the hospital once she fell ill, according to the Herald. Her intensive-care doctor had to guess what to do as he tried to keep her alive.

Among a suite of long-overdue reforms, the state's oil and gas commission is now considering rules that would require the oil and gas industry to tell the public what's in the toxic brew it uses for so-called frac'ing operations. Compounds commonly injected into the ground include benzene, toluene, ethylbenzene, xylene and a fracturing formula called hydrocarbon methanol phosphate ester, which Behr's doctor suspects is what poisoned her.

Small quantities of these chemicals have the potential to contaminate entire aquifers. Drillers can pump upward of 100,000 gallons of this frac juice -- per well -- into the ground.

These chemicals were exempted from the federal Safe Water Drinking Act as part of the 2005 energy bill, despite their toxicity and potential for release into groundwater. Thanks to intense lobbying from the oil and gas lobby, companies aren't required to tell anyone what they inject, in what concentrations, or how much of it they pump into the ground.

Halliburton has said that having to identify its frac'ing ingredients would mean giving away trade secrets, much like requiring Coca-Cola to reveal its secret for Coke. Here's a thought: Coke does tell consumers what's in every can of its soft drinks, even if it doesn't reveal the exact recipe. And last time I checked, spilling some on your lap won't bring on heart, liver and respiratory failure.

It would be bad enough if Behr's story were the only one. It's not.

Earlier this year, an outfitter who drank from a contaminated spring behind his cabin near the drilling-besieged Roan Plateau fell ill and needed medical help. His diagnosis: benzene exposure.

The oil and gas commission did get to hear about that incident. When asked about the effects of ingesting benzene, however, a toxicologist for the industry group, the Colorado Oil and Gas Association, told commissioners that some level of "acute health effect," as long as it was reversible, would be acceptable. According to a draft transcript of the hearing, the expert said unless it causes cancer, benzene could be considered simply a nuisance, like dust from construction.

"It may make me cough every once in a while, and two days later I'm better," he said. "Is that a significant health effect or is that a nuisance effect?"

The commission's staff has proposed a new rule that would require companies to tell the state what chemicals it injects into the ground to drill a well. La Plata County, where Cathy Behr got sick, supports that change and wants stronger protections for gas field workers as well. County Commissioner Wally White also worries about the future: "In 10, 15, 20 years, will we have a Love Canal Here... will these environmental things come back to bite us? Nobody knows."

Meanwhile, Behr has mostly recovered, though she has trouble breathing at high altitude. The fate of the worker doused with the frac'ing product -- later revealed to be something called "ZetaFlow" -- was only recently revealed. His name is Clinton Marshall, and he says he suffered no ill effects from the frac'ing spill and wanted the Durango Herald to hear his side of the story. Marshall also said that though his employer fired him after the accident, he has a new job with the gas industry in Farmington, N.M.

Eric Frankowski is a contributor to Writers on the Range, a service of High Country News (hcn.org). A former reporter for the Longmont Times-Call, he is now a media consultant in Boulder, Colorado. © High Country News



Robert Nickelsberg / Getty Images

Pumped: Workers release carbon-dioxide vapor after 'fracking' a natural-gas well in eastern New Mexico

A Toxic Spew?

Officials worry about impact of 'fracking' of oil and gas.

By [Jim Moscou](#) | Newsweek Web Exclusive
from: <http://www.newsweek.com/id/154394>
Aug 20, 2008 | Updated: 5:26 p.m. ET Aug 20, 2008

[Cathy Behr](#) says she won't forget the smell that nearly killed her. An emergency-room nurse in Durango, Colo.'s Mercy Regional Medical Center, Behr was working the April 17 day shift when [Clinton Marshall](#) arrived complaining of nausea and headaches. An employee at an energy-services company, Weatherford International, Marshall, according to Behr, said that he was caught in a "[fracturing-fluid](#)" spill. [Fracturing chemicals are routinely used on oil and gas wells where they are pumped deep into the ground to crack rock seams and increase production.] The chemical stench

coming off Marshall's boots was buckling, says Behr. Mercy officials took no chances. They evacuated and locked down the ER, and its staff was instructed to don protective masks and gowns. But by the time those precautions were enacted, Behr had been nursing Marshall for 10 minutes-- unprotected. "I honestly thought the response was a little overkill, but good practice," says Behr, 54, a 20-year veteran at Mercy.

A few days later, Behr's skin turned yellow. She began vomiting and retaining fluid. Her husband rushed her to Mercy where Behr was admitted to the ICU with a swollen liver, erratic blood counts and lungs filling with fluid. "I couldn't breath," she recalls. "I was drowning from the inside out." The diagnosis: chemical poisoning. The makers of the suspected chemical, Weatherford, tell NEWSWEEK that they aren't sure if their brand of fracking fluid can be blamed for her illness.

Throughout the Rocky Mountain states, Behr's run-in with fracturing fluid is getting a lot of attention and exacerbating already frayed nerves. After nearly eight years of some of the most intense oil and gas development ever recorded in the American West, concerns over the environmental and health impacts are bubbling over. On Tuesday, [Colorado's](#) top oil and gas regulatory authority—the [Colorado Oil and Gas Conservation Commission](#) (COGCC)—endorsed a sweeping set of rules that environmentalists call long overdue; industry warns of dire economic impacts.

And the stakes are getting higher. Last week, against public protests by much of the state's congressional leadership and governor, the federal Bureau of Land Management sold off drilling leases in a wilderness area called one of the region's most pristine ecosystems and which is home to enough natural gas to power Colorado for 34 years. "It's just huge," says Gwen Lachelt, executive director of the Oil and Gas Accountability Project (OGAP), a nonprofit regional watchdog group, of the recent oil and gas plays in the state. "All eyes are on Colorado right now."

These have been boom years for the West. From New Mexico to Montana, more than 33,000 new oil and gas wells have been approved since 2001. Last year, nearly 90 percent of onshore federal drilling permits were issued in the Rockies. In the heart of the rush is Colorado. A 2007 survey from the Fraser Institute, an energy think tank, put the state as the No. 1 global spot to explore and develop oil and gas.

Central to that development is the use of fracking fluids. Largely unregulated, they've been employed by the energy industry for decades and, with the exception of diesel, can be made up of nearly any set of chemicals. Also, propriety trade laws don't require energy companies to disclose their ingredients. "It is much like asking Coca-Cola to disclose the formula of Coke," says Ron Heyden, a Halliburton executive, in recent testimony before the COGCC. Despite its widespread use and somewhat mysterious mix, fracturing fluid was deemed in 2004 by the Environmental Protection Agency as safe for the environment and groundwater. Dave Dillon, the COGCC's top engineering manager, says nearly every one of Colorado's 35,600 wells are "fracked" and that a minimum of 100,000 gallons are used per well, resulting in millions of gallons pumped into the ground each year. And since it's typically pumped far below groundwater tables, Congress exempted fracking fluids from the Safe Drinking Water Act in 2005. The chemical that was allegedly on Marshall when he arrived at the Mercy Regional Medical Center, was ZetaFlow, a chemical made by Weatherford. In a copy of its Material Safety Data Sheet—which details ingredients, health warnings, fire hazards and more—ZetaFlow contains methanol and two undisclosed "proprietary" compounds. The document also

warned that ZetaFlow can be an "immediate" and "chronic" health hazard. Prolonged exposure can cause kidney and liver damage, irritate lung tissue, decrease blood pressure, and result in dizziness and vomiting—all symptoms Behr experienced according to her medical records. Her physician wrote that her symptoms were "entirely consistent with exposure [to ZetaFlow] from all the information we were able to gather." As for ZetaFlow's impact on the environment, according to its data sheet, "no product information is available."

Marshall, a 31-year-old Aztec, N.M., resident, spoke with the Durango Herald last month and says he doubts that ZetaFlow sickened Behr. "I'm not saying that nothing did happen to her," he told the newspaper. "I'm just saying ... I didn't have any of it on me. I did not take any chemical into that hospital." The Durango Fire and Rescue Authority did however confirm that they were called to aerate the ER. NEWSWEEK was unable to reach Marshall for comment.

Weatherford spokesperson Christine McGee says the company has had no issues with ZetaFlow in its three years of use. "It's very unfortunate [Cathy Behr] was ill," McGee says. "But I think at this point I can't make a statement about the link to her being ill. I don't think anybody is sure right now.

What is clear is that 130 gallons of concentrated Zetaflow was released, says BP, which operates the well where the spill occurred. The international oil and gas giant has used Zetaflow at other drill sites, but NEWSWEEK has learned that the company is suspending its use. BP spokesman Daren Beaudou says it's trying "better understand this product." He added: "We leave it to [Weatherford] to adhere to the regulatory standards." Also, this month La Plata County commissioners, home to Durango, are considering a new regulation that would require oil and gas companies to reveal fracking fluid chemicals to emergency-room workers if someone is exposed. "It's a public-health issue for us. We don't know what the chemicals are and what can happen," says Wally White, county commissioner for La Plata County. A similar rule requiring companies to keep an inventory of chemicals at well sites was endorsed by the COGCC this week. A final vote is expected in September.

How often workers and communities are exposed to fracturing fluids, and the chemicals in them, is unknown. One study by Lachelt's OGAP reported Colorado had about 1,500 reported spills of various types, including fracturing fluids, in five years. Nearly 800 spills were identified in New Mexico. But, as the Behr case demonstrates, some fracturing fluid spills and worker contamination may be falling through regulatory cracks. While numerous government guidelines require contaminate spills and worker injuries be reported, NEWSWEEK has learned that not a single incident report was filed with any government agency by Weatherford or BP documenting the April 17 spill, nor may either company have been required to do so. The federal Occupational Safety and Health Administration, the Environmental Protection Agency and the state's COGCC all tell NEWSWEEK that the incident falls outside their regulatory jurisdiction, or was not significant enough to trigger reporting requirements. Moreover, Marshall was contaminated on a well site located on the Southern Ute Indian Reservation, putting federal, state and local oversight further out of reach. (The Southern Ute authorities say they were never notified of the spill either.) The Colorado offices of the EPA and OSHA did launch investigations this month.

For state health officials, the chemical exemptions, regulatory loopholes and missing data are a concerning mix. "We are just working in the dark," says Dr. Martha Rudolph, director of environmental programs for the Colorado Department of Public Health and Environment. "We don't

know the impact on the potential health on humans might be. We need to." La Plata Commissioner White is more succinct: "I think this is a travesty," he says. "Somebody has dropped the ball."

Meanwhile, Behr returned to work at Mercy Hospital only last month. State and federal regulators, hospital officials and Behr have yet to learn what chemicals made her so ill. She says she worries about the long-term effects of her exposure, but harbors no ill-feelings toward the industry, noting the jobs and economic benefit it has brought to her area. "I always thought that the industry probably took chances," she says. "But I always thought someone was watching them. I really did think that."

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Frack and Ruin

Nasty chemicals used in oil and gas drilling go largely unregulated

Posted at 10:42 AM on 21 Aug 2008

Toxic chemicals pumped underground to break up seams of rock and increase oil and gas production have a fun nickname: fracking fluids, short for fracturing. (Go on, say it: frack!) But the fun stops there. Fracking fluids go largely unregulated, despite millions of gallons of use and hundreds of reported spills each year. Thanks to proprietary trade laws, energy companies don't have to disclose the ingredients of the chemical mix they pump into the earth, but the U.S. EPA nonetheless says fracking fluids are safe for the environment and groundwater. In a recent incident in Colorado, emergency-room worker Cathy Behr was diagnosed with chemical poisoning after treating a man who had been caught in a fracking-fluid spill that was never officially reported. "I always thought that the industry probably took chances," says Behr. "But I always thought someone was watching them." Colorado issued its first regulations for fracking fluid this week, applauded by environmentalists and opposed by industry.

source: [Newsweek](#)

Frack & Ruin

I am in the Evil Oil & Gas Business as a oil & gas operator, investor, and royalty owner with producing oil & gas wells on the family properties.

I worked for Halliburton Service Company in the 1970 during the summer months while going to college and one summer worked in the FRAC Department of that company.

The procedure to drill a oil & gas well under the Texas State Railroad Commission (State Department that regulates the oil & gas business)is that the operator must protect the water bearing strata (in south texas) down to 3,000' (Feet) with 7" cemented casing . Most water bearing aquifers in south texas are above 1,000'.

Most fracs jobs on gas sands in south texas are usually done on sand formation starting at 12,000' to 25,000'. It consists of maybe a million pounds of sand along with 100,000 barrels of mixed water & gel to move the sand into the tight gas sands to open up the porosity to increase the flow of natural gas up the wellhead.

Have a nice day!

by [goesouth150](#) at [12:33 PM on 21 Aug 2008](#)

hydrofracking by NYC's water supply

If it's safe, then why all the secrecy?? See below

Colorado regulators start debating new oil, gas rules

Judith Kohler

The Associated Press

Aspen, CO Colorado

8/20/2008 7:25:09 AM

<http://www.aspentimes.com/article/20080820/NEWS/114059/>

DENVER — Rules being debated by Colorado regulators would require oil and gas companies to list the chemicals they use at well sites and stay out of buffer zones around drinking water supplies.

The Colorado Oil and Gas Conservation Commission on Tuesday began deliberating a comprehensive update of state regulations in the face of record energy development. Commissioners were scheduled to continue considering the new rules Wednesday.

Final votes and discussions on ways to minimize the effects of energy development on wildlife are set for more meetings Sept. 9-11.

More than 100 pages of proposed rules would implement laws passed last year to give more weight to concerns about the environment, wildlife and public health and safety when approving oil and gas development.

Proponents say updated regulations are long overdue, considering the rate of drilling, which is mostly for natural gas. Colorado issued a record 6,368 drilling permits last year — six times the 1999 total — and at least 7,000 permits likely will be approved this year.

Environmentalists and some elected officials have argued for tougher protections.

"But we feel the staff is doing a pretty good job considering what has to be covered," said Bruce Baizel, staff attorney for the Durango-based Oil and Gas Accountability Project.

Industry representatives have argued the state is rushing through sweeping changes that could undermine an industry that generates billions of dollars in economic benefits and thousands of jobs for Colorado. The Colorado Oil and Gas Association, a trade group, has criticized the process, saying draft rules should have been released before, not after, work sessions were held on technical issues.

Meg Collins, the trade group's president, said the commission hasn't discussed alternative proposals submitted by several companies.

"We were hopeful that the COGCC commissioners would focus on the mounds of scientific data, balanced motions and carefully crafted alternatives pending before them. However, that didn't happen, which should infuriate the people of Colorado," Collins said in a written statement Tuesday.

Using straw votes, the commissioners endorsed provisions requiring companies to keep an inventory of chemicals used at well sites and to stay out of a 300-foot buffer zone around drinking water supplies unless they obtain exemptions.

Companies would have to keep on hand an inventory of chemicals in volumes of more than 500 pounds. Some of that information is on safety sheets at well sites, but companies consider the mixtures of chemicals they use to be trade secrets.

Cathy Behr, an emergency room nurse, has said she became ill last spring after taking care of a gas-field worker who went to a Durango hospital after being exposed to chemicals. She said her primary care doctor has been told he can have information on the materials in the drilling fluids, but must agree to keep it confidential.

The commission also tentatively approved a 300-foot buffer zone around community water supplies. The staff originally recommended a 500-foot buffer zone, which some communities preferred.

The oil and gas commission staff unveiled the preliminary proposals in January during five public meetings across the state. Representatives from the oil and gas industry, environmental groups, local governments and state agencies attended dozens of meetings on specific issues in February and the draft rules were released in March.

What the frac' is in those fluids

[Marty Durlin](#) | Aug 08, 2008 06:00 PM

From: <http://www.hcn.org/blogs/goat/what-the-frac-is-in-those-fluids>

In the gas industry's "frac'ing" process, approximately a million gallons of fluid, under extremely high pressure, is injected underground, and, with explosives, creates fractures in the strata, freeing natural gas from its underground chambers.

Manufacturers of frac'ing fluids are allowed to keep their formulas proprietary, but they are required by the Occupational Safety and Health Administration to supply a Material Safety Data Sheet (MSDS) for each product. The MSDS doesn't disclose the precise composition, but is designed to inform those who handle, ship, and use the product about its physical and chemical characteristics. The sheets are also designed to inform emergency response crews in case of accidents or spills.

In April, a gas worker, Clinton Marshall, was exposed to a frac'ing fluid called ZetaFlow manufactured by Houston-based Weatherford [Fracturing Technologies](#) (a global oil and gas services company that posted \$1 billion profits on \$7.8 billion in revenue in 2007). The spill occurred near a BP well on Southern Ute land in southwestern Colorado. Marshall went to Mercy Regional Medical Center in Durango for treatment. He was wearing a protective suit when the spill occurred, but took it off before entering the medical center. His emergency room nurse, Cathy Behr, donned gloves and a mask and removed his boots, which were damp with fluid, "in a very hot shower room." Marshall took a shower for 20 minutes -- standard procedure, says Behr, for chemical exposure.

Another nurse read the five-page MSDS Marshall had brought with him, and determined that everyone treating him should be wearing protective gear.

By then Behr had a headache. Two days later she felt worse, and then she felt much worse. It was a slow progression, she says, but her organs began shutting down, including liver, lungs, kidney and heart. She was admitted to ICU, where doctors finally traced her problems to the chemical exposure and treated her with steroids, diuretics and mechanical ventilation.

Five days later she was released, but says she is still not well, and gets dizzy and short of breath when she tries to hike or fish -- activities she once enjoyed.

On the advice of a physician, Behr asked to testify at the Colorado Gas and Oil Conservation Commission's public hearing in Denver in June, but was refused because she had not signed up in advance. That's when she went to the press with her story.

"I'm not an enemy of the oil and gas industry," says Behr. "But I think there are way too many flaws in the system and too little knowledge. I had no idea the stuff is this toxic -- no one here did. The Public Health Department should be aware of what's out there on these drill sites."

[The Endocrine Disruption Exchange](#) (TEDX) has done a lot of work to expose what's in frac'ing fluids, and what the chemicals can do to humans and wildlife, either in compound form or by themselves. Using the information available in the MSDSs, TEDX has categorized the chemicals by their effects.

Analyzing 608 products with at least 457 chemicals, TEDX determined that more than 90 percent of the products have one or more adverse health effects. Of these, 17% have one to three possible health effects, and 83% have between four and fourteen possible health effects. The four categories with the highest exposure risk are (1) eyes, skin, and sensory organs; (2) respiratory system; (3) gastrointestinal tract and liver; and (4) the brain and nervous system.

The [Colorado Oil and Gas Conservation Commission](#) will meet August 19-20 at the Brown Palace Hotel in Denver for a rule-making session. Among the rules they will consider is number 205, requiring gas companies to keep an inventory for each location that identifies the volume and concentration of each chemical used, how it was used, and when and where it was used. The rule also requires the companies to keep the information on file for five years and make it available within three business days if requested by the commission.

Many wonder if this is a strong enough stand by the nine-member panel, which voted 5-4 not to hear Behr's testimony.

For more information, see the HCN's [Writers on the Range](#) piece by Eric Frankowski and the [Durango Herald's](#) series of stories.

http://thepanelist.com/Opinions/Opinions/What_Weatherford_and_the_Oil_and_Gas_Industry_Isn%92t_Telling_Us_200808041125/

What Weatherford and the Oil and Gas Industry Isn't Telling Us

Written by Jeanne Roberts

Monday, 04 August 2008

Colorado's Oil and Gas Conservation Commission didn't want to hear from her, but Nurse Cathy Behr, who works at the Mercy Regional Medical Center in Durango, Colorado, had her day in court anyway.



Photo: [plr](#), Creative Commons, Flickr

Behr spoke out because on April 17, a 150-gallon spill at a [BP gas well \(BP - \\$61.20\)](#) on Southern Ute tribal land brought in field worker Clinton Marshall, who reportedly reeked of chemical contamination. The well in question was Unit AF No. 1 well, which lies west of the Los Pinos River approximately 1.5 miles south of Bayfield. The well was being operated by Weatherford International Ltd. ([WFT - \\$38.34](#)), a gas and oil recovery firm.

Behr treated the man who had been exposed for a mere 10 minutes to a compound Weatherford later identified as ZetaFlow, used in gas well fracturing operations. Fracturing, or frac'ing a well involves injecting fluids under high pressure into a well bore to crack the rock and make the gas flow.

Shortly after treating Marshall, Behr herself fell ill. Within a matter of days, her heart, liver and lungs began to fail, and she spent 30 hours in intensive care with doctors trying simultaneously to keep her alive and identify the source of the poisoning.

Weatherford argues that they provided Material Safety Data Sheets, or MSDSs, when Marshall was admitted. The emergency room doctors [deny this](#). In any case, the MSDS sheet does not reveal all of the ingredients of ZetaFlow because the formula is proprietary; that is, protected as a trade secret. The

MSDS does show methanol and a proprietary phosphate ester, which make up less than 53 percent of the formulation.

Behr recovered, as did Marshall, though he was apparently fired and is now working in Farmington, New Mexico. Marshall likely lost his job because, in spite of reports to the contrary, Weatherford did not report the spill in a timely fashion and did not cooperate with hospital staff. Marshall, on the other hand, apparently said too much while being treated, though he later reversed his statement by insisting he had [removed](#) all of his contaminated clothing before entering the ER. Behr contradicts this, saying she removed Marshall's boots, which were soaked. Other ER staff also noticed the potent odor emanating from Marshall.

Fracturing fluids commonly contain such ingredients as benzene, toluene, ethylbenzene, xylene, and hydrocarbon methanol phosphate ester. As a result of gas and oil industry lobbying, fracturing fluids are exempt from the Energy Policy Act of 2005's Safe Water Drinking Act section, even though drillers have been known to pump several hundred thousand gallons of these fluids into each well. Leakage into aquifers is a constant concern.

Since the Colorado Oil and Gas Conservation Commission doesn't have any jurisdiction over tribal lands, the [U.S. Environmental Protection Agency](#) (EPA) has stepped in and promised to investigate the spill. However, the EPA is likely to be as ineffective, as usual, since the law depends on companies self-reporting and the documentation in this case is incomplete. Cheryl Turcotte, enforcement coordinator for the EPA's Community Right to Know program, added that – if ZetaFlow's ingredients are indeed a legitimate trade secret – the EPA and the public may never know the source of Behr's illness, which ER doctors ascribed to benzene poisoning.

The Energy Policy Act of 2005 was pushed through by Republicans and a Bush administration eager to deepen the already full pockets of the energy industry. In exchange, the act offered a few sops to consumer and environmental initiatives, many of which have since died an unnatural death. A new administration must revoke or rewrite this act to reflect a world in which fossil-fuel energy has grown prohibitively expensive and – more importantly – detrimental to the health of everything that lives on earth.

Disclosure: I don't own BP or Weatherford stock.

Gas worker: Chemical not to blame

Man doubts substance sickened Mercy nurse; Behr stands by story

July 23, 2008 The Durango Herald

By Chuck Slothower | Herald Staff Writer

From: http://www.durangoherald.com/asp-bin/article_generation.asp?article_type=news&article_path

A natural-gas industry worker who was admitted to Mercy Regional Medical Center after being exposed to an industrial chemical said Tuesday that he does not believe the chemical could have made a nurse there ill.

Clinton Marshall was a field worker for Weatherford, an international oil-field service company with several Farmington divisions. Marshall said he was part of a crew transporting chemicals to a gas-drilling site east of Durango in April when a tote carrying about 300 gallons of ZetaFlow broke.

A valve on the tote popped off, and about half the chemical came spilling out, Marshall said. Most of the chemical was captured by a spill container similar to an inflatable children's swimming pool.

Marshall said he was wearing full protective equipment, including a chemical-protective suit, boots, thick rubber gloves, a helmet with a face shield and goggles.

"We got out of the way because we didn't want to get the chemical on us," Marshall said.

A supervisor stuck his finger in the tote to stem the spill, and then Marshall and co-workers fashioned a plug from rags.

With the emergency over, Marshall decided to seek medical attention. "I thought, 'Well, I'm feeling a little bit nauseous, so I might as well get checked out,'" he recalled Tuesday.

The supervisor did not seek medical attention, Marshall added.

Marshall went to Mercy Regional Medical Center, where he was treated by nurse Cathy Behr and other Mercy staff.

Behr said last week that she became gravely ill after treating a gas-field worker in April. She did not identify the worker last week, citing medical privacy concerns.

Marshall contacted *The Durango Herald* on Tuesday to tell his side of the story, saying he wanted to defend the gas industry against unfair charges.

Nurse's illness raised questions

Behr's account last week raised concerns about ZetaFlow, a chemical used in hydraulic fracturing, or fracing, to bring gas to the surface. Critics argued that gas companies should be required to list what the chemical contains, so they can understand any potential danger. Little is known about ZetaFlow.

Colorado Oil and Gas Conservation Commission staff members have proposed wide-ranging rules that would require companies to detail which chemicals they use to drill and complete a well. The industry has opposed the rules.

Behr attempted to testify before the commission last week, but commissioners voted 5-4 not to allow her to speak after an attorney argued that the industry had not had adequate time to prepare a rebuttal.

Attention has since focused on ZetaFlow.

Marshall, a 31-year-old Aztec resident, said he strongly doubted that ZetaFlow sickened Behr.

"I'm not saying that nothing did happen to her," he said. "I'm just saying ... I didn't have any of it on me. I did not take any chemical into that hospital."

Marshall said he removed all his protective clothing before entering the hospital.

Behr previously said that she removed the patient's clothing and damp boots, double-bagging the footwear. Marshall acknowledged Tuesday that he wore his boots into the hospital, but said they were covered by his protective suit. A hot-water chemical wash he used may have dampened his boots, Marshall said.

ZetaFlow packs a strong and unpleasant smell, and it can make people nauseous, Marshall said. But the gas-field worker said it did not make him sick, and he doubts it made Behr ill.

Marshall said he was thoroughly tested at Mercy, both in his initial visit and a follow-up visit days later. Nothing turned up.

"I've never felt any ill effects from this," he said.

Worker fired after incident

Marshall said he was fired from his \$18-an-hour Weatherford job after the incident, but had no ax to grind. He is now employed by Key Energy Pressure Pumping Services of Farmington.

BP, a major gas driller in La Plata County, hired Weatherford to conduct fracing on the field, Marshall said. Weatherford officials could not be reached for comment late Tuesday.

Marshall was unable to give an address for the field where the incident occurred, but he said it was about 10 miles east of the hospital. The spill occurred April 17.

Behr said Tuesday she still believed ZetaFlow was to blame for her extensive injuries. Mercy doctors determined the diagnosis after thorough study, she said.

"Three physicians told me that what made me sick was the chemical exposure," she said.

They were aided by Marshall's supervisor, who, Behr said, provided some information about the chemical.

"I can tell you that's the MSDS sheet that his supervisor handed to us," Behr said, mentioning the chemical-safety data for ZetaFlow. "So if he wasn't exposed to that chemical, it sure would have been nice to get the MSDS sheet from the chemical he was exposed to."

Mercy nurses were concerned enough to call a Code Orange, which locks down the emergency room and brings in the fire department's hazardous-materials crew.

Behr said she became sick, starting with a headache, soon after treating the worker. She spent more than 30 hours in intensive care and could not breathe on her own.

Behr suffered from acute pulmonary edema, or fluid leaking into her lungs, as well as liver failure, kidney failure and heart problems. She recovered only after treatment with steroids, diuretics and mechanical ventilation.

"I just got sicker, and sicker, and sicker," she said.

[Click here to send an email to the author](#)

What's in that fracking fluid?

Exposure sends nurse to intensive care

July 24, 2008 The River Reporter <http://www.riverreporter.com/issues/08-07-24/news-fracking.html>

[By FRITZ MAYER](#)

RIVER VALLEY — One of the concerns regarding gas wells is the content of the millions of gallons of fracking fluid used as part of the drilling operation. In New York State, it is against Department of Environmental Conservation (DEC) rules to use diesel fuel to help fracture the shale, but there may be many other chemicals that could be harmful to one's health.

Take, for instance, a substance called ZetaFlow. It's a compound produced by a Texas-based company called Weatherford Fracturing Technologies, which is added to the millions of gallons of water that are used, under high pressure, to fracture the deep-lying shale deposit. The Durango Herald in Durango, CO has identified ZetaFlow as the agent that sent a nurse to an intensive care unit for several days in April.

According to an account in that paper and other news sources, a nurse at Durango's Mercy Regional Medical Center came in contact with a gas worker who was allegedly doused with ZetaFlow. The nurse, Cathy Behr, became ill and within five days she said she went into liver, heart and respiratory failure.

According to the article, during this time Weatherford refused to provide information about ZetaFlow to aid in Behr's treatment.

The company did not respond to a phone message from The River Reporter.

Behr has recovered almost entirely, but because of privacy issues, the condition of the male worker who went into the hospital is not known, nor is the site of the contamination.

It is this kind of secrecy that is fueling much of the intense opposition to the prospect of gas well drilling in the region.

In New York, the DEC says it has the authority to find out what is in the fracking fluids. On July 17, DEC deputy commissioner Stuart Gruskin addressed a crowd in the Greene High School Auditorium in Chenango County and said the DEC would get that information. At a meeting with Sullivan County officials earlier in the week, however, Gruskin said the DEC might not be able to reveal the contents of the fluid, as the recipe is considered proprietary.

Judith Enck, NYS Deputy Secretary for the Environment, is now also addressing crowds concerned by gas wells. At the Greene High School meeting, she said that she and her colleagues are examining whether the DEC has enough authority to protect ground and surface water. If it doesn't, the agency will go to the legislature to get the authority, Enck said.

Oil secret has nasty side effect

By Susan Greene Denver Post Columnist

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Oil and gas companies have spent lots of time and money arguing Colorado doesn't need new rules regulating their industry.

What happened to Cathy Behr might convince you otherwise.

Behr is a nurse at Durango's Mercy Regional Medical Center.

A gas-patch worker showed up in her ER in April, soaked in a sweet-smelling fluid after a drilling accident.

Behr removed his boots and helped him shower, breathing in the chemical fumes.

She lost her sense of smell. Her vision blurred. Then came heart, liver and respiratory failures that nearly killed her.

Three doctors diagnosed her with chemical exposure. Trying to figure out how to treat her, one called Weatherford, her patient's oil-field employer, to learn which chemicals it uses to make ZetaFlow, the fluid both were exposed to. The company denied him the information, saying it was a trade secret.

ZetaFlow is one of several formulas companies inject into wells to release gasses. After much lobbying, the so-called frack juices are exempt from environmental laws such as the Safe Drinking Water Act. Congress is investigating possible health risks.

As it happens, Colorado's Oil and Gas Conservation Commission is considering a broad set of new rules, including one that would address scenarios like Behr's. In case of accidents, it would require companies to reveal the ingredients of materials they use.

The industry objects, saying that being forced to reveal proprietary secrets may prompt it to leave Colorado.

"It is much like asking Coca-Cola to disclose the formula of Coke," one Halliburton executive testified.

Weatherford this week had an even more contemptuous way of describing the health effects of its ZetaFlow.

"It's got parameters that you need to work in, that you need to be mindful of when you're using it. That's sort of a given. I mean, if I ate too much chocolate, that could be hazardous to my health, too," said spokeswoman Christine McGee.

Behr — a wife and mother who is back at work and mostly recovered after nearly losing her life in April — had this response to McGee:

"Chocolate, huh? Let's give those boots to her and have her take a couple of deep breaths."

Behr is no opponent of the industry that provides much of her county's tax base. "I don't want to be the canary in the coal mine. I just want to make the system better," she says.

She tried to do just that by asking to tell her story at a recent commission hearing. Industry brass objected, saying she was added to the witness list too late for them to prepare a rebuttal. She was denied her request in a 5-4 decision.

"We were trying to be fair from a due process standpoint," said commission chairman Harris Sherman, Gov. Bill Ritter's natural resources director, who cast the deciding vote. His board aims to decide on the new rules in August.

Meantime, the state is investigating Behr's case, as well as that of the field worker, who told the Durango Herald he did not fall ill.

"I'm angry that here's an industry that would not help someone who suffered a chemical exposure get the care she needed," said Martha Rudolph of the health department.

La Plata County Commissioner Wally White had harsher words for an industry that's making record profits in his county, yet using scare tactics by threatening to leave: "If they don't care about the health of our people, then I'd be happy to see them go."

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