

News-Record photo by Matthew Sinclair

Ed Swartz examines the salt left behind on dead grass on Wildcat Creek that goes through his ranch.

'Don't ruin my ranch'

■ Campbell County rancher worries about the effects of methane water on his land

By LISA GRUBBS
News-Record Writer

Ed Swartz has a message for coal bed methane operators and the state: "Don't ruin my ranch."

He points out dead grass alongside Wildcat Creek — killed, he says, by salty coal bed methane water that is pushed down the creek that streams through nine miles of his land.

"I think the state is allowing my ranch to be ruined and I don't like it," Swartz says as he drives along trails that lead to the creek bed.

The ranch has been in the Swartz family for more than 100 years. Swartz wants to pass it on down the line to his son.

Yet he sees his livelihood being put at risk

as coal bed methane water sits in Wildcat Creek, forming a white powder on the grass and in the creek bed.

Swartz admits that the area usually has some alkali. But he has never seen this much salt on his land.

"That water, if it hits my alfalfa plants, it will kill them," he said. "This county isn't used to this salty water for this long."

Not only is the salty water a problem, reservoirs above the Swartz ranch also hold natural water flow that don't allow the water to come down the creek to Swartz's land.

"They are giving him bad water that he doesn't want and they are storing the good water that he needs," says Kate Fox, Swartz's

attorney.

Swartz fought in court — which ruled in his favor — about 40 years ago for those water rights. He and Fox say the state of Wyoming is ignoring that Supreme Court ruling by allowing the operations to continue.

"Those water rights under long-standing Wyoming law are prior senior rights that should be protected," Fox said.

"Reservoirs everywhere interfere with my water rights," Swartz said. "Without water, this isn't much of a ranch. It takes a lot of acres to run a cow here."

Methane companies have advised him to irrigate with the water in the creek.

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Wildcat Creek methane water

Continued from front page

He kneels down and holds salty ground in his hand near the creek bed. "If this is doing this here, what's it going to do to my alfalfa?" he says.

"We have one big flood ... and all this is ruined," Swartz said.

A recent investigation by the Department of Environmental Quality on the Swartz ranch proved that Swartz was right. The water coming from the coal bed methane wells is more alkaline than normal.

It's a problem some others in the county have noticed. Others have said the coal bed methane water at their ranches is perfect, and a godsend to help them water their livestock and irrigate their crops.

After several letters from Fox, DEQ responded to Swartz's complaints and tested the water.

DEQ's Jack Smith said in-stream water samples and water samples

from methane outfalls were collected several times. Four of 60 pH samples exceeded the standard. Eight of 19 samples exceeded a sodium adsorption ratio of above 10.

Smith said in his report that water that ponds in the Wildcat Creek "most likely undergoes evapo-concentration that results in elevated pH, electrical conductivity, and SAR values."

"What we've done is ask Redstone Resources, who seems to be the primary discharger at this point, to come up with a water management plan," said Gary Beach, director of DEQ's water quality division.

"From (Smith's) analysis, there is some concern that the coal bed methane water may cause an adverse effect to Mr. Swartz's property, particularly if it's not managed," Beach said. "What we're looking for is a plan that would reduce or eliminate

any problems."

Beach said the area normally has a high salinity level, but DEQ is unsure now if the coal bed methane water makes it worse.

Jake Strohmman, a consultant for Redstone Resources, said the company is not violating any water quality permits. The company has submitted several alternatives for the DEQ to review, he said.

"That gives us flexibility depending on what DEQ and the state engineer will allow us to do," Strohmman said. "Until we hear that, we won't really know what we can and can't do."

Options include infiltration and evaporation. Redstone also is researching a water treatment method that could be used.

In its plan, Redstone says it would modify its operation by storing natural water to dilute the coal bed methane

water until it met a SAR of 6. The water then would be sent down the creek.

Swartz feels that is still too high.

According to an article by Roger Muggli, manager and secretary of the Tongue and Yellowstone Irrigation District, in April's Trader's Dispatch, soil productivity generally declines when SAR exceeds 3. Water with an SAR of 12 would kill all of Montana's plants, Muggli said.

Swartz said he is not against coal bed methane production. He just wants operators and the state of Wyoming to develop the resource responsibly.

"Yes, the methane is a good program. The nation needs the gas ... but they just won't develop it responsibly," Swartz said.

"All I'm saying is develop it responsibly. Don't hurt other people doing it, whether it's me or someone else."



News-Record photos by Nikki Fox

Debbie Hepp stands in her yard in Eight Mile Subdivision, where a coal bed methane compressor station sits nearby.

Ranchers upset over methane noise

■ Wyoming has no noise reduction laws; official says regulations a last resort

By **STEPHANIE COOPER**
News-Record Writer

Three years ago, Debbie and Kevin Hepp moved back to the country

"We are definitely country people. We ranch," Debbie Hepp said. "Living in town was supposed to be short-term."

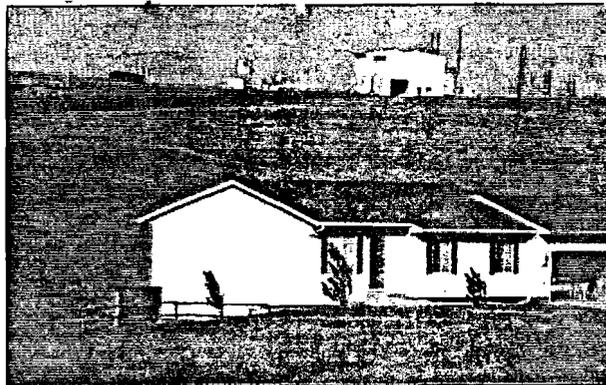
Before buying their 100-acre property at Eight Mile subdivision, Hepp did everything right. She researched the property, plotted it out and asked about electrical lines.

"I'm not an expert by any means. But I did my research," she said

But with the development of coal bed methane on land adjoining hers and the installation of a compressor station next her property, she said she wouldn't have made the move today.

"If that compressor would have been here, we wouldn't even have looked at the property. There is not a place on the acreage you could build without seeing or hearing it," she said

"I had no idea about coal bed methane. I'm sure it was out here but it was like a corporate secret. It hadn't been released to the public yet"



The Hepp's ranch sits just below a compressor station.

For the last eight months, Hepp and her neighbors have been trying to get Bear Paw, the company that installed and runs the compressors, to do something about the noise level.

Wyoming has no noise reduction regulations.

"There aren't any in place," said Don Likwartz, state oil and gas supervisor. "We have had complaints about some compressors

for better than a year. I don't have regulations and neither does the DEQ."

Likwartz is familiar with the noise problems that some Campbell County residents face. "You can't work with the coal bed methane industry without knowing about it," he said.

But there are no laws about noise in Wyoming, he said. Different state agencies have reviewed their rules and regulations and confirmed that none have laws on noise.

"We have all been trying to encourage the companies to try to make modifications to cut down the noise," he said. "We have been encouraging operators and contractors to work with individuals where they can

"Regulations are a last resort. I would hope that we wouldn't have to statutorily regulate every noise problem that is out there."

Frustration with the noise prompted Hepp and a group of neighbors on Tuesday to ask the Campbell County Commission to adopt a voluntary noise reduction resolution

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Noise complaints

Continued from front page

The commission will take two weeks to decide on the resolution and revisit the subject at its next meeting.

While the county could lend its support to any landowners, it can't force methane companies to reduce the noise. Only the Legislature has the authority to make laws about noise and whether it will come up at the next legislative session is anyone's guess.

"I'm sure they are aware of it," Likwartz said. "A number of them have been on coal bed methane tours. I made a presentation to the new legislators earlier this year."

Colorado, which has been producing natural gas for a number of years, solved the noise issue several years ago by passing noise abatement rules, said Brian Mackey, deputy director of the Colorado Oil and Gas Conservation commission.

"Our noise rule is based on a state nuisance statute. We have the authority to regulate oil and gas development in regard to public health, safety and welfare," he said.

Colorado still receives some noise complaints but the law allows them to monitor noise areas and pursue enforcement.

Mackey believes one reason Colorado was quick to develop noise regulations is because it has more people than Wyoming.

"One factor that may be at play here is there is

significantly higher population in Colorado than there is in Wyoming," he said.

Likwartz said he has not talked to other states dealing with industrial situations about noise problems.

"I haven't done that on this particular one. I have looked at areas that are in my authority."

Bear Paw has taken some noise reduction steps in the Eight Mile Subdivision area, including installation of air intakes to cool down the stations so the doors can be closed, installation of hospital grade mufflers and a method of slowing down the blades on the fan to reduce noise.

Hepp wants more to be done.

She has written to Bear Paw officials, the Department of Environmental Quality, the state Oil and Gas Commission, Gov. Jim Geringer and U.S. Sens. Mike Enzi and Craig Thomas.

"I have sent out probably about 10 letters. I've received about two responses," Hepp said.

If the Campbell County Commission chooses not to adopt a noise reduction resolution, Hepp said she and some of her neighbors will be left with a tough decision.

Some might consider litigation, and she is considering selling her property.

"It's what we discussed and I think a couple of others have also," she said. "There is absolutely no way I would stay here 20 years if that is not fixed."

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WEDNESDAY

The News-Record

Vol. 97 No. 186 Wednesday Evening, August 8, 2001

Gillette, Wyoming 82716

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Commission says it can't stop noise

**Commissioners:
Resolution limiting
noise has 'no teeth,'
new law must come
from Legislature**

By **STEPHANIE COOPER**
News-Record Writer

Campbell County commissioners won't sign a resolution aimed at helping resolve conflicts over noise in the coal bed methane industry, saying the resolution would be redundant and would have "no teeth."

"In working through this, the commissioners felt this would be of no value,"

Commission Chairman Alan Weakly said. "These are things that we have been doing all along."

But he also said that commissioners' legal authority is limited.

"It has been pointed out to us time and time again that we have no authority," he said.

The "Support Efforts to Resolve Conflict Mineral Development" would have "no

teeth," said Commissioner Jan Evans.

"We have no one to send this to but the Legislature and they are not meeting right now, so it has no teeth," she said.

"It's a paper Band-Aid on cancer," Commissioner Craig Mader said.

People living in the Eight Mile Subdivision west of Gillette asked commissioners last month to adopt a resolution so that something

could be done about noise from a nearby compressor station.

Mader said that even though the commission didn't sign the resolution, it still will do what it can for the residents.

"I never thought I'd lobby for regulation and legislation," Mader told a small group from the neighborhood.

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No noise resolution

Continued from front page

He also suggested that they approach the Wyoming Oil and Gas Commission.

Mick Rafter, operations manager for Bear Paw Energy LLC, which operates the compressor station for Enron, told both the commissioners and residents that a list of modifications has been completed at the compressor station.

Rafter believes the company has completed all the changes it said it would do.

Eight Mile Subdivision resident Ron Moss said he recognizes some of the efforts Bear Paw has made.

"But again, at 3:30 this morning, my eyes were wide open. There has been some progress and steps have been taken, but it is not the total answer," he said. "Right now it is not a satisfactory answer."

Moss knows a solution can be found. He said other countries, counties and even other local companies have been able to come up with noise reduction solutions.

Weakly assured Moss that the commission is not giving up on finding a solution.

"We are going to continue to work through this situation."

Weakly plans to discuss noise regulation concerns at a five-county coal bed methane coalition meeting in Douglas on Thursday.

He hopes that the coalition will be able to set up a meeting with the Gov. Jim Geringer and the Oil and Gas Commission to explore avenues that are available through the government.

"We will take it to them and start the process right now. Regardless of what the

Vandals drop nails near compressor

By The News-Record staff

A vandal dumped a pile of roofing nails along the road to a coal bed methane compressor site near the Bell and Clark Ellen roads.

Sheriff Byron Oedekoven said it seemed the intent was to flatten tires, but he didn't know if the vandalism was related to noise complaints at the site.

But, he added, it was related to methane and compressors, whether the issue was with noise, traffic, sales negotiations, or a disgruntled employee.

"There's a host of things it could certainly be," he said.

It isn't the first time that a compressor site has been vandalized. This spring, a man disgruntled over the noise one compressor made, shot at it with a rifle.

company does or doesn't do, the citizens have waited long enough."

Rafter did extend an invitation to the commissioners and residents of the Eight Mile Subdivision to tour the compressor station and see what changes have been made.

The News-Record

Vol. 97 No. 95 Sunday Morning, April 22, 2001

SUNDAY

Gillette, Wyoming 82716

\$1.25 (Less by carrier)

■ Ranchers say methane water is ruining their hayfields



News-Record photos by Ryan Soderlin

Bill West walks with his granddaughter, Linzee Adamson, 4, through one of his winter wheat fields. The field has historically had some salt deposits on it but now water pumped from methane wells finds its way down Spotted Horse Creek and leaches under a hill, leaving salt deposits.

Bill West walks with his granddaughter, Linzee Adamson, 4, through one of his winter wheat fields. The field has historically had salt deposits on it but now water pumped from methane wells finds its way down Spotted Horse Creek and leaches under a hill, leaving salt

Water fight

Ranchers don't want the water seeping onto their land, while the methane company says it's trying to be a good neighbor

By LISA GRUBBS
News-Record Writer

Bill West walks through his hay meadow, his boots squishing in the marshy ground.

It's not long before his boots are covered in a white powder.

Spotting a fallen tree, he points out that the soil got too wet this winter and the roots wouldn't hold it up.

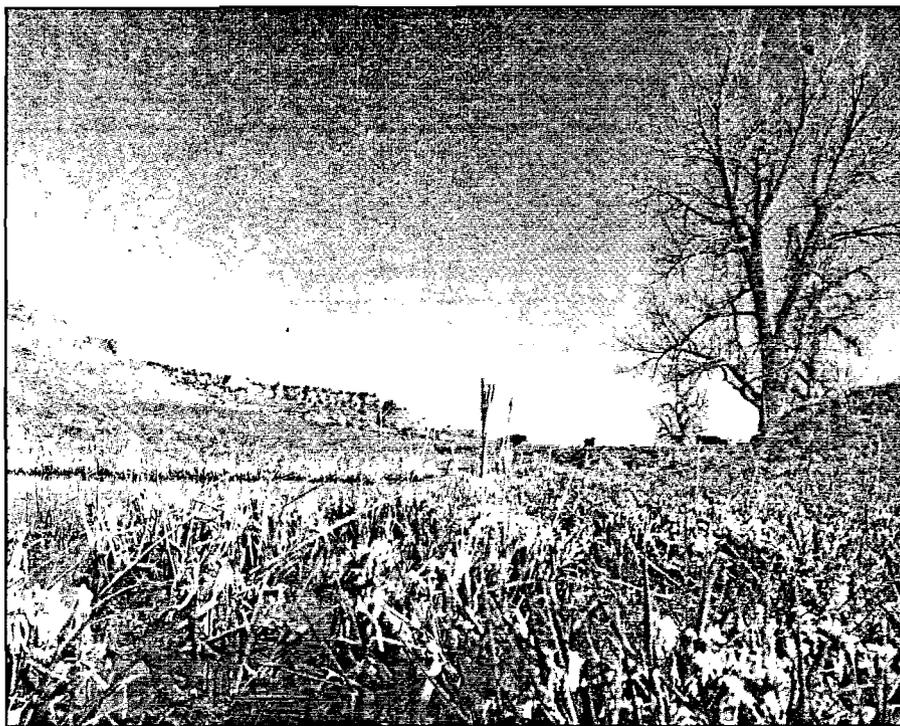
Bill and his wife, Marge, have spent a lot of time in this hay meadow. They are upset it was flooded this winter — a result of nearby coal bed methane drilling. Methane water carrying a high salt content now prevents the grass from growing.

"The sodium adsorption rate is so high nothing will grow. It'll kill anything," Bill said.

The hay meadow flooded during the winter, mostly because of an excess of coal bed methane water from Spotted Horse Creek, which snakes through their land. The water formed a small lake of ice and snow near the West's feedlot. The creek and hay pasture are dry during most winters.

In some of their hayfields not far from the flooded area, there are yards of salt patches. Though they have historically had some small patches of salt, Bill said the sodium has tripled this year because water from the creek has leached under a hill and left deposits of salt on his field.

"They have no right to do this to our land,"



Methane water flows down Spotted Horse Creek, which meanders through Bill and Marge West's land. The water has begun to leave salt deposits on the grasses.

Marge said.

The Wests say that Devon Energy Corp. is responsible.

"If we were to do something to their equipment, we would be in jail so fast we wouldn't know what hit us ... but they are doing this month after month," Marge said.

As some state and county officials urge ranchers and industry to find suitable agreements and though coal bed methane companies say they are eager to be good neighbors, sometimes a viable solution is hard to find — especially when lawyers get involved.

Some complain noise from coal bed methane machines, of dust and increased traffic. And there are those who are completely opposed to the companies that grab the gas that seeps under their land.

Don Likwartz, a coal and Gas Commission member, urges companies to find agreements with landowners to fund the project, even if it means a meeting on middle ground.

"I've been preoccupied for three years to find a solution to and to ranchers," Likwartz said. "You can't expect good neighbors to fight for 20-some years. Both sides need to give a little bit."

The plan

Before any water gas production began near the West, Devon Vice President Vince White said the company approached all of the landowners — including the Wests, who live immediately upstream of the project — with the overall development plan. It included a water management plan.

In Wyoming, White said the most suitable methods to handle water include widening and deepening existing natural streams and installing culverts for natural drainage.

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News-Record photo by f

Bill West helps his wife, Marge, cross a ditch that holds coal bed methane water runoff. The ditch crosses through their hay meadow. This winter, the ditch and seepage froze, leaving the meadow covered in ice.

Ranchers unhappy with methane water

Continued fr

The cost of the total water plan would be more than \$200,000, which Devon agreed to pay for.

The plan included increasing the flow capacity of local streams to handle the water and working with local ranchers to provide for controlled access points to the water for irrigation and other uses.

"Basically, the Wests agreed to our plan, allowed us access and, right before completion, they gave us an agreement that does not allow access," White said.

About five days before completion, Devon got a letter from the Wests' lawyer.

"They ordered us to vacate their land and, at the same time, they wanted us to sign a usage agreement," White said.

The agreement called for a payment to the Wests of \$240,000 a year. Over the life of the wells, that would cost Devon over \$2 million, White said.

The Wests said Devon's water is not wanted on their land.

"They have been notified that their water is considered trespassing," Marge West said.

White said the company agrees that the current standing water on the West property is unnecessary and unwarranted. But they need access to the land, which they have been denied.

"We're basically held hostage by

this agreement."

First on scene

The Wests were not the first to complain about the drainage problems on Spotted Horse Creek. Some neighbors are also worried.

Gary Beach of the Department of Environmental Quality said Devon is under an enforcement order that requires the company to stop discharging the water across the Vaughn Creswell, Cliff Bulky and PG ranches.

"The order ordered Devon to cease discharging their water across those properties and they appealed it to be reviewed," Beach said.

"I think in the interim, Devon has been working with those parties to see if there is some way to resolve the issues."

Other neighbors are relatively happy with Devon's work on the land.

Duane Odegard, who ranches just south of the Wests, said the company has worked with him. It deepened the natural channel on his land so that coal bed methane water wouldn't flood his land.

"We've had a few problems," Odegard said. "Nothing goes perfect all the time. The company has tried to get along with us pretty well."

Devon is now working with the DEQ to make sure it is on track.

"At this point, we have been

involved with communication with the DEQ to make sure we have a responsible water management plan in front of the Wests," said Kathy Hinkle of Devon. "We are waiting for the response."

The Wests say they are not against methane production. They have many wells on their land, and are relatively happy with CMS Energy that has drilled them.

"We're not anti-methane. We just want it to be done responsibly," Marge said.

The couple said they've tried various methods to stem the ill effects of flooding.

They bought gypsum to put over the ground, hoping to add calcium to mitigate the effects of the sodium.

That didn't work, Marge said.

They said irrigating with the extra water was suggested.

"All that's going to do is spread the salt up the hillside," Bill said.

White said Devon has considered re-injection, which it has done at several other well sites. But re-injection is done on a case-by-case basis.

In some places, reinjection doesn't work because there aren't any underground reservoirs.

"There are parts of the Powder River — and we believe this to be true for Spotted Horse — where there's not a suitable formation to re-inject it," White said.

Good neighbors

Once lawyers are hired, relationships between surface owners and methane companies can dwindle.

"It's hard to patch up that relationship once you do that," Likwartz said.

Likwartz said he is aware of the problems the Wests and Devon are having and hopes that they can still reach an agreement.

Most coal bed methane companies want to be a good neighbor. Operators don't really want to force their way onto the land or cause problems for ranchers, Likwartz said.

Both sides say they want the problem fixed.

"We just want Devon to fix the problem they have created," Marge said.

Devon said it will do that.

"Regardless of who is at fault here, we stand ready to go in and remedy the drainage problem," White said. "That's what we wanted to do before the problem started."

White said the Wests are getting a lot of media attention on the flooding, and the company feels the couple is trying to get more money by attracting attention.

"What the media attention does is slow the progress of the players and makes it harder to come up with a reasonable agreement for all the players," White said.



BILL WEST



MARGE WEST

Coalbed methane EIS

BLM says gas wells draining water table

By JASON MARSDEN
Star-Tribune staff writer

CASPER — Extensive coalbed methane drilling in Campbell County has depleted groundwater faster than Bureau of Land Management environmental studies first predicted, according to a BLM study released last week.

The bureau's Environmental Impact Statement (EIS) for the Gillette South Coalbed Methane Project says the 140 existing gas wells in a 685-square-mile analysis area south of Gillette have pumped gas out of the coal seam at more than twice the rate predicted by 1995 environmental assessments.

The EIS, which analyzes proposals to drill up to 400 more wells in a somewhat larger area than was studied in 1995, foresees groundwater being drawn down by five feet or more in an eight-mile zone around the development area (see map).

"Water levels in the coal could be lowered over as much as 800 square miles," the bureau writes, "and water levels (above the coal seam) could be lowered

Please see DRILLING, A10

DRILLING: Impact study suggests that gas companies, land owner work out mitigation plan

Continued from A1
in as much as 200 square miles."

There are more than 300 individual water wells in the EIS study area, the BLM notes, adding that "impacts to wells completed in (those) aquifers could range from a slight lowering of the water level, to completely drying up the well."

"We've been trying to tell them that for a long time," responded Norma Appel, a rancher next to the Marquiss gas project area southwest of Gillette and within the EIS study area. She is the owner of a livestock well in the coalbed aquifer.

Appel is a Powder River Basin Resource Council (PRBRC) member who helped negotiate an agreement between landowners and the gas companies aimed at guaranteeing that the companies will monitor the loss of groundwater.

The agreement says the companies will pay to remedy groundwater depletion, should it occur, but Appel worries the dispute may yet end up in court.

Appel's neighborhood between Gillette and Wright and west of the coal mines, the BLM says, is where the drawdown is at its worst, and is approaching "worst-case scenario" limits predicted in 1988 hydrologic analysis because of the combined influence of the mines and the methane drilling.

The EIS suggests the gas companies and individual landowners work out a mitigation plan — the plan Appel helped negotiate, in large part the same agreement as is proposed for the coalbed methane project area north of Gillette, for which the BLM issued an environmental assessment in December.

But the BLM hasn't yet ironed out how the mitigation agreement will be implemented and enforced, Appel noted.

She also worries the flow of groundwater through the methane wells — which is then to be discharged into surface drainages — will result in Wyoming water escaping the state, since those drainages run into Ne-

braska and into Keyhole Reservoir, the water within which is South Dakota's.

"It looks to me like they're breaking the law letting the water go," she said.

PRBRC Director Jill Morrison says such concerns are why her conservation group urged the bureau to require the companies to reinject the water into shallow aquifers, rather than discharge it at the surface.

The BLM concluded that proposal "might be feasible but would also defeat the purpose of removing water from the coal seam to produce methane" and "would require a system of wells and pipelines that would increase total surface disturbance," according to the EIS.

"Finally," the document adds, "because the produced water is suitable for livestock and wildlife and possibly irrigation, it should be put to beneficial uses."

Morrison speculated that the real reason behind the BLM's reluctance is that reinjection would cost the companies too much, although the EIS

makes no note of such concerns.

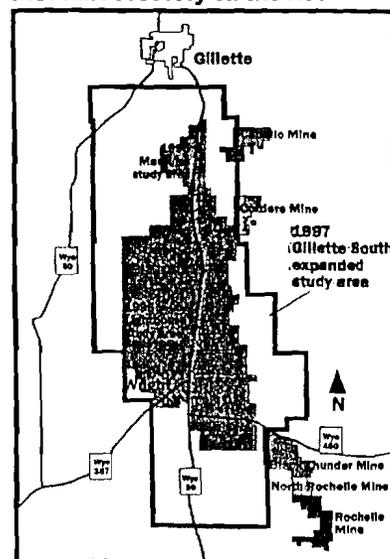
Assuming each well to have 12 years of productive life, and coalbed methane to fetch a "not-unreasonable" \$1 per thousand cubic feet, the BLM predicts the coalbed methane project will account for \$168 million in gas sales by the year 2017.

That would create almost \$10 million in federal mineral royalties, just from the 190 of the 400 wells which are to be sited on federal mineral rights, the EIS states.

However, employment is predicted to be minimal, at least in comparison to the nearby coal mines. The BLM estimates a permanent methane project workforce of 32, "an insignificant impact compared to other energy developers in Campbell County."

The BLM will accept comments on the document until May 1, after which the bureau will decide whether or not to approve the proposed drilling. To comment, you may write Dave Pomerinke at 1425 Fort St., Buffalo, 82834, or call Richard Zander at 1-800-301-3483 for more information.

Methane recovery on the rise



SOURCE: BLM
A. deRoosbeck/Star-Tribune

LOCAL & STATE

The Source

Tainted methane water called 'extreme threat'

'Prudent rules' needed prior to development, NPRC consultant says

By **CLAIR JOHNSON**
Of The Gazette Staff

A Northern Plains Resource Council consultant studying groundwater disposal from coalbed methane development says that unless the water is pumped back into the same coal zones, damage to the ecosystem and coal aquifer would be "extreme

and unacceptable."

The new report by Tom Schneider also called the magnitude of coalbed methane water disposal issues "mind-boggling."

The water issue cannot be ignored, he said. "It is a very real danger to the state, its economy and the ecosystem."

Opportunities outlined

Schneider discussed his findings during a recent seminar on coalbed methane and fuel cells presented by the Center for Business Enterprise at MSU-Billings. The Helena petroleum



engineer consultant served as a member and chairman of the Montana Public Service Commission from 1977 to 1984.

"The state of Montana and federal agencies have a once-in-a-lifetime opportunity and responsibility to establish prudent rules of the game before significant exploration and

development commence in Montana," Schneider said.

The result of an interagency environmental study underway must require that any coalbed methane development be conducted in the right way from the start, he said. Development "must cover its full societal costs. Anything less must be judged uneconomic, unjustified, unacceptable and unlawful," he said.

Booming industry

The coalbed methane industry is booming in Wyoming's Powder River Basin, and the pressure is on for

Montana to develop its portion of the basin and other areas of the state. Developing the clean-burning gas involves drilling a series of wells and pumping out ground water to release pressure that holds the gas in coal seams.

Water from Montana's coalbed methane wells generally is marginal to poor for most uses and is unacceptable for irrigation, Schneider said. The water tends to be high in saline and sodium, which can damage crops.

Development in Montana is on hold

Please see Water, 7B

Water

Continued from 1B

until the state and U.S. Bureau of Land Management finish an Environmental Impact Statement. The agencies are working on a draft environmental review and a final report is expected next year.

One company, Fidelity Exploration and Production Co., a subsidiary of MDU Resources Group, is currently producing methane from about 165 wells in the CX Field near Decker. Fidelity has a temporary permit from the Montana Department of Environmental Quality to discharge its groundwater into the Tongue River.

Meanwhile, NPRC, the Tongue River Water Users Association and Montana Environmental Information Center are suing DEQ over Fidelity's discharge permit.

Huge impact

Schneider said the magnitude of projected coalbed methane development in Montana and Wyoming is staggering.

Development forecasts in Montana's Powder River Basin by industries are for about 9,500 wells in the next 10 years, not including tribal lands. BLM recently issued a development scenario for the environmental analysis that ranges from 14,019 wells to 39,520 wells during the next 10 years.

Schneider said this level of drilling and producing activity poses "unprecedented environmental risks and impacts over a vast geographic area" in southeastern and southcentral Montana.

"The cumulative environmental and socio-economic impacts for roads, drilling sites, treatment facilities, compression, pipelines and gathering lines, electric transmission/distribution lines

and facilities etc. are extraordinary and would radically change the nature of (southeastern and southcentral) Montana," he wrote.

Schneider said the production of substantial quantities of saline water from coalbed methane wells present "extreme environmental threats."

Based on a scenario of 9,550 wells, the amount of groundwater produced would be nearly 2.5 billion barrels of water, Schneider said. A barrel is 42 gallons. Schneider said 2.5 billion barrels of water would cover 503 sections of land with water one foot deep. Using BLM's scenario of 12,475 producing wells, the cumulative amount of water produced would be about 3.1 billion barrels.

Schneider said while discharging groundwater at the surface is the "cheapest and easiest" method for developers, surface discharges do not meet "prudent and reasonable standards of operation" in statutory requirements or Montana's constitutional standard. The state's constitution says citizens have a right to a "clean and healthful environment."

The petroleum industry for years has recognized reinjection as a responsible method for disposing of water, he said.

"Untreated surface water discharge of (coalbed methane) water is not acceptable, prudent or lawful given the significant environmental risks, uncertainties and impacts upon the ecosystem," Schneider said. "Prudent and responsible actions must assure that the overall natural systems balance is substantially preserved for both the surface waters and subsurface aquifers."

Schneider's study said reinjecting the water into the coal seams is the most prudent approach to addressing the risks. Reinjection eliminates damage to surface water, aquatic and wildlife ecosystems, threatened

and endangered species, irrigation water, soil contamination, crops and recreation, he said.

Recycling the water back into the coal seams also mitigates the potential harm to existing coalbed aquifers, Schneider said.

The report said it would be relatively inexpensive to convert marginal gas wells into reinjection wells.

Pluses, minuses

Schneider's report identifies some "cons" along with benefits. Reinjection may be problematic at the beginning of gas production because methane production typically requires a drop in water pressure (by discharging the groundwater) to release the gas, he said.

And industry argues that reinjecting the water into the same formation defeats the purpose, which is to lower water pressure and release the gas.

Schneider said it may be necessary initially to reinject water into deeper formations until wells produce and pressure is reduced. At that point, the water could be pumped back to its original formation. Further, industry is concerned about increased costs to reinject water.

Landowners who rely on coalbed aquifers are concerned that reinjecting water will contaminate the aquifer. Schneider said it is important to recycle unaltered coalbed methane water through a closed-loop system.

Schneider said federal and state agencies must adopt water reinjection and disposal requirements in their final decision on the environmental analysis.

The agencies also "must place the burden squarely on producers" to establish a comprehensive development plan that satisfies requirements for reinjection, evaluate specific plans prior to leasing and development and enforce compliance with reinjection programs.

BILLINGS OUTPOST

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Do coal bed methane drilling right

By THOMAS SCHNEIDER

By now, many Montanans have heard of coal bed methane - a form of natural gas that is held in coal seams by water pressure. Supporters describe CBM as a "clean burning" fuel; a possible answer to Montana's and the nation's supposed energy crisis; a boon to Montana's tax coffers; and an important economic development activity. Montana has plenty of CBM gas, and high natural gas prices provide lots of incentive for developing it.

Motherhood and apple pie? Maybe. Before coal bed methane can be a solution to any of our problems, we need to make sure that we develop methane in such a way that the benefits truly outweigh the significant economic, social and environmental risks, impacts and costs incurred in producing the gas.

As a petroleum engineer, former Public Service Commission member and consultant, I've been involved in energy production and related issues in Montana and surrounding states for more than three decades. I've kept a close eye on methane development.

CBM production involves pumping saline water from coal seams. Producing the saline water reduces the pressure in the coal bed, which allows the methane gas to "break loose" from the coal surfaces and "flow" (along with the water) through fractures in the coal seam to the well. The methane gas then separates from the water inside the well casing and flows to the surface, where it is collected, compressed and sent to market through pipelines. The saline CBM water is pumped to surface and gathered for disposal. Therein lies the rub - "the water problem."

The Bureau of Land Management recently estimated that between 14,000 and 39,000 wells could

be drilled in Montana in the next 10 years. CBM wells dewater at maximum levels at the outset of production and gradually decline. Based on a mid-range estimate of 26,500 CBM wells, the total volume of water produced would be nearly 6 billion oilfield barrels (42 gallons per barrel) of water in Montana. Imagine a wading pool of salty water covering 1,200 square miles one foot deep. That's how much CBM water we're talking about. Furthermore, we should keep in mind that 50,000 to 70,000 CBM wells are forecasted in Wyoming, and most of the Wyoming water discharges flow north to Montana in the Powder, Little Powder and Tongue rivers.

Sound like an answer to the current drought? Think again. In an agricultural region heavily dependent on irrigation, most CBM discharge water is toxic to plants. It contains high concentrations of dissolved salts, which not only kill plants but also destroy soil structure for the long term.

So what's the water good for? You can drink it, though anybody in southeastern Montana who drinks water from deep wells would tell you it doesn't taste all that good. You can use it to water stock, but there aren't enough cows, sheep, pigs, llamas and horses in the entire state to drink the amount of water that will be produced.

Unfortunately, most CBM produced water in Montana and Wyoming is discharged or "dumped" into surface waters under state permits. Discharging CBM water into rivers, creeks, draws and drainages is undoubtedly the cheapest and easiest disposal method for methane operators. However, given its toxicity to plants, it's obviously not good for anyone or anything else.

Because of these risks and negative impacts, the Northern Plains Resource Council asked me

to investigate the viability of reinjecting or recycling produced CBM water back into the same coal beds from which it was produced. I have determined that reinjection of CBM water is not only viable, but that it could mitigate or solve most of the difficult surface water problems, including degraded water quality, profound ecosystem changes, introduction of exotic species, impact on irrigation reservoirs and crop yields, water rights, erosion, aquifer subsidence and aquifer depletion.

Of the various disposal methods for CBM-produced water, reinjection seems to hold the most promise. Reinjection is the most direct and prudent approach to deal with the aquifer impacts of producing unprecedented amounts of poor quality water.

We must hold the methane industry to the highest standards to ensure that coal bed methane development contributes in a positive way, rather than continuing a legacy where the economic benefits go primarily to developers, while environmental risks, costs and impacts are forced on Montana.

We need to demand that our state and federal agencies establish solid and responsible rules of the game necessary to protect our heritage and our ecosystem before further coal bed methane development begins in Montana. That is basic common sense.

There is a crying need for enlightened, no-nonsense leadership from Montana's elected officials, state and federal agencies and the CBM industry to walk the talk about doing it right. Let's make sure they do it right from the get-go!

Thomas Schneider has been a petroleum engineer for Amoco Production, Phillips Petroleum and Bison Operating Co. He operates Schneider Consulting in Helena.

Gazette opinion

NPRC gives voice to citizen concerns

Thirty years ago, a group of Montanans, mostly farmers and ranchers from the Bull Mountains, Tongue River and Colstrip areas, banded together out of concern for how coal strip mining and a major coal-fired power plant complex would affect their land and their communities.

Today, about 200 members of the Northern Plains Resource Council are expected to gather in Billings to celebrate three decades of working together to protect their land, water and agricultural business. NPRC counts about 2,000 memberships for individuals and families. More than 90 percent are Montanans, others are former residents.

Public involvement

This thriving citizens organization exemplifies the ideal of public involvement in public processes. NPRC members are people who get involved in public land issues affecting the places where they live and work. Sometimes, that involvement has been lawsuits against government and against immediate development.

Oftentimes, agricultural and environmental interests are at odds. In NPRC, people involved in agriculture are involved in protecting their environment, but their work generates controversy.

The group isn't against all development, it's for responsible development, said Teresa Erickson, NPRC staff director. Reclamation of strip mines mitigates environmental degradation and it provides jobs, Erickson said. NPRC cares about protecting wells and aquifers from drying up. NPRC has fought for surface-landowner consent before underground minerals are developed.

The group's latest focus is coalbed methane development. NPRC leaders are proud that they have helped put Montana on a different course than Wyoming where CBM development has exploded in the past few years. CBM is bringing tremendous wealth to developers, mineral owners and state coffers. But it is also discharging huge amounts of groundwater onto dry Wyoming land, creating concern about water quality for users downstream and concern about the stability of wells in the area.

Development done right

"You can do it right," said Arleen Boyd, an NPRC member from Fishtail, who chairs the Stillwater Protective Association and worked with Stillwater Mining Co. on its landmark "good neighbor" agreement. "The technology exists or is developing to do it right."

The call to "do it right" and protect precious water resources makes sense. Despite our common border, Montana isn't Wyoming. Water quality and soil type varies, making the effects of CBM water discharges more problematic in the north end of the Powder River Basin. Furthermore, although Montana can develop many CBM wells, it could never match Wyoming. CBM reserves in the Montana portion of the basin are only about a tenth of Wyoming reserves.

NPRC didn't stop Colstrip from being built, but played a role in reclamation requirements. NPRC shouldn't stop coalbed methane but should have a voice in how development is done.

As former NPRC chairman Paul Hawks said: "Somebody has to be there pushing industry to look at these things."

NPRC gives a large group of Montanans an effective voice. We may not always agree with NPRC, but we commend the group for holding public decision-makers accountable.

Billings Gazette 11-16-01

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115 Groups urge state to responsibly develop coal-bed methane

By BECKY BOHRER
Associated Press Writer

BILLINGS — The Northern Plains Resource Council on Friday urged coal-bed methane producers and state officials to improve monitoring programs and pursue a balanced approach to development that will protect the environment.

The recommendations were included in a report by the conservation group that has been endorsed by more than 30 organizations.

"The resource is here," Arleen Bovd, a Northern Plains member,

said of the large deposits of coal-bed methane along the Montana and Wyoming border. "It's not like if you asked (developers) to do it right that they're going to go somewhere else."

Telephone messages seeking comment on the report Friday afternoon from industry officials were not immediately returned.

Members of Northern Plains released their recommendations, titled "Doing It Right," during the group's annual meeting.

The plan recommended:

- Monitoring provisions and enforcement of existing laws, helping

to ensure accountability

- Landowner protections
- Using technologies that minimize environmental effects
- Greater public involvement in the decision making process
- Reclamation and bonding provisions
- Inventories of plants, fish and wildlife and phasing-in development to dilute the effects.

Northern Plains said its plan has received strong support from groups including American Rivers, the Wilderness Society and the Wyoming Outdoor Council.

Peter Aengst, a regional associ-

ate in the Northern Rockies office of The Wilderness Society, said he hoped the report prompted more discussion among the various interests.

"This is really a giant experiment," he said of coal-bed methane development.

"There is a need for a conservative and cautious approach to where it is happening and how it is being mitigated," he added.

Mark Albers, Montana director of American Rivers, agreed.

"It is a real tough time with what the country is facing, but we have to make sure we don't just roll back

the clocks in the perceived press for energy dependence," he said. "It can't be done that way."

Concerns have been raised about poor quality water being discharged into rivers and streams as the resource is developed and possible effects on agricultural land and to wildlife.

Development has been swift in Wyoming, particularly in the Powder River Basin, which extends into Montana.

In this state, an environmental impact statement is underway to analyze development of coal-bed methane, a form of natural gas. A

draft could be available to the public by year's end, said Aden Selditz, associate field manager of the Bureau of Land Management's Miles City office.

He said officials realized earlier that "this was going to be a controversial and emotional topic. I think it still is, of course, and people are waiting for a chance to review the document."

Boyd said the Northern Plains' report seeks a balance among the interests involved.

"We did not ask for one single thing in this that is not doable or affordable," she said.

Guest opinion

CBM drilling threatens Montana's water resource

By **ROGER MUGGLI**
T&Y Irrigation Co.

We all learn from an early age that the Earth is mostly water. Maybe that's why we have such a cavalier attitude about wasting it. Turn on a faucet and water comes out. Put on the sprinklers and your lawn stays green.

What we don't learn is that only 25 percent of the Earth's water is fresh and drinkable — everything else is salty. Of the fraction that is drinkable, only six-tenths of a percent is usable — the rest is locked up in ice caps and glaciers on the Earth's poles.

The United States is blessed with a good share of the world's drinkable water. With just 10 to 12 inches of rain a year, southeastern Montana is a little less blessed, but we've managed to make do until now by taking care of the water we do have.

Dry years on Tongue River

I work along the Tongue River. In dry years, like we had this summer, the water level drops so low that the riverbed cracks and peels in the sun. My family and I run a farm and pellet feed operation, and we depend on good river water for irrigation. In addition, I manage the Tongue and Yellowstone Irrigation District, which means I have to get good water to 400 or so irrigators along the Tongue and Yellowstone Rivers.

Most people upriver from where I live depend on water from coal seam aquifers for domestic and stock use. While this well water is too salty to use for irrigation, it is perfectly OK to drink. Without the river water and good wells, most people wouldn't be able to live here, which is why we don't take water for granted — not a drop.

That's why I find it so unconscionable that the coalbed methane industry wastes millions of gallons of good drinking water each day, and discharges water unsuitable for irrigation into rivers and impoundments, and all with the happy consent of our elected officials.

As long as I can remember, Montana state agencies have encouraged conservation of water. In fact, it is illegal under Montana state law to waste water — you are supposed to put it to a good use, or don't use it at all.

Lowering aquifers

Then along comes the coalbed methane industry. An average coalbed methane well in the Powder River Basin withdraws 16,000 gallons of water a day from coal seam aquifers. This water is essentially a byproduct of methane production. Methane operators generally dump it in rivers or into unlined impoundments.

In a great twist of irony, this methane water is not only useless in the rivers, but the concentrations of salts degrade the quality of water for irrigation. Even a modest increase in salts in the Tongue River will make it toxic to Montana crops and plants. Meanwhile, withdrawing so much water from coal seam aquifers lowers the water table, which will cause our wells, springs and seeps to go dry.

The Bureau of Land Management predicts that up to 39,000 wells could be drilled in Montana in the next 10 years. The boom is expected to last about 20 years. Even a quarter of that number of wells would devastate agriculture, the one industry that has sustained this region for 125 years.

The lure of tax benefits is the carrot that has brought the state of Montana to such nonsense. Is that it then? Either we develop methane and get the tax benefits, or we protect our rivers and aquifers?

Respecting other industries

No. It is possible to develop methane responsibly, with respect for other industries. It is possible to put the methane water back into coal seam aquifers where it is most useful. It is possible to do it right and get the tax benefits of methane development. But it isn't happening right now, and it isn't going to happen unless we make it happen.

Water is truly our most precious resource in southeastern Montana. We cannot afford to squander it, for any price. We need to make this industry do it right. The Northern Plains Resource Council has proposed six reasonable steps that the methane industry could take to develop responsibly. Thirty-four organizations in Montana and other states have already endorsed this proposal. If you'd like to take a look at our proposal, go to www.northernplains.org or call 248-1154.

Roger Muggli of Miles City is the manger of the Tongue & Yellowstone Irrigation District, a member of the Board of Directors of the Tongue River Operating Committee, the Yellowstone Resource Advisory Committee and the Northern Plains Resource Council's Coalbed Methane Task Force