

A bridge over troubled waters

Over the past year, a number of water issues have surfaced in the Bakken oil fields. Water supply, ownership, reclamation and arsenic levels are few of those



JASON SPIESS
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water-related issues. There are more water stories out there, and more to come, I am sure.

One individual I met who believes one simple step could go far in solving many future water spats in the Bakken is Dr. John Huntington.

Huntington is a partner in Gateway Enterprises, an environmental chemistry consulting firm and previously worked for 30 years in research and development for oil and gas, specializing in chemistry. His doctorate is in physical organic chemistry.

The Boulder, Colo., resident was in North Dakota meeting with a variety of oil and gas professionals, land owners and other industry folk regarding the importance of water management and testing. One basic action he recommends is understanding the background and base of your water.

Especially before you do any drilling.

"It's important to understand that chemistry (referring to base water),"

Huntington said. "It's a fairly straight forward test and it measures how much iron, magnesium, calcium, etc. is in your water."

Huntington said even toxic metals can become an issue in water.

"I have seen lots of cases where people have argued my arsenic went up because of your drilling," Huntington said. "Well, unfortunately no one knew what it was before so it makes the argument difficult."

Looking for hydrocarbons should be part of the testing, even if you haven't drilled yet, according to Huntington. Agriculture and other activities could have introduced hydrocarbons to the water,

possibly contaminating it.

"You need to know about that stuff before you drill. If you don't know about that stuff before you drill, as soon as somebody discovers the issue later the first place they look is the driller," Huntington said. "Now, maybe the drillers did it, maybe the drillers didn't, but they are working with a lot of hydrocarbons, so that's a logical direction to point your finger. If you have the background test, at least it gives you a practical place to start."

Over time monitoring and recording levels, a good chemistry of your water can be achieved, according to Huntington. This commitment to water records has been one of the biggest challenges in the Bakken.

"One of the big problems is there hasn't been enough done throughout the drilling history to establish a baseline history," Huntington said.

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"Watching it over time allows you to understand all the impacts that can occur. Because you can have indirect impacts."

Huntington gave an example of a contaminant that goes up, not because the oil company has put it in the water supply, but something else has been added, reducing conditions allowing unintended

releases to occur. He said cases involving that type of scenario are very common in the industry.

Huntington spun the conversation back to the majority of drilling activity, which he says is safe.

"This isn't a serious issue in most cases; most drilling activity is done safely without any problems to your groundwater," Huntington said. "However, you can have issues with it and when you do you need to find out what's causing those issues."

I asked if these long term, task-oriented precautions can appear tedious, if not Chicken Little-ish to the oil company or land owner.

"I think that's what the problem really is," Huntington said, "what I've seen happen in Colorado, where I do most of my work, and initially it was a lot like North Dakota. All the drilling was welcome in Colorado, was not much in the way of monitoring it, nobody worried about that stuff. Now the state has instituted regula-

tions that require background monitoring before drilling and after drilling."

Huntington said that he wishes the regulations with ground water would be stronger, and in states like Colorado there are "a minimalist set of regulations."

"The idea is late in coming, they've been drilling for a long time and there are a lot of holes punched in the ground," Huntington said.

"There are a lot of people who are claiming their water has been damaged and there are a lot of issues and they do not have the background data to back it up. The Bakken is a place they ought to be looking at it pretty hard."

He added Wyoming, Alaska and "eastern states" are either drafting, or have moved forward with their own regulations. Huntington believes North Dakota will require stronger regulations on water testing in the future too.

Just the sheer size of the drilling industry invites circumstantial and individual problems between the lease holders and Huntington has seen his share of water wars. Huntington shared one recent contaminated ground water example involving a drilling company and land owner. He said the neighboring land owner found DETEX in his well water and immediately blamed the oil company.

Testing was performed on the ground water. After further analysis, the hydrocarbons in the well water had the pattern of good old fashioned service station gasoline.

"The hydrocarbon pattern indicated it could only be refined gasoline, not from the driller," Huntington said.

He said in that example they were able to pin point that the well contaminant was due to years of misuse with agriculture equipment on his farm. Huntington reiterated that you don't always have records or markers to refer back to, but in that example they did.

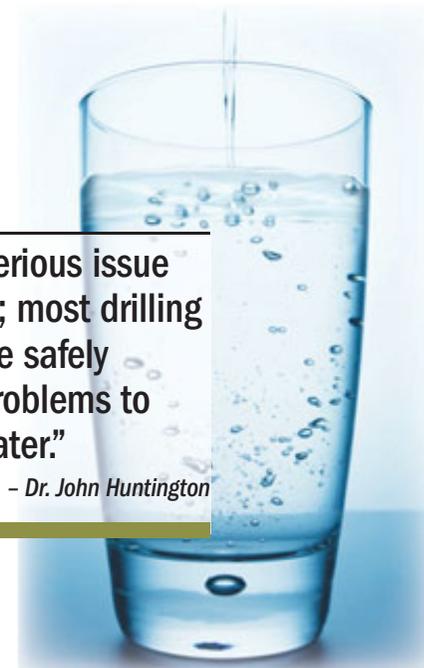
Our conversation then stuck with hydrocarbons, since the Bakken is a hydrocarbon play.

"I think the reality is hydrocarbons is what the business is all about, even when you are talking about gas wells, it's still hydrocarbon," Huntington said. "Every industry activity has a certain percentage, or probability, of problems or releases of chemicals."

The chemicals used within the oil and gas industry are large volume hydro-

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carbons, according to Huntington. And when you increase the volumes you increase the releases.

"I've worked on a lot of refineries and I have never seen a single refinery in my life that didn't have hydrocarbon plumes under their facility," Huntington said. "There is usually a lot of remediation and work to prevent it from going off the facility. Now, you put in all these wells and you are going to have the same kind of problem in the Bakken and you have to recognize that."

Huntington believes the water issues in the Bakken are becoming more of an issue everyday. Everything from recycling to reclamation of water.

"There's some nice technology that allows you to reuse it," Huntington said. "But as far as reclaiming it and putting it back in the rivers or the surface waters of the country, that's very hard to do because it usually turns into high salinity water. It's hard to take that salinity out."

He added that everyone needs to be careful when dealing with water issues, not only due to real contamination issues, but public trust.

"If the oil companies lose that public trust, they will lose the momentum they have going right now or at least some of it and it will hurt them," Huntington said. "It will also hurt us, the rest of us, the consuming public."



Jason Spiess is a multi-media journalist and host of Building the Bakken Radio. Building the Bakken Radio can be heard in Bismarck on SuperTalk KLXX 1270AM on Sundays at 10am CT. To see if your listening area carries the radio program or see the entire Building the Bakken Media Network, visit www.buildingthebakken.com. Spiess can be contacted at jason@buildingthebakken.com.