

Committee on Resources,

Subcommittee on Energy & Mineral Resources

[energy](#) - - Rep. Barbara Cubin, Chairman

U.S. House of Representatives, Washington, D.C. 20515-6208 - - (202) 225-9297

Witness Statement

Testimony of Dennis Hemmer
Before the Subcommittee on Energy and Mineral Resources
September 6, 2001

Madam Chairman, members of the Committee, my name is Dennis Hemmer, Director of the Wyoming Department of Environmental Quality. For the past few years, my state and my agency in particular have been the focus of a great increase in coalbed methane production. This "boom" is very parallel to the one the Powder River Basin experienced at the beginning of my career with the development of coal. Then as now, there were great controversies about development.

The primary issue related to coalbed methane development is the produced water, both quantity and quality. When describing the water, we must be careful about generalizations. Even within the Powder River Basin, both quantity and quality vary with area.

When people describe the quantity of water being discharged, it sounds huge, however, you must realize that the area over which this water is being discharged is also large. We have monitored the drainages into which this water is being discharged and have found very little actually flowing. Most of the water has infiltrated back into the various formations.

Another quantity concern is the effect on adjacent private wells. The State Engineer has had relatively few complaints regarding impacts on private wells. We believe this is primarily due to the companies' willingness to replace wells, many of which had other problems before the operators came.

The quality of the water being discharged is generally good. It is very typical of the water in the region and is in fact the same water often used for watering stock and drinking. In article after article, I read about the water being salty. The water is not salty. Some of the water does have an elevated Sodium Adsorption Ratio or SAR. While sodium is a component in salt, the Sodium Adsorption Ratio is not a measurement of salinity. Rather, it is a ratio of the Sodium to the Calcium and Magnesium in the water. A water can be very low in salinity, which is measured by Electrical Conductivity or Total Dissolved Solids, and have a high SAR if the ions in solution are predominantly sodium. Likewise, water can be very high in salinity and be low in SAR if the ions are predominantly calcium and/or magnesium.

The Sodium Adsorption Ratio is a measure of the suitability of the water for irrigation on soils with a significant clay content. The effect of adding water with a high ratio of sodium to clays is to displace other ions on the clay lattice with sodium. That sodium has a high affinity for water causing the clays to swell and limiting water infiltration. While SAR is a very real issue, we must remember it relates only to irrigation. It does not affect the water's capability for other uses such as drinking and supporting fish. It also does not affect sandy soils. We have addressed high SAR waters in a variety of ways. In some areas the SARs are low enough, very little management is needed. In others, discharges must be managed such that they are not

used for irrigation. There is one drainage where the SAR is such that we currently do not allow direct discharges and other means must be found to deal with the water.

Being a headwaters state, Wyoming's drainages flow into adjacent states. We have recently entered into an agreement with Montana to assure that the Powder River and the Little Powder River maintain a quality acceptable to both states. Unfortunately, over the past decades, both the state and federal governments have decreased their water quality monitoring. When we negotiated with Montana we found we had little current data on water quality both at the state line and throughout the basin. Wyoming has established an extensive water quality monitoring program in the Powder River. Our ultimate goal is to have sufficient data to allow Montana and Wyoming to apportion the assimilative capacity of the rivers to allow coalbed methane production in both states. We have contracted with the U.S. Geologic Survey to perform the monitoring for us. The U.S.G.S. brings a high level of credibility to the data. While Wyoming is funding this monitoring an increase the funding going into U.S.G.S efforts is also needed if we are to intelligently address coalbed methane development.

To ensure that coalbed methane is addressed in a cohesive and coordinated fashion, Governor Geringer created the Coalbed Methane Working Group composed of the heads of the agencies dealing with coalbed methane. The group has worked extremely well. Where there have been problems, and there have been problems, the agencies have coordinated to assure the issue was addressed.

We've also had great cooperation from the industry. They have cooperated and coordinated to a level I have not seen in my years dealing with the petroleum industry.

It's very easy to dwell totally on the negative impacts of coalbed methane discharges, however there are positive aspects as well. During the past two years of drought, coalbed methane discharges have frequently been a welcome source of water for many ranches. Over the past year, I have gotten far more complaints from ranchers wanting the water to fill reservoirs than from landowners upset with the water. The discharges have also allowed ranchers to use new areas that previously didn't have water. Where quality allows, the water has been used for irrigation. Produced water is being reinjected into the aquifer that supplies the City of Gillette with its drinking water. There are also many new wetlands from the discharges.

While admittedly a little biased, I firmly believe Wyoming has done coalbed methane development right. We have done it at a pace that has allowed us to address each issue as it has arisen. We have gathered enough information to make informed decisions. At the same time, we have progressed at a pace that has allowed coalbed methane to become a significant source of clean energy.

I see no reason coalbed methane production in Wyoming cannot be a sustainable source of energy far into the future. I expect to see coalbed methane development spread to other parts of Wyoming. In these areas we will be faced with new challenges. However, I am confident we can address those challenges. Wyoming will continue to develop coalbed methane, it may not be as fast as industry desires or as restricted as some would like, but we will continue to do it well and do it right.

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