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Wyoming Environmental Quality Council
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Terri A. Lorenzon, Director
Environmental Quality Council

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RE: Public Comment – Agricultural Protection Policy, Proposed Rule Changes for Chapter 1, Water Quality Division Rules and Regulations

This comment is from a third generation landowner (confluence of Powder River and Clear Creek, northeast Sheridan County), mining geologist, and ten-year (1991-2001) employee of the Water Quality Division. Our ranch land includes 100 acres of alfalfa hay meadow that is irrigated with water from Clear Creek. Coalbed methane (CBM) development is occurring on ranch land that my wife and I own and on federal and state land leased for grazing as part of the ranching unit. Commencement of pumping of produced water from CBM wells within the ranching unit is scheduled to occur very soon.

A flowing (artesian) water well with a total depth of 309 feet was installed at the ranch house in 1947. Coals were penetrated and the well produced methane gas in addition to water. As a youngster I became responsible for upgrading the lawn using the new source of water. However, the lawn was drastically degraded when water from the new well was applied. The lawn grass was replaced with either coarse marsh-type grass or bare soil. Areas where the well water was not applied continued to grow as always. This condition changed in 1989 when a six-inch layer of new topsoil was placed on top of the degraded lawn soil and water from Clear Creek was used to water the lawn. In 1947 we didn't know why the lawn degradation had occurred. Now we do. The adjusted sodium absorption ratio (SAR) found at the ranch house well is 33. The electrical conductivity (EC) is 1,570 mg/L, and bicarbonate content (as HCO₃) was found to be 1,060 mg/L.

We know that well water with a high SAR, EC, etc. can be utilized as drinking water for humans, wildlife, and livestock. Vegetation growth suffers, however. Ranch stock water wells in our ranch area have the continuing existence of small areas of marsh-type grass and bare soil where stock tanks are allowed to overflow. Numerous cottonwood trees and native grasses have perished along ephemeral drainages used for discharging CBM produced water on neighboring land. Indications are that well water (CBM wells and ranch wells) in the northwestern half of the Powder River Basin has elevated SAR values with respect to the soils, and high EC values due to sodium salts found in the water. The SAR and EC values are reported to be less in areas near Gillette and south of Gillette, and in some of those locations ranch lawns flourish. The same variability is reported in other localities all over Wyoming.

It should be made clear that I do not oppose development of coalbed methane natural gas resources in Wyoming. The nation needs the resource. We do ask government to require responsible development. Management of CBM produced water is a major component of responsible CBM development. From agricultural and landowner perspectives, responsible produced water management includes:

1. Assurance that CBM produced water discharged to the ground surface will not cause short and/or long-term harm to the soil. "End of pipe" does not function as a point for regulating discharge because it has been consistently demonstrated that water flow over soil in many areas, if not most areas, causes salts in the soil to dissolve in the produced water and create even greater salt concentrations and damage downstream.

2. Assurance that CBM produced water discharged into either ephemeral drainages or flowing streams is of a quality that will not cause degradation of the water for its use in downstream irrigation (by flow diversion or by pumping) at its point of use. The discharged water must be of acceptable quality for use by the fish population, and must not cause erosion.

3. Use of simple regulations that do not utilize a "Tier 2" and "Tier 3" process. This is a huge process, requiring a huge amount of man hours -- by all sides -- to monitor, regulate, and enforce. It can be done much more simply using more direct numerical regulatory limits --- rather than narrative limits and other flexible variables that tend to allow improper actions.

4. Much has also been said about the need for "flexibility" in regulating CBM produced water. Flexibility is unsatisfactory because 1) of changes in people that monitor, obey, regulate, and enforce regulations --- altering continuity, 2) people think differently --- causing discontinuity, 3) the players are not all playing on the same field, 3) a restriction will be created in one location but not in another even though conditions are the same, 4) it can create an argumentative atmosphere and conflict, and 5) it creates uncertainty from the planning stage forward.

5. Protection for bottomlands and land along ephemeral drainages in acreages less than 20 acres. Some of the best forage is found in numerous small flat-bottomed drainages that feed into the larger ephemeral drainages. Numerous separate areas of 1 acre, 5 acres, 7 acres, etc. have significant cumulative forage value which should not be left out of the regulatory picture.

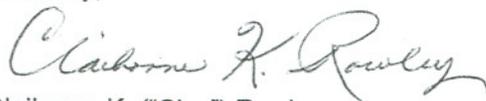
6. Rejection of the concept of "effluent dependent" water. This proposal could permit sacrifice of valuable forage found in ephemeral drainages. This again opens the door for "flexibility" and potential for degrading the status of this forage.

Groundwater found in coals producing CBM has been found to cause damage ranging from totally catastrophic to marginally acceptable. Chapter 1, Section 20, as it reads now requires that a landowner demonstrate that a discharge has caused damage before regulators have a thought about a restriction of the cause. This is unacceptable because the damage caused by a high SAR and a high EC found in CBM produced water is extremely long term. When the damage is discovered (and proven) it is too late; the damage has already occurred, and that damage is ongoing. The burden of proof of damage should not rest on the rancher or landowner. Instead, before the damage occurs the CBM operator needs to demonstrate that actions to be taken will not cause damage.

Since the beginning of CBM development in Wyoming there have been a number of studies discussing the levels of water quality needed to protect the value of agriculture, land, soils, and vegetation found in Wyoming. My review of independent studies has indicated that a SAR limit of 6 and an EC limit of 1,300 is needed to protect the more sensitive agricultural products grown in Wyoming. This includes alfalfa in particular. Beans are very sensitive and they may be partially harmed even at those levels.

And lastly, CBM operators are beginning to state that if they are called upon to restrict their damage of land value and agricultural production they will no longer be able to operate in Wyoming. In other words, they want the landowners to suffer damage so they will be able to stay in business. In answer it can be said that the need for energy is not lessening, and it is virtually impossible that efficient operators in the energy business will need to go out of business in order to develop energy resources responsibly. We ask that you encourage responsible development.

Sincerely,



Claiborne K. ("Clay") Rowley
Landowner, Sheridan County