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OCT 24 2008

**Jim Ruby, Executive Secretary
Environmental Quality Council**

Estimated Economic Impact of Agriculture's Use of Produced Water Big Horn Basin, Wyoming

Based on a report entitled "The Economic Significance of the Hamilton Dome Oilfield", prepared for Merit Energy Company, produced water is extremely important to ranchers along Cottonwood Creek in Hot Springs County. This report found that if this produced water was not available, agricultural production from 35 ranchers would produce 4,000 fewer tons of hay and would decrease their cow herd by 3,200 cows. This information was used as a basis to estimate the economic impact if produced water was no longer available to Big Horn Basin ranchers.

Using 1997-2006 information contained in the Wyoming Agricultural Statistics, each cow has a value of production of \$622.38 and each ton of hay has an average value of \$82.00. A ten year average was used to reduce the potential yearly fluctuations associated with agricultural production.

A minimum of 73 Bighorn Basin ranchers utilize discharge water from oil and gas production. If, for some reason, ranchers were not able to utilize this water, production of agricultural output would decrease. Using the previously mentioned study as a basis, 6,643 fewer cows would be in the Big Horn Basin cow herd, reducing agricultural output roughly \$4.1 million, wages and salaries paid to agricultural operators reduced by \$790,000 and reduced employment in the agricultural sector of 108 full-time equivalent jobs. If produced water could not be used for irrigation, hay production would decrease 8,340 tons, valued at \$684,000. Decreased hay production would cause wages and salaries paid to agricultural operators to decline \$350,000 and employment to drop 11 full-time jobs. The total direct economic impact to agriculture producers, should produced water no longer be available, would be \$4.8 million (cattle plus hay production) in output, \$1.1 million in wages and salaries, and roughly 119 full-time equivalent jobs.

The non-agricultural sectors of the economy would also face negative economic impact. Ranchers must make purchases in order to produce and a large number of these purchases are made in the locally. These local purchases generate additional economic activity in the local economy. If total output in the ranching industry decreases \$4.8 million, the total economy would decrease its output \$12.1 million. This lowering of sales would decrease wages and salaries \$3.2 million, and employment would decrease an estimated 261 full-time equivalent jobs. All of the economic impact figures are based on a years' production, not just a one-time production change. The economic impact would occur for each year the water was not available.

Produced water is vitally important to many Big Horn Basin ranchers. Should this water become unavailable, agricultural production would greatly decrease. This decreased production would not only affect ranchers, but also every economic sector in Wyoming, public or private. Any management change must be carefully examined to minimize the economic effects of these changes on local and state economies.

The economic impact shown above was estimated using an input-output model developed by University of Wyoming Agricultural Economic personnel for a masters thesis, *The Impact of Increased Range Cattle Production on the Wyoming Regional Economies*, Brett R. Moline. These figures are to be used as estimates only.

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