



March 16, 2006

Matt Joy  
Attorney at Law  
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Scottsdale, AZ 85251

Subject: Analysis of potential impacts to livestock resulting from the discharge of CBNG produced water on the Adami Ranch.

Dear Mr. Joy:

At your request, I have prepared the following analysis of potential impacts to livestock production associated with the proposed discharge of CBNG produced water to Indian Creek on the Adami Ranch in Johnson County, Wyoming. This analysis was originally performed on behalf of a different CBNG producer who was proposing to discharge water into Indian Creek.

For NPDES permit applications, it is the current policy of the Wyoming DEQ to require a "Section 20 analysis" if irrigated fields exist in the tributary between the proposed discharge point(s) and the mainstem river system. It is my understanding that no "natural" or "un-natural" irrigation exists between the point of discharge and the mainstem of the Powder River. Therefore, no Section 20 analysis is required to address the potential impacts to forage vegetation.

However, in the interest of addressing the concern associated with livestock production, the following facts are presented. First, assuming that less-palatable wetland forage species develop over time along the entire 10.6 mile length of the ephemeral stream system (a conservative assumption) and that a 20 foot-wide wetland corridor develops (10 feet on either side of the channel), then this would equate to approximately 25.7 acres of created wet forage areas. According to the figures provided by the Adami Ranch, the Indian Creek bottom land yields approximately one animal unit per 18 to 22 acres. This analysis indicates that the wet areas would result in a decrease of approximately one to one and a half animal units out of a total of about 175 animal units for the Adami Ranch lands (this assumes that all of the 10.6 miles of ephemeral stream system is on Adami Ranch lands).

The potential loss of one to one and a half animal units due to wetland creation must be balanced against the likely increase in livestock production resulting from the increase in available water for livestock consumption. Not only will water be available in the channel, but could also be made available throughout the upland grazing areas by way of stock water tanks. An array of strategically located stock watering tanks using produced water could result in better dispersal of cattle and more efficient use of the forage resource. The net result would likely be an increase in livestock production rather than a decrease.

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**Exhibit E**

I hope that this simple analysis helps in clarifying the potential impacts associated with the discharge of CBNG produced water by your client. If I can be of further service, please contact me.

Sincerely,

**Kevin Harvey**

Digitally signed by Kevin Harvey  
DN: CN = Kevin Harvey, C = US, O = KC  
Harvey, LLC  
Reason: I am the author of this document  
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