Wyoming
Department of Agriculture

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Bill DiRienzo
Wyoming DEQ/WQD
Herschler Building, 4th Floor West
122 W. 25th St.
Cheyenne, WY 82002

Dear Mr. DiRienzo:

Following are additional comments from the Wyoming Department of Agriculture (WDA) on the 4th Draft of Proposed Rules, Water Quality Rules and Regulations—Chapter 1, Implementation Policies, Section 20, Agricultural Use Protection Policy (AUPP).

We support the recommendation by the Water Quality Advisory Board to have the Department of Environmental Quality (DEQ) Water Quality Division revise the AUPP and seek additional public comment. We were disappointed to hear there were drastic changes to the AUPP and the public did not receive adequate notice to comment on this section separately.

We believe the 4th draft is a significant improvement. We questioned the change of using Bridger Plant Materials publications to the United States Department of Agriculture Agricultural Research Service (ARS) publications. Our concern stems from using a "local" source with research based in the Rocky Mountain West versus the ARS publication coming from California. The ARS is peer-reviewed, which we strongly support, and it has tighter restrictions.

These restrictions can be both a positive and negative aspect to the agricultural producers using the effluent waters on their land. The more restrictive the regulation, the less likely the water will be available for use. As companies drill more coal-bed-methane (CBM) wells, the more water will be available for producers to use. However, some producers may lack the expertise to know if the water could actually be harmful to their vegetation and soils. In the end, we support the ARS restrictions. These restrictions will save some producers from applying water high in soluble salts and trace minerals detrimental to their operations.

We also agree with the removal of Section IV. "Bottomland Forage" from the AUPP. We believe quantity can be a detriment in some instances to some operations. The change of vegetation in subirrigated bottomlands to wetland vegetation is a negative aspect to large quantities of water. We look forward to reviewing the new rules addressing water quantity in the near future. While we support the latest version of the AUPP, we offer the following comments.

**Include Educational Programs and Information**
We understand DEQ is proposing regulations and policies in the AUPP. However, there is a tremendous need for educating the users of effluent waters, especially from the CBM industry. Producers may be too quick to accept the water without having an adequate understanding of the effects the water may have on their operation.

Page 3 states: *An exception to the limits above may be made whenever the background water quality of the receiving water is worse than the value listed for the associated pollutant or when the livestock producer request use of the water and thereby accepts any potential risk to his livestock.*

We support the ability of individual operators to make decisions affecting their land and livestock. However, we want to make sure these operators receive all the options with as much scientific information available to assist them in their decision. The table attached to our comments titled "Water Quality Criteria for Livestock and Wildlife Watering" is an important educational component either to add to the AUPP or to give to producers. The table contains information of potential effects of different chemicals on livestock and wildlife. The scientifically researched information comes from the Environmental Studies Board, National Academy of Science and National Academy of Engineering, and Agriculture Food and Agriculture Organization of the United Nations.

**Revise the Goal of Section 20**
DEQ states on Page 1, Section I. Purpose: *The goal expressed in the Section 20 standard is simply to maintain surface water quality at a level that will continue to support the local agricultural uses that have developed around it.*

We question the goal being limited to only surface water quality. There are three additional concerns the DEQ should address in their goal statement: soils, subsurface water, and vegetation. The goal should state: The goal expressed in the Section 20 standard is to maintain or improve surface and subsurface water quality, soils, and vegetation that will continue to support the local agricultural uses. The effluent waters dispersed on agricultural lands can and will affect all of the aforementioned components. Poor water quality can have a negative domino effect on the lands agricultural producers use to raise their crops and livestock.

**Address Effluent Limits on Watersheds**
The AUPP addresses the effluent limits for Electrical Conductivity and Sodium Absorption Ratios on irrigated lands. However, the effects effluent limits will have on artificially and naturally irrigated lands is not the only concern DEQ should address. We request DEQ to address the entire watershed, not simply irrigation. Many streams, soils, and vegetation along the watershed can have negative impacts from the discharged effluent waters. Future possibilities of using water from streams as irrigation during high runoff or storms may negatively influence agricultural lands simply due to DEQ not addressing the entire watershed in the beginning.

The AUPP has the possibility of positively improving agricultural operator's bottom line by using effluent waters for livestock and vegetation. We believe the inclusion of educational information and expanding the AUPP to include the effects of effluent limits on soils, vegetation, and watersheds will make the document more beneficial to the permit writer, the water disperser, and water users.

We thank you for the opportunity to comment and look forward to a meeting in the near future.

Sincerely,

John Etchepare
Director

JE/jw

Cc: Governor's Planning Office
Wyoming Stock Growers Association
Wyoming Wool Growers Association
Rocky Mountain Farmers Union
Wyoming Association of Conservation Districts
Wyoming Farm Bureau Federation
Wyoming State Grazing Board

Attch: Water Quality Criteria for Livestock and Wildlife Watering

# Water Quality Criteria for Livestock and Wildlife Watering

Units = mg/L unless otherwise noted

| Chemical | Limit | Potential Effects |
|---|---|---|
| pH | 6.5-8.5 | |
| Arsenic (As) | 0.20 | Colicky Pain, vomiting, diarrhea, and death |
| Boron (B) | 5.0 | Slower growth rate, inflammation and edema in the legs of cattle, and weight loss |
| Cadmium (Cd) | 0.05 | Anemia and reproductive problems |
| Copper (Cu) | 0.50 | Bone developmental problems, ruminants are more susceptible to Cu toxicity. Excess molybdenum in diet causes Cu deficiency |
| Chromium (Cr) | 1.0 | Skin and soft tissue problems |
| Fluoride (F) | 2.0 | Loss of tooth enamel and rapid and uneven wear |
| Lead (Pb) | 0.10 | Growth problems, loss of weight, abortion |
| Mercury (Hg) | 0.01 | Similar to arsenic poisoning |
| Nitrate ($NO_3^-$) - N (Nitrogen) | 100 | Gastrointestinal diseases, problem in fetal development |
| Nitrite ($NO_2^-$) - N (Nitrogen) | 10.0 | Gastrointestinal diseases, problem in fetal development |
| Selenium (Se) | 0.05 | Blind staggers, bob-tailed disease |
| Sulfate ($SO_4^{2-}$) | 3,000 | Laxative effects, may interfere with Cu absorption |
| Zinc (Zn) | 25.0 | Growth and developmental problems |

# Water Quality Criteria to the use of Saline Water for Livestock and Wildlife Watering

Units = mg/L unless otherwise noted

| Chemical | Potential Effects |
|---|---|
| Less than 1,000 mg/L TDS (total dissolved solids) and EC (electrical conductivity, convenient measure of dissolved salts in water) less than1.5 dS/m | Considered low saline water and excellent for all classes of livestock. |
| 1,000-3,000 mg/L TDS and EC 1.5-5.0 dS/m | Considered very satisfactory for all classes of livestock. Temporary and mild diarrhea. |
| 3,000-5,000 mg/L TDS and EC 5.0-8.0 dS/m | Considered satisfactory for livestock. Livestock not used to saline water may refuse it or have temporary diarrhea |
| 5,000-7,000 mg/L TDS and EC 8.0-11.0 dS/m | Considered marginal quality of water for livestock. Water this saline should not used for pregnant or lactating animals |
| 7,000-10,000 mg/L TDS | Considered unusable under any condition |


1. Water Quality Criteria, Environmental Studies Board, National Academy of Science and National Academy of Engineering, 1972.
2. Water Quality Criteria for Agriculture, Food and Agriculture Organization of the United Nations, Rome, 1976.