

Laramie County Control Area Recommendations

Water supply demands, including agricultural use, have stressed the High Plains Aquifer throughout Laramie County. Given the observed water level declines in the High Plains Aquifer and associated losses in well production near Albin, Carpenter, Pine Bluffs, and Cheyenne, it appears there is insufficient water in some areas of the current Laramie County Control Area to sustain the economic livelihood of many water users in these areas. Both the Towns of Pine Bluffs and Carpenter have completed wells in stratigraphically lower aquifers to ensure the longevity of municipal water supply in the event of continued decline of the High Plains Aquifer. On the west side of the county, Cheyenne's continued use of their well fields and rural subdivision development have resulted in significant declines in the water table. In response to these concerns, Cheyenne has expanded its search for future groundwater supplies by purchasing ranch land and exploring deeper aquifers. In addition, the current moratorium on new high capacity wells has limited opportunity for economic development within the Control Area.

As concerned citizens, hydrogeologists and agricultural users in the Control Area, our goal is to reduce total groundwater use over time throughout Laramie County. We humbly suggest this usage be reduced in a reasonable and equitable manner given the significant economic contribution of agriculture to the County. We offer the following recommendations that we think will improve overall aquifer health and support economic viability:

1. **Refine the Control Area Boundaries.** The Laramie County Control Area should be expanded to include the City of Cheyenne and areas immediately west, north and east of the City. The Control Area should be defined hydrogeologically and not politically nor by demand. This refinement would encompass the western recharge area for the High Plains Aquifer (along the Laramie Range Front) and would be bordered by Horse Creek to the north. Unfortunately, the Colorado State Line, a political boundary, would continue to define the south rather than some geologic boundary. With these modifications, the Control Area Boundaries would more accurately account for hydrogeologic conditions and aquifer relationships. Considering that Cheyenne's municipal pumping accounts for 75% of the non-irrigation season demand on the aquifer, this use should be considered in order to manage the High Plains Aquifer for the benefit of all users.
2. **Reconfigure Management Boundaries within the Control Area.** Within the broader Control Area, certain management boundaries should be defined to reflect different hydrogeologic conditions, use scenarios, areas of specific decline, and varying relationships between the hydrogeologic units of the High Plains Aquifer. This realignment would allow better groundwater management under the corrective controls given the State Engineer under Title 41-3-915 and provide a basis for establishment of transparent well-defined goals. This reconfiguration might include a District for Carpenter related to the Quaternary Terrace Deposits, a District for the Pine Bluffs lowland related to the Brule Aquifer, a District for the Albin area related to the Ogallala and Arikaree Aquifers, and a District for areas east and west of Cheyenne to include the Ogallala and Arikaree Aquifers. The westernmost portion of the County might address the Paleozoic Aquifer and ultimately the recharge to the entire system. Areas where groundwater levels have not been significantly impacted by development to date could be managed as a separate management area under the Control Area and further subdivided in the future as warranted. Within the larger picture, water use within these areas of limited decline likely affect the overall recharge (and leakage) picture. This redistricting approach would allow for custom solutions to unique hydrogeologic conditions and water use characteristics.

3. **Establish a Market Based Groundwater Use Reduction Plan.** Through a combination of user fees and economic compensation for retiring water rights the overall water demand on the High Plains Aquifer could be reduced-especially in areas where there is insufficient water to sustain a long term viable aquifer. By lifting the moratorium on new water rights and establishing a market based plan, we believe that the State can encourage growth and development in the County and reverse local water level declines and improve aquifer conditions. To accomplish this objective, our proposed plan relies on fees charged to either new and/or existing water users within the Control Area. The recovered fees could be used to buy out and retire existing high capacity water uses and their associated wells. The priority for retiring water rights should be high capacity wells located in the areas experiencing the most significant water level declines, including Cheyenne, Carpenter, Pine Bluffs, and Albin. Under the proposed plan, for every acre-foot of water permitted for a new use, more than one acre-foot of water will be removed from use. The fee/buyout plan would operate off an established ratio such as 2:1 or 3:1. In other words for every new gallon of water applied for beneficial use, either two or three gallons of water use would be retired. This ratio and corresponding fees and buyout values could be adjusted over time depending upon the goals of the plan and monitoring of the rise or continued fall of the water table. Money for buyout would be generated through combinations of user fees, and federal and state matching funds. The Natural Resources Conservation Service (NRCS) has operated a similar program successfully for the last four years which has lowered overall water use in the county by approximately 3,000 acre-feet. Should a version of this State plan be implemented and assuming cooperation between the State and the NRCS is desirable, State funding can be used as a long term match to the federal program. An example of such a plan has evolved through an initial public process. Such a plan is considered a first step and incorporates a range of water users within Laramie County and includes a combination of fees imposed on both new and existing water users. Matching funds provided by both the state and federal government can and are incorporated into the example. Credits towards water saving strategies (housing, agriculture) and a range of other options can be incorporated into the plan.
4. **Establish Transparent Goals in Implementation of Policy.** It is important that the WSEO develop and publish a clear framework of goals both within each Management Area and within the overall Control Area. Implementation of policy should be balanced and equally applied to all users and such policy shall remain flexible as goals are accomplished. It is important that the interrelationships of the Management Areas are understood and are considered in the scheme of equitable management. Water demand in western Laramie County will affect recharge to the aquifer and as such will affect water supply downgradient. Recycling of surface water and reuse of grey water will affect near surface aquifers and users that depend on the near surface aquifer. Where additional monitoring data are obtained, such data should be reviewed and included within the overall system model. Ongoing review of these monitoring data can be applied in a transparent fashion to redefine or support the implementation of goals and policy. Within the course of the implementation of policy it is critical that the WSEO establish a temporal basis for trends. Where water use restrictions are put in place, what condition (how many years of water level stabilization or other quantifiable results) would allow a relaxation of restrictions?
5. **Allow for Management Flexibility.** The WSEO policy must be dynamic and flexible. County citizens need clear goals and a rationale for any plans in any area/district to mitigate or arrest water level declines in the High Plains Aquifer. If the stated goals are being obtained in the timeframes described, the goals should be revisited to determine whether additional

or alternate goals should be employed to better manage groundwater production. Given the uncertainties associated with both the Control Area groundwater model and physical behavior of the aquifer, such policy flexibility is reasonable and practical.

6. **Establish a Council for the Area.** Similar to the WSEO Advisory Board and/or the WDEQ Environmental Quality Council, the State should establish a Laramie County Water Management Council to assist in the development and implementation of policy. This Council can include a cross section of users (irrigation, municipal, academic, industrial, domestic, etc.) but should be balanced to account for water use and demand. Not only would this Council serve as an advisory board, but it would also have quasi-judicial decision making capacity. It would ensure transparency in the implementation of policy and provide a public face to the balancing act of water policy/water restrictions and definition of success. This Council would not replace the Area Advisory Boards, but may allow them more influence in permitting decisions.
7. **Increase the Use of Well Spacing Requirements.** Keep in place the well spacing requirements that are contained in the existing temporary order, and add spacing requirements for higher capacity well uses (industrial, municipal, irrigation) in the High Plains Aquifer where there appears to be sufficient water for future development. That spacing requirement could be similar to that already applied to the Lance/Fox Hills Aquifer, but a hydrogeologic spacing rationale could also be developed from the model or other existing aquifer data. Adding these requirements would lessen the potential for well interference and spread the demand on the aquifer in any given area. Hopefully these well spacing requirements will prevent new users from experiencing the observed and adverse water level declines that have occurred in other areas of the Control Area.