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Association of Gallatin Agricultural Irrigators

Overview and AGAI Perspective Use of Exempt Wells in Montana

Prepared
For
AGAI Membership

by
Alan English
Gallatin Local Water Quality District

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I. Purpose

This document is intended to provide background on the issues associated with the current use of exempt wells in Montana. The primary purpose is to aid AGAI members in development of a position on how best to modify the current rules and regulations governing the use of exempt wells. The following summary is drafted from the position of AGAI, and does not necessarily represent the views of other stakeholders.

II. The Water Policy Interim Committee

For many years now various stakeholders in Montana have discussed the increased use of exempt wells from various viewpoints. The growing use of exempt wells has also been an issue in other western states, including Colorado, Idaho, and Washington. The 2009 Montana Legislature created the Water Policy Interim Committee (WPIC) to address water resource issues, including exempt wells. In 2010 the WPIC discussed exempt well issues at length and heard lots of testimony on the topic. However, they did not carry forward any legislation to address exempt well issues during the 2011 Legislature. The 2011 Legislature followed up by specifically tasking the 2012 WPIC to address exempt well issues. It is likely, based on the work of the WPIC that legislation will come to the 2013 Legislature to address exempt wells. In January 2012 the WPIC will be meeting and taking testimony from interested parties on their position(s) on exempt wells. AGAI will be participating in the hearing and presenting AGAI's position on the issues with exempt wells.

III. Stakeholders

The primary stakeholders on issues associated with exempt wells in the Gallatin Valley are agricultural water users, stock growers, well drillers, conservation organizations, land developers, realtors, land use planners, and regulatory agencies (DNRC, DEQ, FWP). Municipal and industrial water uses are also stakeholders, but in the Gallatin Valley these stakeholders have typically not been directly involved in, or concerned with, the exempt well issues.

There is crossover among stakeholders. For example there are well drillers that are also agricultural irrigators. Agricultural irrigators, especially those holding senior surface water rights in the Gallatin Valley, may also have interest in ongoing or future land development projects. Land developers may hold interest in existing surface water rights. There is a complex mix of issues and politics surrounding the use of exempt wells, which is at least part of the reason exempt wells are often discussed but no good solutions have been found.

Based on testimony provided at past WPIC meetings and Legislative hearings, it is unlikely that those stakeholders that have strongly supported the existing rules and regulations governing exempt wells will change their perspective, regardless of how reasonable the changes are.

Well Drillers-Well drillers have traditionally resisted changes to rules and regulations governing exempt wells, arguing that even at current levels of use, exempt wells are not causing problems. This viewpoint may be due to their observations that in most places they drill, water is physically available and large declines in ground water levels are not being observed. However, physical availability of water is not the same as legal availability and does not address potential adverse impacts to senior water users.

Well drillers may also be concerned that changes in the allowable use of exempt wells could result in less well drilling and less business. In recent years the use of exempt wells in major subdivisions has resulted in a large number of lots needing wells drilled. If higher capacity public water supply wells were required in major subdivisions, there would be fewer wells drilled. At a recent public meeting a representative for well drillers in Montana indicated that the drillers make the same amount of money

drilling one large public water supply well as they do drilling numerous exempt wells. Just how many exempt wells have to be drilled to match the profit from drilling one large public water supply well has not been presented. It is possible that drillers may support some reasonable changes to existing rules on exempt wells, as long as it does not have a significant impact on their business. It is noted that several local well drillers did recently attend an AGAI Board meeting and expressed interest in working with AGAI to look at the issue of exempt wells. Several local drillers also attended the AGAI annual meeting and participated in a panel discussion on exempt well issues.

Trout Unlimited-Trout Unlimited tends to approach the issue from the standpoint of stream depletion, which would occur due to capture of ground water by exempt wells that would otherwise flow to and discharge to surface water. Their proposals to fix problems with exempt wells tend to be more restrictive, such as almost complete elimination of the small well exemption, or a requirement for mitigation for all new exempt wells. From the AGAI perspective any approach that results in some type of permit or review of mitigation plans for exempt wells could result in overwhelming DNRC and slowing the permitting process overall.

Trout Unlimited is working with others to explore the water banking idea, which has been employed in other western states. They currently have a proposed approach drafted, which AGAI Board members are reviewing. The basic idea is that a water bank could be established where senior water rights are transferred to the Bank for use as mitigation water to offset pumping from exempt wells. Legislation passed by the 2011 Montana Legislature (HB 24) allows for an existing water right to be changed to mitigation or aquifer recharge use, and allows up to 20 years for the new use to be fully implemented. AGAI primary concern with the water banking idea is that the timing and location of water bank mitigation likely would not match the timing and location of net depletions to surface water from exempt well pumping. While the water bank would receive compensation for the use of the mitigation water, it is not clear if, or how a water user that is impacted by the wells that rely on the mitigation water would be compensated.

Livestock Producers-Livestock producers may support changes to rules and regulations governing exempt wells if the changes do not significantly impact their ability to continue to use exempt wells for livestock watering. Over the last few years the Stock Growers Association has changed their viewpoint from not supporting any changes to the exempt well rules, to possibly supporting some changes. It is noted that many livestock producers also hold senior water rights.
The significant increase in the use of exempt wells in Montana has mainly been associated with subdivision development, not a large increase in exempt wells for livestock use.

IV. AGAI Perspective

From the AGAI perspective, the primary concern with exempt wells is their potential to adversely impact existing water rights under the prior appropriation doctrine. Exempt wells may continue to pump water out of priority during periods of reduced water availability, when senior water users are required to reduce or stop diverting water. AGAI understands and supports the protection of private property rights, but desires to balance protecting private property rights and protecting water rights. As figures 1 and 2 below show, concerns that exempt wells may impact senior water right holders have increased as the use of exempt wells in high growth areas like the Gallatin Valley has significantly increased.

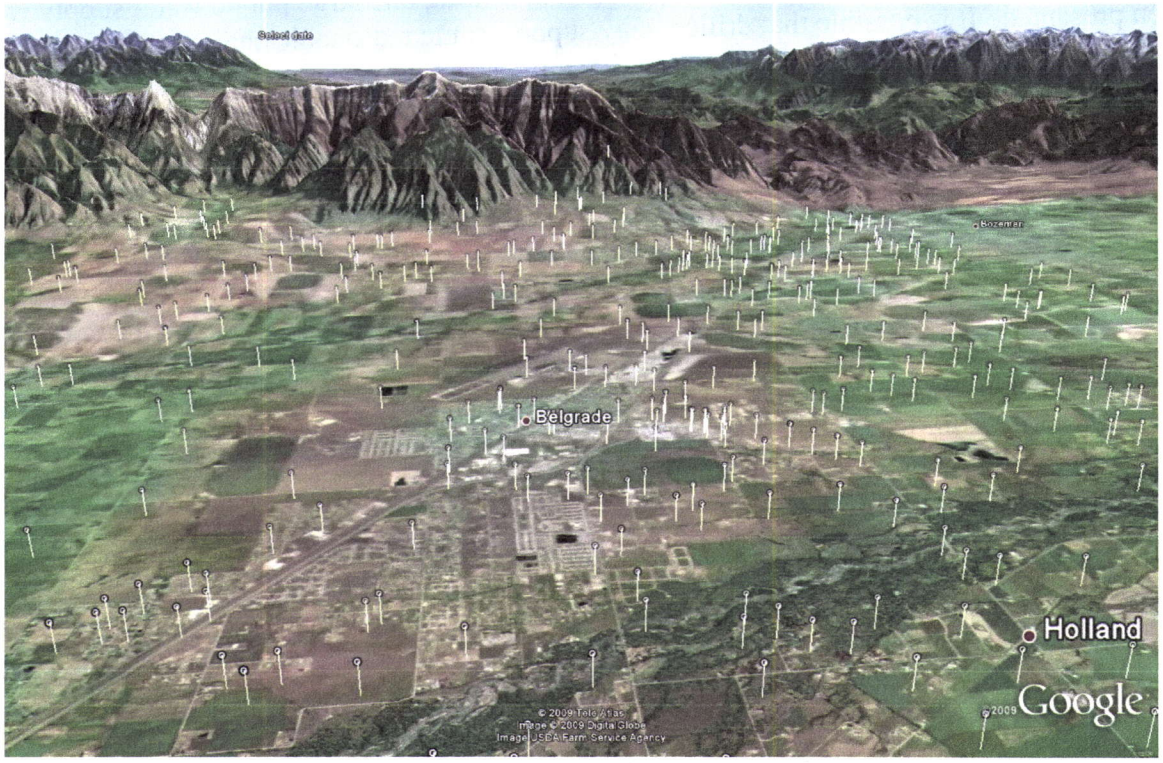

Figure 1. In 1975 the density of wells in the Belgrade area of the Gallatin Valley was relatively low as shown in this image produced by the Montana Bureau of Mines and Geology, based on well records contained in the MBMG Ground Water Information Center database (image courtesy of MBMG).

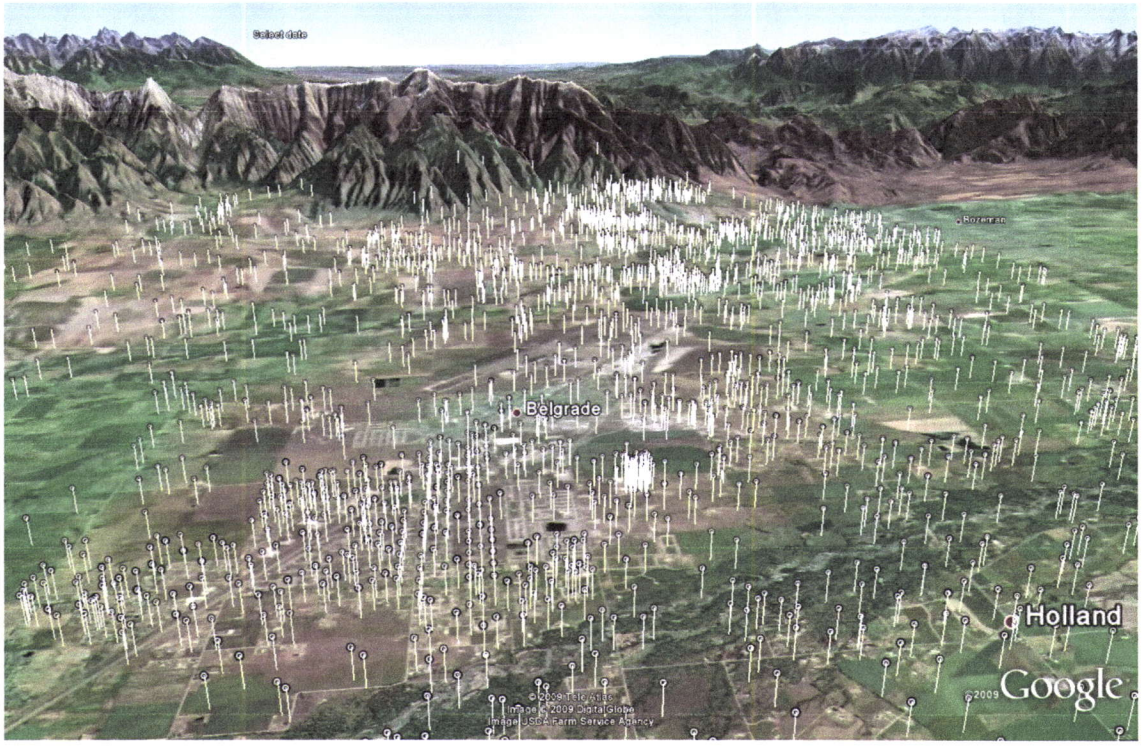

Figure 2. Between 1975 and 2010 the density of wells in the Belgrade area of the Gallatin Valley had increased dramatically as shown in this image produced by the Montana Bureau of Mines and Geology, based on well records contained in the MBMG Ground Water Information Center database (image courtesy of MBMG).

V. The Basin Scale Impacts

It has been argued that there are no problems with exempt wells. Basin-scale water budgets and review of hydrographs showing basin inflows and outflows (i.e. West Gallatin River at Gateway and at Logan) are used to show that there is no detectable impact. However, this method of analysis may be flawed. As pointed out by Russ Levens (DNRC, 2008) stream depletion by exempt wells and permitted wells in the Gallatin Valley could be masked by voluntary curtailment of junior surface water rights during periods of low flow. Levens argues that stream depletions caused by exempt wells would not show up in the basin output hydrograph (Logan gage) because they would be offset by the curtailed use of surface water by junior users.

Levens also points out that to look for water shortages caused by ground water pumping in the Gallatin Valley, it would be better to look in the area near Amsterdam Bridge and the I-90 Bridge, rather than at Logan. The Logan flow is influenced by late season irrigation return flow and the addition of water from the East Gallatin River.

VI. Closed Basins and High Growth Rate Counties

The use of exempt wells in many parts of Montana has not been a problem. More rural counties don't have the same issues as high growth counties such as Gallatin County. The high growth counties in Montana also tend to be the same areas that are included within the basins closed to new appropriations of surface water (closed basins). For this reason, it has been proposed that any solutions to the exempt well issues should focus on closed basins rather than be applied statewide. Based on the number of exempt wells drilled in closed basins between 1991 and 2006, Levens (DNRC, 2008) estimated that if the same rate of growth continued, approximately 30,000 new exempt wells could be drilled in closed basins in the next 20 years, resulting in an estimated 20,000 acre-feet of water consumption. Due to the change in economic conditions since these estimates were made, they may be high, but there is little question that growth in Gallatin County and other high growth counties will continue.

VII. Total Diversion vs. Consumptive Use

Most folks agree that the real issue with exempt wells is not the total amount of water they pump from the ground, but rather the amount they consumptively use. The consumptive use is mainly due to evaporation and plant uptake both inside and outside the home. The indoor consumptive use is arguably negligible, with most arguing it is somewhere between 2-7% of the water delivered inside the home.

The low amount of consumptive use for indoor domestic purposes is based on two assumptions. First, it only applies if the home is served by an on-site septic system so that the non-consumed water is returned to the subsurface in the same general location as the water withdrawn. Second, most of the estimates assume that 100% of the non-consumed water that goes into the on-site septic system recharges back to ground water. Since most septic systems are shallow (2-feet bgs), there probably is some plant uptake and some evaporation. A study by Vanslyke and Simpson (1974) reported that indoor consumptive use for homes with on-site septic systems was 12%. If a home is on an exempt well but connected to a public sewage system that is a significant distance from the well, the water pumped is not returned in the same area and the impacts to other water users would be greater.

The real concern with consumptive use of water by exempt wells is the outdoor landscape irrigation usage. DNRC estimates that 70% of the water pumped for irrigation is consumed. It may be 90% or more based on the observation that most people don't apply enough water to saturate the soil profile to a significant depth and allow some water to move down to the water table. Regardless of the percentage used, it is clear that the concern with water use by exempt wells should be focused on irrigation usage, which in most cases if for landscape irrigation.

Recognizing that exempt wells do consume some quantity of water, primarily for landscape irrigation, it is hard to imagine how thousands of exempt wells pumping in a basin can't have an impact on water resources. It is often argued that the impact from pumping an exempt well just can't be measured. However, as figures 3 and 4 show, a monitoring well in the Gallatin Valley appears to show a clear drop in the ground water level during the landscape irrigation season when a nearby exempt well is pumped for landscape irrigation.

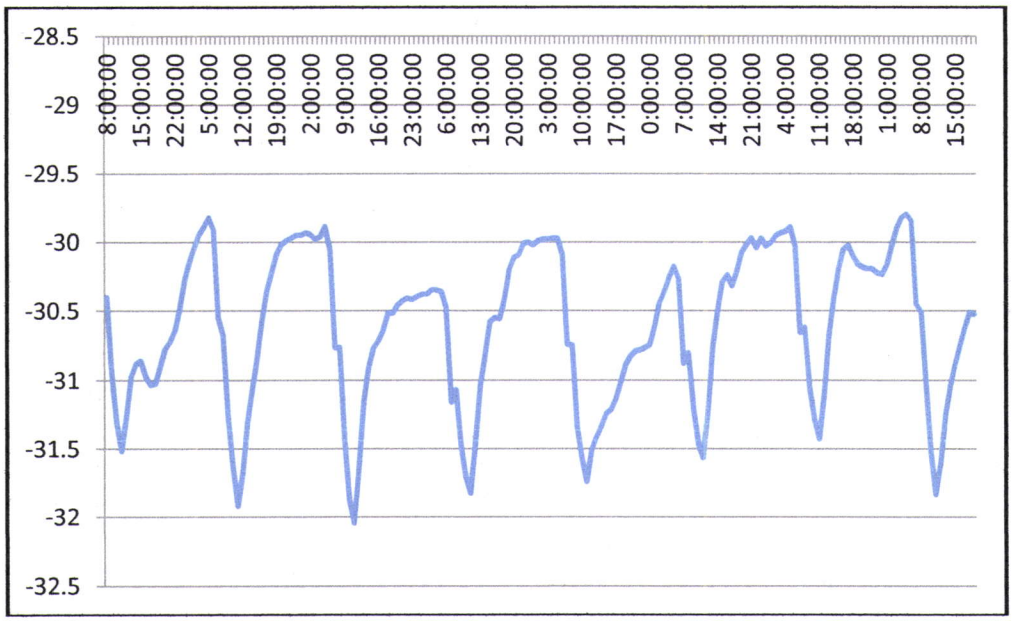

Figure 3. Daily fluctuation of up to 2-feet in the water level measured in a monitoring well operated by the Gallatin Local Water Quality District appear to be caused by the pumping of an exempt well located approximately 250-feet north of the monitoring well.

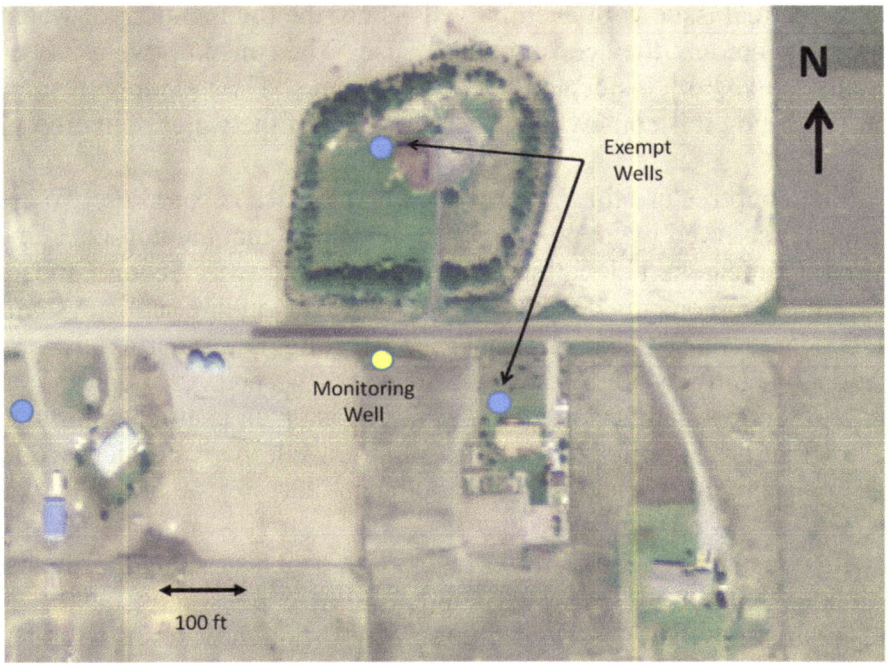

Figure 4. The approximate distance from the monitoring well represented in figure 3 to the exempt well suspected of causing the water level fluctuation is 250 feet due north. Other exempt wells in the immediate area were only being used sporadically at the time of measurements.

VIII. Regulation of Exempt Wells Based on Pumping Rate and/or Total Diversion

There have been lots of ideas presented to somehow reduce the level of flow or diversion allowed under an exemption. Currently exempt wells can pump up to 35 gpm and divert up to 10 acre-feet/year.

In reality, the common 6-inch diameter exempt well simply can't produce 35 gpm by the time the pump, drop tube, discharge line, pressure tank, and distribution lines are hooked up. The flow rate provided on drillers' logs does not represent the actual discharge of the well. These values are usually measured by the driller by lowering the drill stem to the bottom of the well and blowing compressed air into the bottom of the well. This draws the water level in the well to the very bottom, and the discharge is not restricted by plumbing. In short, the 35 gpm limit is probably not worth fighting over.

The real concern is the volume of water that can be diverted. Ten acre-feet/year seems to be excessive for most cases. Reducing this amount would more likely reduce the impacts from exempt wells. The problem with changing either the maximum flow rate, or the total annual diversion is that DNRC does not require any type of measurement or monitoring of these parameters, so even if they were changed, there would be no way to determine if the wells were in compliance with the rules. An associated problem is that DNRC has historically not been very proactive with enforcement, even with permitted sources. Changing the limitations on exempt wells will not help if there is no oversight, monitoring, and enforcement to go along with the changes.

One idea that may have some merit is to change the rules so that the amount of land irrigated is limited in size. This approach deals directly with the primary concern over consumptive use for outside landscape irrigation in subdivisions. It has the benefit of being easy to monitor using aerial photographs or on-site inspections, and it would be easier for water users to justify to DNRC when filing a complaint. DNRC did use the aerial photography method of analysis to get an idea of how much irrigation was occurring with exempt wells (DNRC, 2008). They looked at a random selection of lots served by exempt wells in the Bitterroot Valley, the Helena Valley, and the Gallatin Valley. The overall average was 0.67 acres/lot, with the average for the Gallatin Valley being the highest at 0.93 acres/lot. A limitation in the range of ½ to 1 acre of irrigation may be supportable.