

CWAG #7 Bulletin



Six Water Supply Issues in the Upper Verde River Watershed

A Presentation to CWAG by William Meyer

- Issue 1 – The Prescott AMA is being over-pumped and will not reach Safe Yield without a significant reduction in pumpage and/or a significant importation of new water from outside the AMA that is used for recharge alone.
- Issue 2 - As we all know, communities that recharge the PAMA with treated sewage receive credits for this water that they can use for new subdivision development. Such use allows continued growth on a shrinking water supply.
- Issue 3 – Inter-basin transfer of that water legally available from the Big Chino Valley into the Prescott AMA combined with local ground-water withdrawals in the valley will take the Big Chino Valley out of Safe Yield.
- Issue 4 – Given this scenario, importation of water from outside the Upper Verde River Basin will ultimately be required.
- Issue 5 – At some point in time the upper 22-24 mile perennial reach of the Verde River will go dry once Safe Yield in the Big Chino Valley is equaled or exceeded.
- Issue 6 – There is an unwillingness to accept the hydrologic consequences of present and future ground-water withdrawal in the upper Verde River Basin and therefore a failure to begin to address the social, legal, financial, and moral questions associated with these consequences.

ISSUE 1 - The Prescott AMA is being over-pumped and will not reach Safe Yield.

- As we know, Safe Yield implies a perpetual water supply, but the PAMA is not being managed on this concept. Instead it is being managed on a basis of allowing pre-declaration water rights and Assured Water Supply Certificates for subdivisions not approved prior to the declaration.
- The PAMA has been out of Safe Yield for years even though it is not being pumped at the legal limit.
- Total grandfathered rights associated with:
 - agriculture and industry,
 - approved subdivisions, and
 - currently held withdrawal permits,
- along with no restriction on exempt well pumpage,
- Combined with the inability under state law to limit the above pumpage
- Means that any efforts to bring the system into Safe Yield requires a continually increasing source of imported water.
- An effort is underway to reduce agricultural rights, but water permits for Prescott, Prescott Valley and Chino Valley alone are about 3 times Safe Yield. The Tri-Cities have not discussed reducing these rights.
- Instead of being managed for Safe Yield, ADWR essentially:
 - Has stopped all new large scale pumping;
 - Keeps track of pumpage from large producers that hold pre-declaration pumping rights, and;
 - Requires 100 year Assured Water Supply certificates for new developments that were not grandfathered or permitted prior to January 1999.

- A 100-year water supply is not necessarily available however.
- ADWR's ground-water model of the PAMA indicates that areas within the PAMA become dry before 2025 with current net pumpage.
- More areas become dry with increasing time beyond 2025.
- The model cannot predict the results of pumping at current net pumpage for 100 years or for even 50 years due to continued drying of the PAMA before this.
- Although ADWR's model results have been available since 2002, they have not held public meetings on these results.
- Instead of "managing" the PAMA for Safe Yield, ADWR is simply "keeping score" while a train wreck is in progress.
- This is not news to ADWR.
- In order to reach Safe Yield, pumpage must be drastically reduced and/or a significant amount of new water must be imported and used for recharge alone. Pumpage must also be limited.
- Potential Sources of Recharge:
 - Water imported from Big Chino Valley , but this water is being used for growth.
 - Treated sewage effluent, this water is also being used for growth.
 - Suggestions to control vegetation in order to increase recharge fall into the realm of hopeful research and have generally proved to be unsuccessful.
 - Suggestions to use flood waters to increase recharge are not realistic.
 - The PAMA and Chino Valley are naturally recharged by flood events to a near maximum extent.
 - Not only this, but flood runoff in the upper Verde River watershed belongs to the Salt River Project. Attempts to retain it are therefore illegal and could lead to legal action by SRP.

ISSUE 2 – Recharge of the PAMA with treated sewage effluent and pumping credits.

- Effluent recharge belongs to the entity that generates it and can be used for continued growth even though the PAMA is not in Safe Yield.
- Effluent recharge equal to 60 percent of pumped water (about Prescott's goal) increases the water available for growth to 2.5 gallons for every gallon of water pumped prior to this recharge.
- Thus the population of communities receiving credits for effluent recharge can be legally and significantly increased even though the PAMA is out of Safe Yield.

ISSUE 3 - Inter-basin transfer of all water legally available from the Big Chino Valley to the Prescott AMA combined with local ground-water withdrawals in the valley will take the Big Chino Valley out of Safe Yield.

- The USGS has estimated recharge to the Big Chino aquifer regional aquifer at about 23,420 acre-feet per year (af/y).
- The combined rights of Prescott and other municipalities in the PAMA allows about 18,600 af/y of water that can be imported into the PAMA.
- Transfer of this water and ground-water withdrawal to meet local needs and projected growth will take the Big Chino Valley out of Safe Yield.
- Even so, municipalities within the PAMA want the right to pump and transport even more water out of Big Chino Valley.

ISSUE 4 - At some point in time importation of water from outside the Upper Verde River Basin will be required.

- Exceeding Safe Yield in Big Chino Valley, in turn, means that the PAMA cannot possibly reach Safe Yield with water derived from the Upper Verde River or upper Aqua Fria River watersheds.
- At this point, a perpetual water supply for the upper Verde River and upper Aqua Fria basins will only be available if it is imported from outside the basins. There is no readily available source for this water.
- Although the Colorado River is pointed to as this source, the river is significantly over-allocated.
 - Average measured flow equals about 12 million acre-feet per year and
 - Existing allocations equal 16.5 million acre-feet per year, in addition,
 - There are still additional Indian water rights that potentially exceed Arizona’s complete allotment that have to be settled.
 - Long-standing and firm legal rights exist for present recipients of Colorado River water.
- Getting water from the Colorado River may require considerable effort.

ISSUE 5 - At some point in time the upper 22-24 mile perennial reach of the Verde River will go dry once Safe Yield in the Big Chino Valley is equaled or exceeded.

- Two recent USGS reports have concluded that ground-water in the Big Chino Valley naturally discharges to the Upper Verde River and that most of the flow of the upper river consist of this discharge.
- Some ground-water in Big Chino Valley, but much less, is also discharged by plants located mainly in Williamson Valley.
- Given this condition, fully established hydrologic concepts including:
 - the source of water to wells and,
 - the law of conservation of mass
- Mean that withdrawal of ground-water by wells located in the Big Chino Valley will ultimately reduce the amount of ground-water naturally discharging to the Upper Verde River by an amount equal to or nearly equal to pumpage.
- Some officials argue that because the two USGS reports don’t explicitly state the above conclusion, it is not correct. They argue that the system isn’t fully understood and is much more complex than that represented by the USGS.
- They are wrong! The USGS fully defined the conceptual system and it is not more complex than they state.
- The conclusion that pumpage from wells will ultimately reduce natural discharge to the Upper Verde River by an amount equal to or nearly equal to pumpage does not have to be explicitly stated in the reports for it to be true.
- Scientific reports seldom state the scientifically obvious.

ISSUE 6 - There is an unwillingness to accept the hydrologic consequences of present and future ground-water withdrawal in the upper Verde River Basin.

and therefore a failure to begin to address the:

- social,

- legal,
- financial,
- and moral questions

associated with these consequences.

- we are allowing growth without an adequate water supply to support it on a perpetual basis.
- As a result we are deliberately transferring this extremely complex issue to those that follow us.
- Legal
 - Prescott and Prescott Valley are facing a legal challenge to their withdrawal of water from the Big Chino Valley based on the concept that the withdrawal will reduce ground-water discharge to the Upper Verde River.
- Financial
 - The estimated cost for transporting water from the Big Chino Valley into the PAMA has not been fully addressed and could be significantly greater than presently assumed.
 - Water lines have a 30 – 50 year life.
 - Importation of water from outside the Upper Verde Watershed will be extremely expensive.
- Moral
 - Is it morally correct to allow population growth on a shrinking water supply?
 - Is it morally correct to disregard the water rights of down stream water users?
 - Do we simply not care about maintaining perennial flow in the upper Verde River?

~ Those interested in learning more about local water issues and how our citizen-based group is working with area officials are encouraged to visit our website at www.cwagAZ.org. Please join with us by attending our meetings held on the second Saturday of each month, 10am-Noon at the Granite Peak Unitarian Universalist Congregation, 882 Sunset Ave in Prescott.

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