Nancy Soriano

6/7/2019
Comment " Net Ecological Benefit"

My husband and I are "Member" and "Alternate", respectively, on the WRIA 49 Planning Unit. Based on our experience of the meetings so far, as well as our knowledge of the Okanogan Watershed, we are motivated to take this opportunity to comment on Net Ecological Benefit and the process prescribed for achieving that.
Our take on it is that the demands of the Streamflow Restoration Act or impossible to meet, for WIA 49.
As DOE is well aware, the waters of WRIA 49 are already over-appropriated and junior water rights are curtailed frequently because of low instream flows.
Our primary concern though is that the focus on NEB does not provide protection for the Tributaries to the Okanogan River.
The Okanogan River presents profound and unique challenges. It is described by some as a slow moving, shallow lake, which results in water temperatures inhospitable to fish. The Colville Tribe has done extensive research on the River and its Tributaries and their best available science concludes that the cold water from the Tributaries is essential to endangered fish.
Without protecting perennial streams in the sub basins, particularly those which border the Okanogan River on the east side, it is not possible to protect or enhance endangered salmonoids.
The 2009 WRIA 49 Watershed Report identified ten " Perennial Streams of Concern. " These are Tributaries to the Okanogan River, including
(---Antoine Creek, with a low summer flow of 0.01cfs, and overappropriated by 87,000 percent
---Bonaparte Creek, with low summer flow of 0.04 cfs, and overappropriated by 41,188 percent.
----Tonasket Creek, with a low of 0.7 cfs and overappropriated by 54,000%
-----Tunk Creek , with low flow of 0.1cfs and over-appropriated by 1,300%
Allowing 20 years of exempt wells in these tributaries is a disaster. We do not believe there is any realistic way to mitigate for unlimited wells in the necessary-to-fish perennial streams that are over-appropriated and already have less than 1 cfs in the summer.
Included in the 1976 Instream Flow Rule for Okanogan River, The Department of Ecology recognized the scarcity of water in these perennial streams. Withdrawals were curtailed for six months of the year, EVERY YEAR. It is unfortunate that the DOE's own understanding, from over 40 years ago, of the extreme water scarcity in these tributaries was ignored when it suggested that 20 years worth of exempt wells could be mitigated for.
WAC 173-549-070 goes on to address the potential impacts of too many exempt wells in these tributaries:

Single domestic use and stockwatering use shall be exempt from the provisions established in this chapter except that, when the cumulative impacts of numerous domestic diversions begins to significantly affect the quantity of water available for instream uses or the maintenance of lake levels, then any water rights issued after that time shall be issued only for in-house use if no alternative supply is available...

In 1976, it was understood that exempt wells could impact perennial streams, and exempt wells would have to be limited.
Now, with NEB, there has been a giant step backwards into magical thinking. The fact is, there is not a satisfactory way to mitigate in the Tunk and other tributaries.

We are most familiar with the Tunk Valley. In 2006, the Colville Tribe commissioned a study of water rights in the Tunk Valley Drainage. The purpose was to identify water rights for purchase to provide more water in the perennial stream for fish.
This study (Rajala, attached) identified the two largest senior irrigation water rights, to irrigate a total of 100 acres of alfalfa. Since the time of the report, both of these water rights have been abandoned because of lack of water in the Tunk Creek.
These water rights holders both attribute the loss of streamflow to the rapid increase in exempt wells, that have been drilled in the headwaters.
One of the two water right holders attempted to convert the surface water right to a ground water right, under the name: Tunk Valley Water Association. Their "Memorandum" is attached.
It took about 5 years to go through all the procedures and paperwork and analysis, to get that conversion of a surface water right to a ground water right. By then, the water resource in the Valley had been depleted to the point that there was insufficient ground water to irrigate.
The point is that the analysis of water availability for one water right conversion to groundwater, took DOE about 5 years, but the DOE and Legislature expect a group of local citizens with little or no qualifications, to come up with a NEB for an entire watershed in just a couple years.
This WRIA Planning group meets only 2 hours per month.
Attendance is sketchy. Sometimes there is a strong smell of alcohol in the room. Discussion, not infrequently goes way off topic.
I fear for the future of WRIA 49 under the Streamflow Restoration Act.
We are concerned that perennial stream, Tunk Creek, as well as the aquifer, will not be protected.
In the case of Tunk Creek, the fish can only go up the creek six tenths of a mile. In discussion with a technical advisor, one suggestion was to capture run-off and inject into the ground to compensate for wells that are dug as far up stream as 20 miles. First of all, That's not going to happen. There will never be funding for that and secondly, it would allow the rest of the sub basin to go dry. And what about the other tributaries?
A major flaw of this NEB, is that it only requires ideas for mitigation, without any guarantee that mitigation for the Tunk and other perennial streams with extremely low flow, will ever occur.
Attached you will find research that was done by hydrogeologist, Gina McCoy on the Tunk Valley. The evapotranspiration rate for the valley is 96%. The run-off is 4%. That accounts roughly for 100% of precipitation, which is the sole source of aquifer recharge. There is concern that the aquifer is already being depleted faster than it is being recharged.
The Tunk Valley is 53,000 acres. We now have just over 200 wells. Hundreds of additional wells could be drilled in the next 20 years, especially with the high rate of growth that could result as spillover from the unprecedented population explosion in King County. As you can see, in Gina McCoy's report, the rate of growth in the Tunk Valley has been over 1,300%, while the rate of growth in the county as a whole was only about 34% over the same time period.
The Tunk Subbasin, is very dry. Just 4 years ago, we had drought and a after a few days in which the temperatures went above 100 degrees, the Valley exploded in wildfire. It was actually more like a firestorm. It burned so hot and fast that, for example, there was no trace of power poles. Just the wires on the ground. Tunk Valley is already very, very, dry. It's a powder keg. We are in Drought again this year. NEB and 20 years of additional exempt wells will result in terrible destruction, and will not help fish.
Net Ecological Benefit could allow the WRIA Planning Unit to decide that there is no way to mitigate for 20 years of exempt wells in the Tunk Valley. The NEB would allow the Plannig Unit to triage the Tunk; allow it to go dry and do some mitigation somewhere else.
No perennial stream, and the wildlife habitat it supports, should be sacrificed, for NEB.

The Water Resources Act of 1971 states that fish are not the only consideration in protecting perennial streams:
90.54.020(1).)
The act further specifies that "Perennial rivers and streams of the state shall be retained with base flows necessary to provide for preservation of wildlife, fish, scenic, aesthetic and other environmental values, and navigational values." (RCW 90.54.020 (3)(a).)

Tunk Valley is an important habitat for another endangered species, the Sharp-tailed Grouse. These grouse require large areas of un-fragmented habitat and they require healthy riparian habitat, which would be lost as a result of 20 more years of unlimited wells.
We would argue that the Streamflow Restoration Act and Net Ecological Benefit does not fulfill the requirements of the Water Resources Act of 1971, because it does not provide for preservation wildlife, scenic, aesthetic and other environmental values...
Thank you for considering our comments on Net Ecological Benefit.

Sincerely,
Jim and Nancy Soriano
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98849

MEMORANDUM FOR RECORD 16 Oct 2017

Subject: Surface water impairment, Tunk Creek

In 2001 my wife and I bought property, which included a senior water right, (CHS4-17687C) on Tunk Creek, near the intersection of Tunk Creek Road and the Chewilikin Valley Road. This water right is shared between three properties, two being upstream of ours. A water collection system and pump is located on Tunk Creek at the furthest upstream property. We paid a premium for this property based on this senior water right.

Originally a distribution line extended from this collection point on Tunk Creek to further downstream of our property. As exempt well development increased throughout the upper valley it reduced flows in Tunk Creek made it impracticable to attempt irrigation of our fields.

Attempts were made by us and the other senior water right owners without success to operate this irrigation system after the spring runoff ended.

Subsequently two wells (Well Report ID: 330970 and 333297) 20 feet deep with 8 inch casings and submersible pumps were installed and connected to the PUD power at the original diversion structure in 2002. A significant expense was incurred to upgrade this water collection point.

Flows in Tunk Creek have not provided sufficient water at this collection point in the under gravels to operate this system in spite of several attempts.

Historically Tunk Creek flows were sufficient for diversions at several points along the creek to irrigate significant acreages. Willis Figlenski had almost 60 acres in alfalfa and had to abandon his senior water claim due to lack of stream flow. He ended up having to buy a irrigated piece on the Okanogan River to replace this loss. On our senior water right Virgil Green irrigated 40 acres for many years. It is now to the point that

none of these crop fields can be irrigated.

John David Sweger
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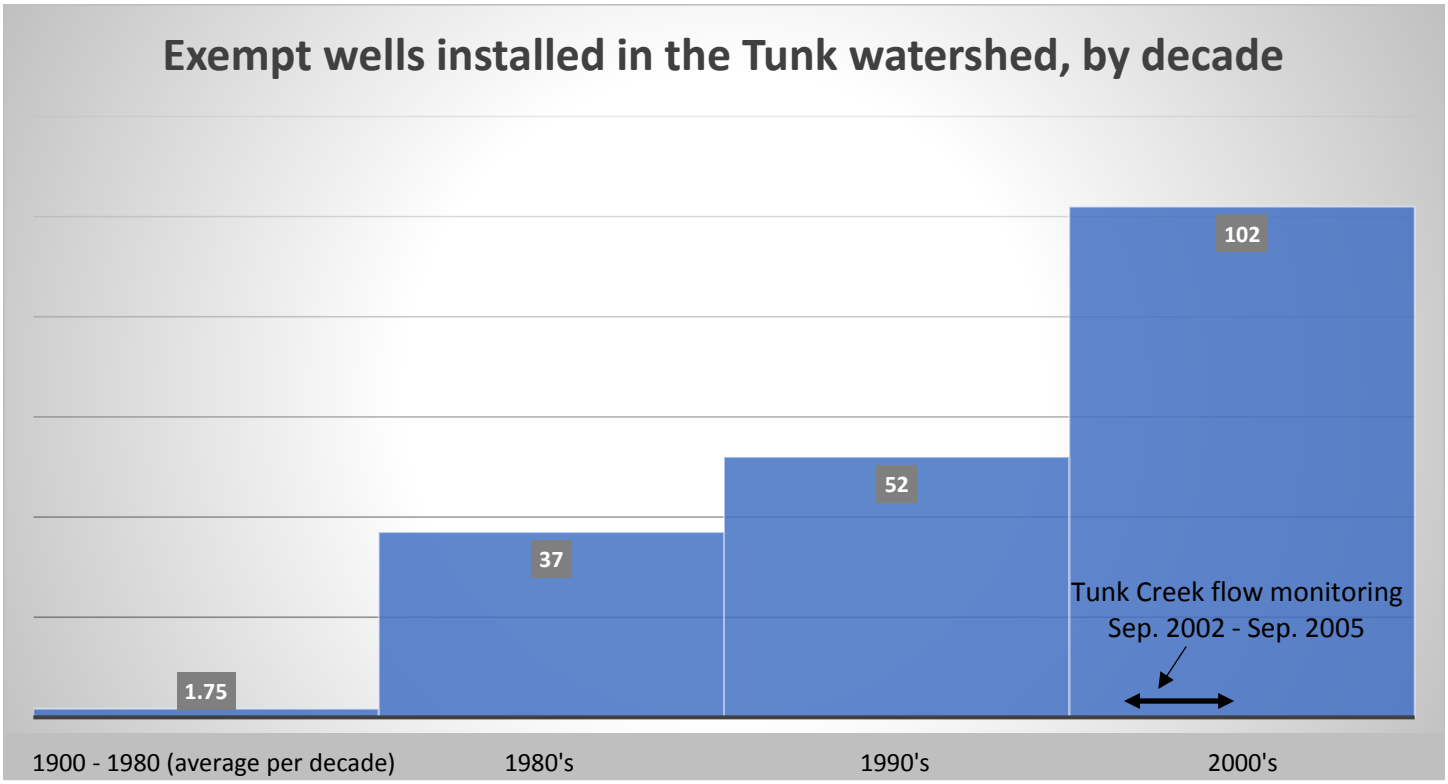
THE TUNK WATERSHED GROWTH RATES COMPARED TO THE COUNTY OVERALL, AND IN-TIME, IN-PLACE MITIGATION TO ACHIEVE NET ECOLOGICAL BENEFIT

Gina McCoy, P.E., Arrowleaf Resource Consulting, LLC.

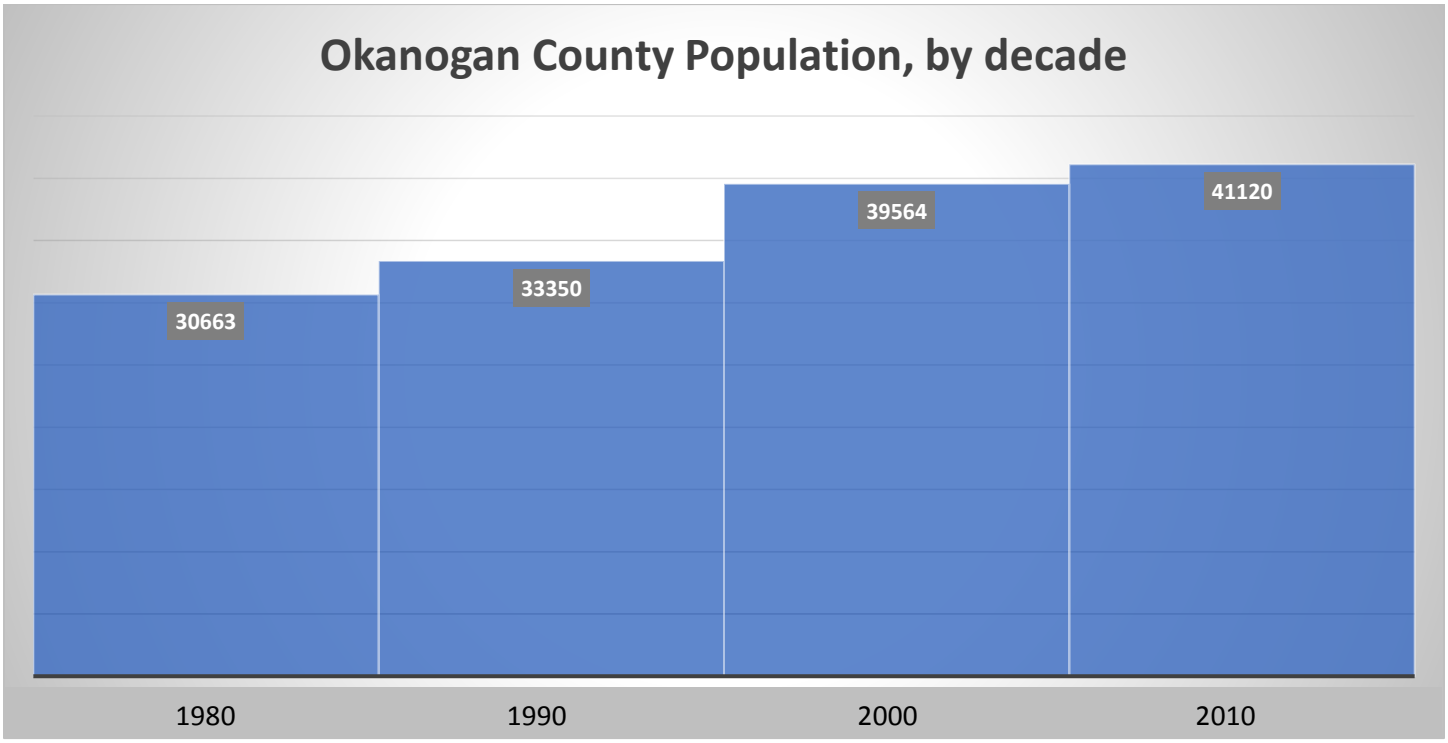
During the May 2019 meeting of the WRIA 49 Planning Unit, it was agreed that, in order to identify what mitigation is required to achieve 'Net Ecological Benefit' (NEB), it is important to identify where future growth will occur. As discussed below, the history of growth in the Tunk watershed has far outpaced growth rates in the county as a whole, threatening vital aquatic resources and water availability.

The 2009 Okanogan Watershed Plan and its supporting documents (the "Plan") contain much of the information needed to identify the Tunk Watershed as severely limited in the water resources needed to support future development. Unless otherwise noted, the following discussion uses information taken from the Plan. The Plan identifies the water balances derived by Entrix as being appropriate for use when assessing the effects of water withdrawals. In the case of the Tunk watershed, the water balance involves 13.34 inches of average annual precipitation, 96% of which is lost to the atmosphere through evapotranspiration (i.e., the portion of precipitation returned to the atmosphere through evaporation and by transpiration of plants*)* and 4% of which is the yield of the watershed to the Okanogan River. This amounts to an average watershed discharge of 3.14 cubic feet per second (cfs), with summer low flows reaching as little as 0.1 cfs.

The Plan provides excellent details on the limitations imposed by geology on the natural storage capacity for precipitation delivered to the Tunk watershed. Notably, due to underlying geology, groundwater storage is limited to the unconsolidated glacial drift that covers 65% of the watershed and is generally less than 100 ft. deep. What the Plan was not able to address was the rapid development underway at the time that the supporting information was collected (see the chart below – information derived from the Washington Department of Ecology ('Ecology') well database). Streamflow was monitored for three years in the first half of the 2000's – the decade that development was proliferating in the Tunk watershed.



According to Ecology's Water Rights Tracking System, between 1900 and 1980, 14 wells were recorded in the Tunk watershed within Township 35 North and Ranges 27, 28 and 29. Between 1980 and 2010, the total number of exempt wells in that area increased to 205 – representing an increase of more than 1,360%. In the same period, the population of Okanogan County increased by 34% (see chart below). Clearly, development has disproportionately affected the Tunk watershed compared to the county as a whole.



ESSB 6091 mandates a watershed plan in WRIA 49 that mitigates for the effects of future exempt wells, and that Ecology must determine that actions identified in the plan will result in a net ecological benefit to instream resources. In its 'Interim Guidance for Determining Net Ecological Benefit', Ecology's interpretation is that mitigation measures should support the recovery of threatened and endangered salmonids. As noted in their guidance*: 'Information on local conditions is crucial to understanding how to achieve NEB for individual watersheds. NEB evaluations should make use of available information on watershed-specific factors including: hydrogeology, stream flow conditions, fish populations and life histories….'*

Tributaries such as the Tunk are vital to the survival and recovery of steelhead in the Okanogan subbasin. The habitat they provide is typically flow-limited. The figure below, taken from the Colville Tribes' 2018 Okanogan Subbasin Steelhead Spawning Abundance and Distribution report illustrates the importance of lower Tunk Creek for spawning habitat. This indicates that, to comply with ESSB 6091, further development in the Tunk watershed needs to rely on actions within the watershed that offset consumptive domestic water use during the same time that they occur.

Until metering of wells and septic inputs measure actual consumptive use, required mitigation must be estimated. It is argued that most of the water withdrawn by exempt wells is used non-consumptively. That may be correct for in-house usage, however, outdoor watering is highly consumptive. Only wasteful practices allow applied water to percolate past the root zone and return to the groundwater.

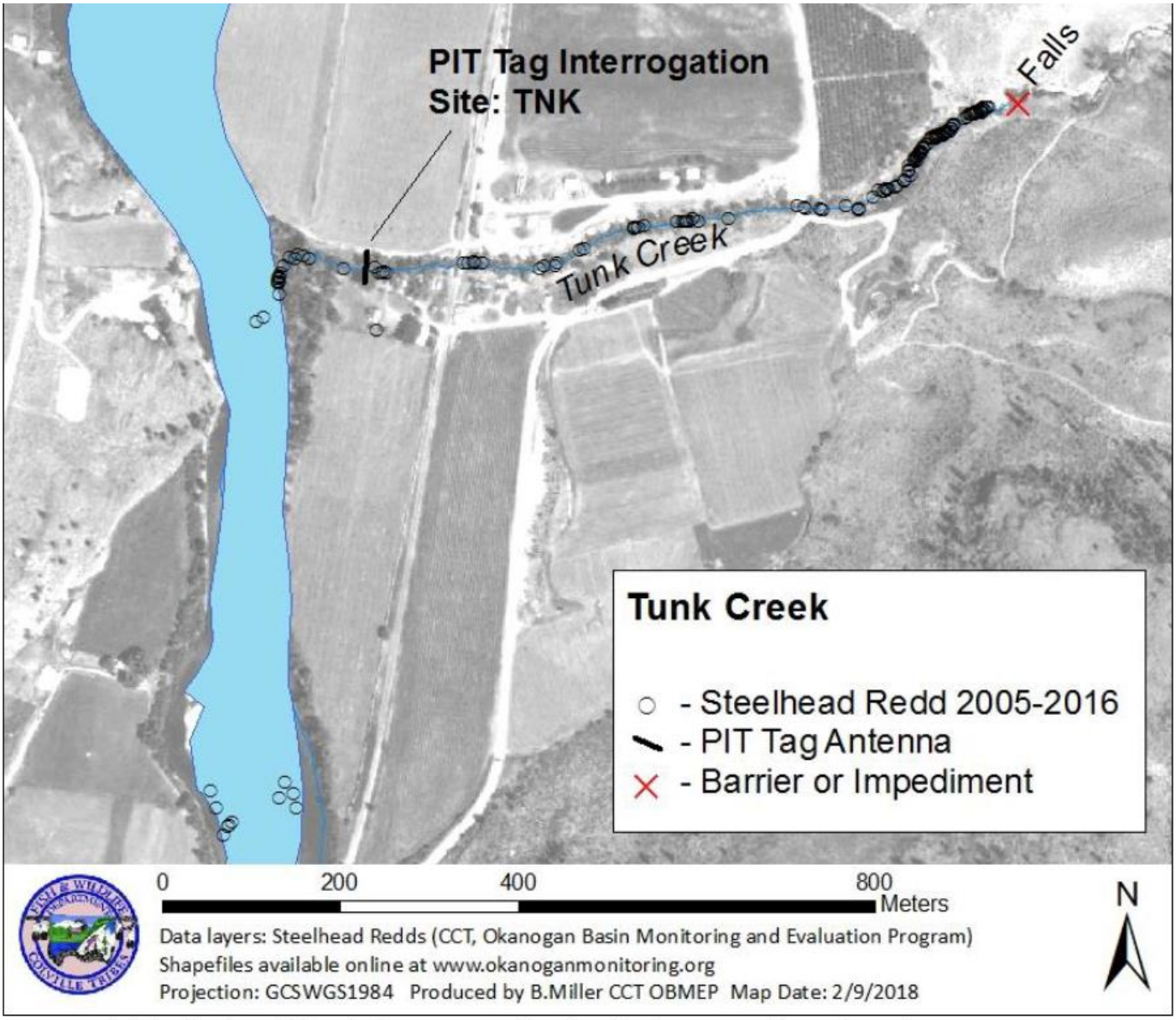


Figure 28. Spatial distribution of historical summer steelhead redds documented in Tunk Creek.

There is no reasonable rationale to rely on the assumption of insignificant amounts of outdoor usage from exempt wells in lieu of actual measurement. Application rates of 2.1 gallons per minute – about the rate of an ordinary sprinkler - would consume the allowed 3,000 gallons per day. During the growing season, at least 90% consumption due to evapotranspiration should be added to mitigation for year-round consumptive in-house use, and, to achieve Net Ecological Benefit, each future exempt well should be mitigated in 'time and place' accordingly.