Ann Diers

From: Ann Bleed [ableed@dnr.state.ne.us]
Sent: Friday, April 29, 2005 8:06 AM
To: Ron Bishop
Cc: Ann Diers; Tina Kurtz; Roger Patterson; Jim Cook
Subject: Response to question from Ron on offsets in a fully appropriated area

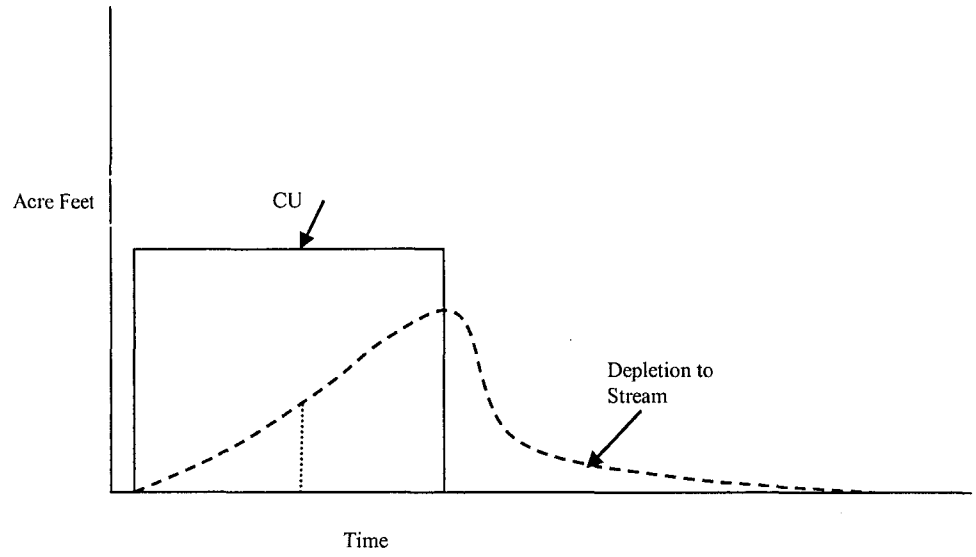
Importance: Low

Pumping and Stream Depletion.d..

Ron - This is where I am coming from on the question you asked about offsets in a fully appropriated area. I have briefly discussed this question with others and I think we are all on the same page. I have tried to write up where I am coming from. I hope this helps the communication at least and trust that if others disagree they will let us both know. Ann

p.s. I did the example assuming no et salvage. Please don't take this to mean that when I did that I am suggesting it should be ignored. I just didn't want to complicate the problem. Ann

Pumping and Stream Depletion



This diagram is not to scale but the rectangle is to represent a well at some distance from the stream that consumes a constant amount of water over a certain period of time. The dashed curve is the depletion from that well on the stream. . Ignoring the potential that ET salvage would reduce the impact of the pumping on the stream, the amount area under the rectangle, i.e. the amount of water consumed because of the well pumping should equal the amount of water depleted from the stream over the entire period that the well depletes the stream. The vertical dotted line represents a certain point in time, say 40 years, at which a certain percentage of the total amount pumped has shown up as a stream depletion by that point in time

To offset the impact of the well on stream flow in quantity and timing, water would have to be provided to the stream in an amount equal to the height of the curve at any given time. If the obligation was to offset that the impact of pumping on the stream only up to that point in time, the quantity of water that would be required for the offset would be the amount under the curve to the left of the vertical line. However, to insure that the total stream depletion was offset, not just within a certain time period, the total offset required would be the same amount as the total amount of water consumed by the well.

Under LB 962, the water supply and use must be in balance over time and therefore the depletion from a new well must be completely offset over time. However, LB 962 does not dictate how this is done not does it require that the entire quantity of water required by the offset be available, only that the quantity be available to offset when needed to keep the river whole. The plan could require that a new well have sufficient amount of offset water to cover the entire depletion at the point the well started pumping (for example retiring the same number of acres as will be irrigated with a new well in the same general location as the new well). Alternatively the plan could only require a portion of the water be required at the time the well starts pumping with the remaining to

be acquired later. Comparing these options to the national debt, the first is the fiscal approach of Nebraska which does not allow the State to go into debt, the latter is the like the national government that borrows from future generations. The plan could also share the responsibility of who provides the offset water. The plan could require the new well owner to obtain all the offset water or it could have someone else (i.e. the state in the ND plan) to require part of the water for offsets. No matter how that is done, to maintain the balance between supply and use over time, the entire consumptive use of the well must over time be offset in order to keep the stream whole.