

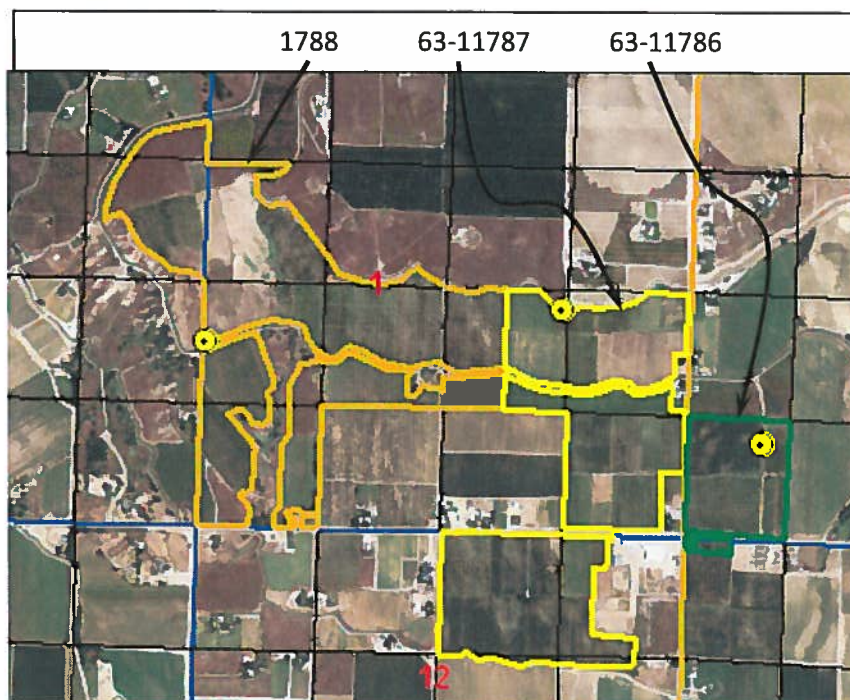
Christensen, Kelly

From: Christensen, Kelly
Sent: Wednesday, July 11, 2012 3:51 PM
To: 'garrettranches@heritagewifi.com'
Subject: Preliminary finding for 63-11786, 63-11787, and 63-11788
Attachments: 63-11786 et al Garrett pre license analysis.docx

Attached is a summary of the permits and the tentative acreage and rate recommendations for each right. Because two of them calculate to be less than an inch per acre I thought that I should run the numbers by you before moving forward with the licensing process. Please provide me with your input within 30 days as ultimately the licenses have to be finalized one way or the other. As it stands I would forward the permits to licensing based upon the numbers shown in the attachment.

It may be easier to discuss this through a phone conversation as there is a lot of options to discuss. You can reach me at 334-2190 (ask for Kelly).

PRE LICENSING REVIEW AND ANALYSIS



Shown are the proposed recommended POU shapes for the three permits.

63-11786	34 acres	0.68 cfs – Rate limited to 1 inch per acre for the found acreage
63-11787	144 acres	0.80 cfs – Rate based upon 40 Hp, static level of 188 ft and a 100 ft drawdown, and open discharge (nominal pressure of 10 PSI)
63-11788	177 acres	2.32 cfs – Rate based upon 100 Hp, static level of 142 ft and a 100 ft drawdown, and open discharge (nominal pressure of 10 PSI)

I decided to provide you with this information for your input prior to completing the recommendations for licensing. My concern is primarily the calculated rates for 63-11787 and 63-11788. As the values are based upon estimates or well log information that may no longer be representative of current conditions I wanted to confirm that they are acceptable to you. I used a drawdown value of 100 ft based upon well driller tests for some other wells within 2 miles of this location as that information was not available for these rights. Obviously the rate for 63-11787 is the biggest concern. The theoretical calculation gives a diversion rate less than one half an inch per acre. The formula used is shown to the right.

$$\frac{40 \text{ Hp} * 8.8 * 0.7}{(10 \text{ PSI} * 2.31) + 288 \text{ ft}} = 0.792 \text{ cfs}$$

Obviously the best way to resolve the concern would be to turn the well on and route the discharge so that the flow would go over the weir at the point of discharge. Alternatively would be to get more accurate values for the dynamic pumping level.

During the field examination for the three rights we discussed the possibility of a transfer tying 63-11786 and 63-11787 together through a transfer. Along with this or alternatively the well associated with 63-11786 has excess capacity as it was originally developed for a significantly larger POU. You might want to consider filing an application for permit for this well to be used on the POU covered by 63-11787 and possibly a portion of 63-11788.