



State of Idaho

DEPARTMENT OF WATER RESOURCES

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C. L. "BUTCH" OTTER
Governor

GARY SPACKMAN
Interim Director

April 9, 2010

MICHAEL C DAINES
2055 EDGEWOOD LN
WENATCHEE WA 98801

RE: Water Right 11-7151

Dear Mr. Daines,

I have been in contact with Clark Daines discussing the diversion rate proposed to be licensed under 11-7151.

On March 29, 2010, Clark contacted me to ask how the proposed diversion rate of 3.66 cfs was calculated. I did some research and called Clark Back on 4-9-10 to discuss what I found out.

The diversion rate of 3.66 cfs was taken from a measurement conducted in July of 2000 by Burke Scholer and Jane Tallman. The measurement was conducted using a Fuji Ultrasonic Flowmeter and the capacity between the two wells was found to be 3.66 cfs:

Central Well:	897 gpm (2.0 cfs)
South Well:	<u>748 gpm (1.66 cfs)</u>
Total =	1645 gpm (3.66 cfs)

Clark was concerned that the measurements were taken when the wells were not running at the historical capacity due to the degradation of the system over time.

Background:

IDWR is required to issue the license based on what was developed during the authorized development period for the permit. Due to an approved extension of time, the authorized development period for permit 11-7151 was longer than the normal 5 year max and ranged from September 21, 1978 to September 1, 1988. During that time two wells were drilled. The South Well drilled in 1980 and the Central Well drilled in 1983. Ideally, a measurement should have been taken within that timeline or shortly after. However, the first measurements IDWR has available on file are those taken in 2000. Unfortunately, at that time, we already know the measurements won't exactly reflect what was being pumped during the development period because the south well was deepened in 1997.

When Clark asked me about the possibility of IDWR doing another measurement, I did some theoretical calculations for diversion rate based on the information available. I wanted to see if the diversion rate

measured in 2000 would differ significantly from what would be theoretically calculated using the known parameters. What I found was that the theoretical diversion rates calculated did not differ significantly from what was measured in 2000.

Theoretical Calculations:

Theoretical Diversion Rate Calculation (HP):

Central Well: 1983: 75 hp pump with a pumping level of 136' (No psi on PCC exam, use 50 psi)
South Well: 1980: 50 hp pump with a pumping level of 80' @75 psi

Using the theoretical equation $Q = \frac{(8.8)(\text{Efficiency})(\text{HP})}{\text{Dept to water} + 2.31 * \text{PSI} + \text{friction}}$

Assumption: 70% efficiency
No Friction

Theoretical Q for: Central Well is 1.84 cfs
South well is 1.22 cfs
Total: **3.05 cfs**

Even if we dropped the discharge pressure back on both wells to 45 psi, the theoretical calc still shows a total diversion from both wells as being **3.6 cfs** which is less than measured in 2000.

Ultrasonic Flow Meters:

The max diversion rate in GPM shown on the PCC exam conducted in 2000 is slightly different than what was recommended on the license. It appears what was recommended on the license might have been averaged. The max rate shown on each readout is:

Central Well: 926.7 gpm
South Well: 798.8 gpm
Total: 1725.5 gpm or **3.84 cfs**

Theoretical Diversion Rate Calculations Based on Wheel lines and Pivot:

Tim Lukes field exam write up states that the 897 gpm measured for the pivot appears to be reasonable based on system descriptions. His exam also states that despite that the PCC exam done in 2000 only mentions two (2) wheel lines in use, three (3), 1/3 mile wheel lines running a total of 125 nozzles at a rate of 6 gpm would produce about 750 gpm which is really close to what was measured.

897 gpm + 750 gpm = 1647 gpm or **3.67 cfs**

Summary:

Idaho Administrative Code, IDAPA 37.03.02.050e states:

"An examination fee equal to the initial examination fee paid to the department shall be paid for a re-examination made at the request for the permit holder except upon a showing of error by the department on the initial examination."

Based on the above theoretical calculations matching closely to the 2000 measurements, there is no clear evidence that IDWR made a mistake in the measurement. Therefore, if you would like to pursue requesting a reexamination, you will need to provide the examination filing fee of \$250.00.

I told Clark, in our conversation, that if you chose not to pursue another field exam, I could support increasing the recommended diversion rate under license 11-7151 from 3.66 cfs to **3.84 cfs** as reflected by the max rate recorded in the ultrasonic flow measurement conducted in 2000.

Keep in mind that a second measurement does not guarantee that IDWR will be able to support licensing a greater diversion rate than the 3.84 cfs I said we could support. If the field examiner finds that the system has changed significantly from what the historical records show, IDWR will have no choice but to recommend the diversion rate that best reflects the historical practice. For example, during the development period we know that the South Wells had a 50 hp pump and the Central Well had a 75 horsepower pump. If in 2010 the field examiner finds that Central Well has a 100 HP pump, then IDWR won't be able to use a new measurement for that well as it would not reflect the historical diversion rate.

Options:

Look things over and if you still feel that the diversion rate supported by the 2000 measurement is not reflective of historical practice, then please send a written request to my attention for a second field exam along with the field examination fee of \$250. Please include any additional information you would like to for the file. Clark and I spoke about sending a copy of a July 26, 2007 field exam conducted by Cindy Bird where she measured diversion rates of 658 gpm and 550 gpm.

If, on the other hand, after reviewing your data you do not want to move forward with requesting an additional field exam, please sign the amendment I sent you with the March 23, 2010 letter and sent it back to my attention. Be sure to cross out 3.66 cfs and write in **3.84 cfs** initialing next to the change.

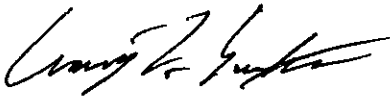
Where we stand now:

Right now IDWR has a signed application for amendment for licensing purposes that was received on March 12, 2010. The elements of the amendment indicating that license 11-7151 should be issued for

3.66 cfs, 300.8 acres, and 723 AFA. If I do not receive correspondence letting me know what direction you want to go within 30 days, I will move forward to issue the license with those elements (copy attached).

I know this is a lot of information so please do not hesitate to contact me if you have any questions.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Craig L. Saxton".

Craig L. Saxton
Water Right Supervisor
Water Right Permits Section
craig.saxton@idwr.idaho.gov
208-287-4916

Enclosure