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DEPARTMENT OF
WATER RESOURCES

March 16, 2012

Ms. Cherie Palmer, Sr. Water Resource Agent
Idaho Department of Water Resources
Water Allocation Bureau
322 East Front Street
PO Box 83720
Boise, Idaho 83720-0098

Subject: Permit 63-12596 (Crane Creek Country Club) Information Request

Dear Ms. Palmer,

The purpose of this letter is to respond to questions outlined in your letter of 11/21/2011 pertaining to the licensing of Permit 63-12596. Specifically, this letter provides the following information:

1. Confirmation that a device for measuring flows from the Johnson Ranch wells has been installed.
2. Submittal of calibration data for the new meter installed to measure flow from the Johnson Ranch wells and that the calibration flow rate is within IDWR's $\pm 10\%$ tolerance.
3. Description of how Permit 60-12596 Conditions #10 ("the total daily diversion under this right shall be limited to 3.7 AF per day") and #12 ("Diversion of water under this right from the 'Clubhouse Well'... shall not exceed 1.84 cfs") have been – and will continue to be – met.
4. Justification for licensing a maximum instantaneous diversion rate of 5.52 cfs.

Crane Creek Country Club (CCCC) also requests that the water right be licensed with a change in one of the conditions currently listed on the Permit 63-12596. The proposed condition change is discussed on page 7.

Flow Meter Installation

CCCC has installed a 6-inch McCrometer Ultra Mag meter (serial number UM20110609) in the pipe conveying water from the Johnson Ranch wells (springs) to a pond near the CCCC clubhouse (Figure 1 and Figure 2). Numerous constraints limited installation-site options; the installed location was selected based on accessibility and continuous full-flow characteristics.

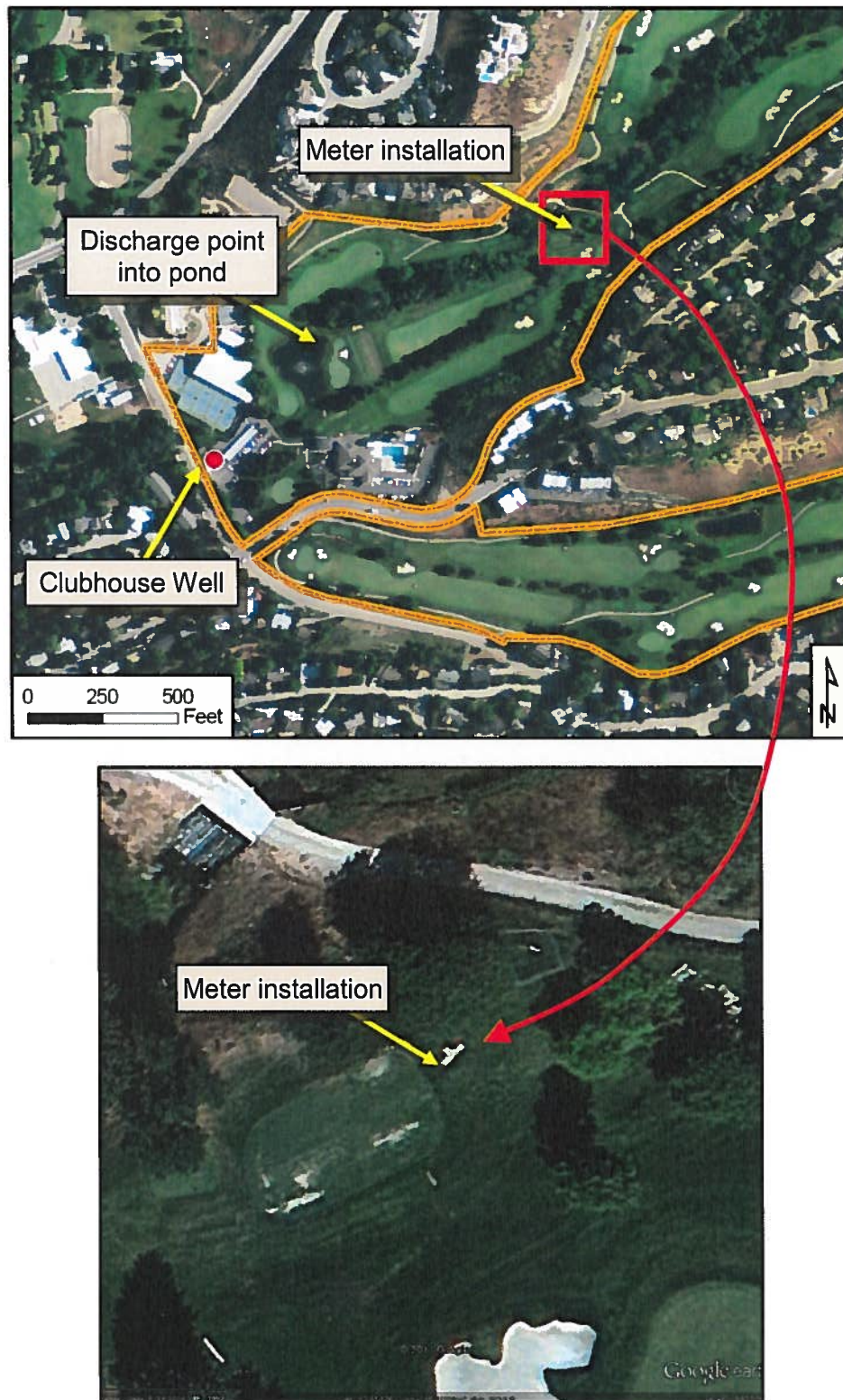


Figure 1. Location of Johnson Ranch wells meter installation.



Figure 2. Johnson Ranch wells meter installation and meter reading on 12/12/2011.

The factory calibration report for this meter is provided in Figure 3. SPF performed calibration measurements on December 12, 2011 with a clamp-on ultrasonic transit-time flow meter (Panametrics PT878 , purchased on 6/21/2011). Access to the supply line with the clamp-on meter was limited to one location (Figure 4), which did not allow fully meeting placement specifications.

On December 12, 2011 the in-line McCrometer meter read 48.9 gpm (Figure 2). The temporary clamp-on ultrasonic transit-time flow meter registered 45.0 gpm (Figure 4), which represents an approximate 8% difference, and which is within IDWR's $\pm 10\%$ tolerance.

Clubhouse Well Diversion Less Than 1.84 cfs

The Beneficial Use Field Exam for Permit 63-12596 (performed on April 16, 2003) indicated a discharge rate from Well No. 1 (Clubhouse Well) of 850 gpm (1.89 cfs). This rate is within approximately 2.7% of the 1.84 cfs diversion limit. In recent years, the Clubhouse Well typically pumps at a rate of approximately 750 gpm (per Adam Bagwell, Golf Course Superintendent), which is equivalent to 1.67 cfs. SPF observed a pumping rate of 725 gpm (1.62 cfs) on October 14, 2011 (see Table 1 of my 11/7/ 2011 response).

There currently is no flow control (e.g., valve) installed in the pump discharge line from this well, but current production rates are well below the maximum 1.84 cfs diversion limit. CCCC proposes installing a new flow meter and discharge valve the next time that (1) the pump is pulled for maintenance purposes¹ or (2) CCCC undertakes reconstruction of the Clubhouse Well area (as is now being contemplated). These measures will ensure that future diversions from this well do not exceed 1.84 cfs.

¹ A new water-level measurement tube will be installed at the same time.

McCrometer, Inc. Calibration Report

Serial Number:	UM20110609	Sensor Factor 1:	2.6573
Calibration Date:	06-17-2011	Sensor Factor 2:	N/A
Report Date:	10-17-2011		
Model Number:	UM06-06	Meter Size:	5.7
Description:	6" ULTRA MAG		
Sold To:	SILVER CREEK SUPPLY/WESTERN SUPPLY		

	Temp °F	Time sec	Weight LBS	Actual Rate GPM	Meter Rate GPM	Velocity FPS	Acc. %
1	80.0	30.691	8292.00	1949.96	1955.42	24.53	0.3
2	80.0	30.519	4572.00	1081.22	1084.79	13.60	0.3
3	80.0	189.717	1281.00	48.73	48.39	0.61	-0.7
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Certified By:	P. Hobbs	Certification Date:	6-17-11
Calibration Fluid:	WATER	Record Filename:	UM20110609

This calibration was performed on a gravimetric flow stand, traceable to the National Institute of Standards and Technology, USA. The flow measurement uncertainty of the facility is estimated to be $\pm 0.15\%$ of reading based on the cumulative uncertainties of time, weight and temperature measurements combined with other systematic uncertainties.

McCrometer, Inc.
3255 W. Stetson Avenue, Hemet, CA 92343-7799
Phone: (951) 652-6811 Fax: (951) 652-3078
e-mail: info@mccrometer.com Web Site: <http://www.mccrometer.com>
Hours: 8 a.m. - 4:30 p.m. PST, Monday-Friday

Figure 3. Johnson Ranch wells meter calibration report.

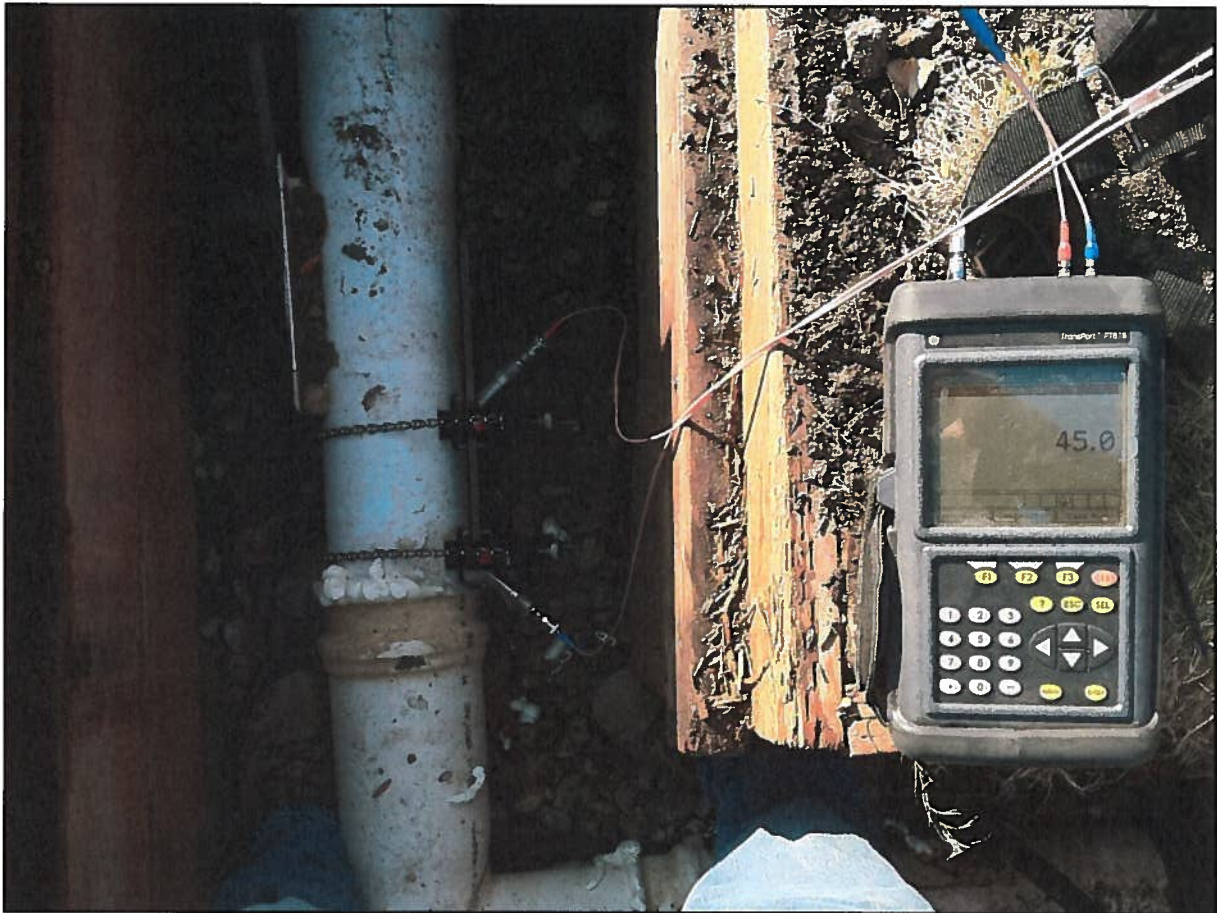


Figure 4. Temporary clamp-on meter installation, 12/12/2011.

Maximum Diversion of 5.52 cfs

Permit 63-12596 lists a maximum diversion rate of 5.52 cfs. The Beneficial Use Field Exam recommended licensure at this rate. However, your letter of November 21, 2011 expressed concern about whether pumping rates from the three wells were sufficiently documented.

The Field Exam listed measured production rates of 850 gpm (1.89 cfs) in Well No. 1 (Clubhouse Well); 545-550 gpm (1.22 cfs) in Well No. 2 ("Back Nines Well," formally "Front Nines Well"); and 730-750 gpm (1.65 cfs) in Well No. 3 ("Front Nines Well," formally "Back Nines Well"). In addition, the Field Exam listed an estimated flow rate of 150-175 gpm (0.33-0.39 cfs). In aggregate, the observed diversion rates on the day of the Field Exam were 2,275 to 2,325 gpm (5.07 cfs to 5.18 cfs).

The field examiner (Squires) described substantial water-level declines in Well No. 3 (formerly the "Back Nines Well") during the development period for Permit 63-12596. At higher water levels following well construction, this well likely produced more water than was observed in the 2004 Field Exam (because of greater lift required at lower water levels). The

Field Examiner then noted that "using a conservative estimate of specific capacity of 20 gpm/ft of drawdown, a lowering of the pumping water level in the well of only about 8 feet would cause a loss of production of 153 gpm" (Field Exam, page 5). This amount (153 gpm) is equivalent to 0.34 cfs which, when combined with the 5.18 cfs listed in the Field Exam, would be 5.52 cfs, the maximum diversion rate listed in Permit 63-12596.

Water-level declines in Well No. 3 are stabilizing (see Figure 7 in my 11/7/2011 response), and with current CCCC efforts to reduce aggregate diversions from Well No. 3, water levels may very well increase again. Given the existing pump configuration, instantaneous withdrawal rates would likely increase with higher water levels (because of less lift), restoring earlier pumping capacity.

It should be noted that although water-level declines have been observed in the vicinity around Well No. 3, water levels in Wells No. 1 and No. 2 have remained stable (see Figures 5 and 6 in my 11/7/2011 response). Water-level declines appear to be limited to the immediate vicinity of Well No. 3.

CCCC requests that Permit 63-12596 be licensed for the full 5.52 cfs instantaneous diversion rate currently listed on the permit. I believe that this rate is justified because (1) instantaneous diversion capacity from Well No. 3 will likely increase again as water levels rise (to rates experienced earlier in the development period) and (2) diversions from the Johnson Ranch Wells (which flow under artesian head) occasionally exceed the 150-175 gpm rate estimated on April 16, 2003 (the date of the Field Exam). Specifically, aggregate discharge from the Johnson Ranch wells (see Figure 8 in my 11/7/2011 response) at or above 200 cfs was observed on 7/2/1998, 7/29/1998, 3/9/2007, 3/25/2008, 4/26/2008, and 3/12/2009.

Your letter of 11/21/2011 states that "IDWR will base the maximum diversion rate on the actual measurements that were taken at the time of the field exam and *may use the information within your report* [SPF 11/07/2011 response] *to supplement those measurements*" [emphasis added]. Thus, I respectfully request that you consider licensing Permit 63-12596 for the full 5.52 cfs maximum instantaneous diversion rate based on (1) information provided in the Field Exam and (2) water levels and Johnson Ranch discharge flows listed in the SPF 11/7/2012 response. Licensing at this rate represents minimal (if any) risk to protestants to Application 63-12596 because the closest well (Well No 1, aka the Clubhouse Well) is limited to a maximum diversion rate of 1.84 cfs.

Proposed Condition Changes

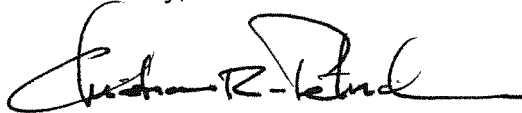
Condition #2 (Water Permit Report, 3/16/2012) states that *"Each week the water right holder shall read and record instantaneous flow rate and accumulated diversion volume at each of the authorized points of diversion for this right. These records shall be made available to the Department upon request."*

CCCC requests that this condition be changed so that (1) readings are made on a quarterly basis (instead of a weekly basis), and (2) readings from the Johnson Ranch wells are made at one location that reflects the aggregate discharge from these wells. Specifically, CCCC

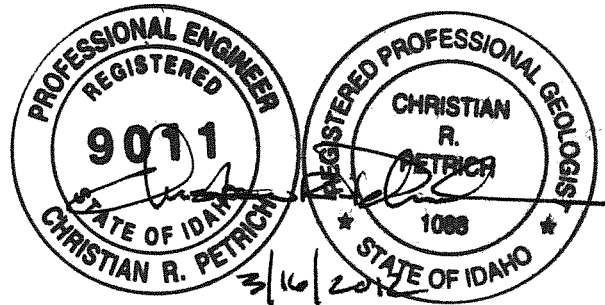
proposes the following language for this condition: *The water right holder shall read and record instantaneous flow rate and accumulated diversion volume on a quarterly basis at each of the pumped wells (Well No. 1, formerly known as Clubhouse Well; Well No. 2, formerly known as Front Nines Well; and Well No. 3, formerly known as Back Nines Well) and at a location that measures the aggregate discharge from the 15 flowing artesian Johnson Ranch Wells (located in the NENW, NWNW, SWNW, SENW, NESW, NWSW, NWSE quarter-quarters of Section 26, Township 4N, Range 2E). These records shall be made available to the Department upon request.*

In advance, thank you for your efforts in reviewing this material. Please call me if you have any questions.

Sincerely,



Christian R. Petrich, Ph.D., P.E., P.G.
Principal Engineer/Hydrologist



cc: Ben Hay, General Manager, Crane Creek Country Club
Adam Bagwell, Golf Course Superintendent