

MEMO

TO: File 63-12596

FROM: CPalmer

DATE: April 19, 2012

RE: Licensing Review Memo

Timeline:

Application Received: September 5, 2000

Permit Issued: January 17, 2001

Proof of Beneficial Use: June 2, 2004 (filed late—priority advanced to 6/2/2004)

Field Examination: April 16, 2003

Point of Diversion: This right has three pumped PDs known as the back 9 well, the front 9 well, and the clubhouse well. The other 15 PDs are artesian wells and all connect to one system before discharging to one of the ponds on the golf course (see attached description of the system). The pumped PDs are equipped with measuring devices and the 15 artesian PDs discharge to a common pipe that contains a measuring device.

Overlap Analysis of PD: Rights 63-3108 and 63-32115 divert from all 18 PDs that are associated with this right. In addition, right 63-12152 diverts from the PD that is known as the back nine well and right 63-33535 diverts from the well that is known as the front nine well.

POU: The place of use is within the Crane Creek golf course in the Boise Foothills. Even though the field examiner reported 116 acres of irrigation under this right, this right is only good for 114.8 acres as this right is supplemental to right 63-3108 and should have the same exact POU. Note that the recent approved transfer #77271 created a PPU for overlapping rights.

Overlap Analysis of POU: Rights that provide irrigation water to the golf course include:

Right	Priority	Source	Rate	Acres	Volume
63-3108	7/8/1957	groundwater	1.83	114.8	516.6
63-32114	3/15/1933	Crane Creek	2.3	114.8	na
63-32115	3/15/1933	groundwater	0.23	114.8	159.0
Total Combined Limit			2.30	114.8	516.6 (4.5 af/acre)
63-12596	6/2/2004	groundwater	4.59	114.8	na
Total Combined Limit			5.43*	114.8	516.6

*See the combined limit section for details.

Note that 63-3108, 63-32114, and 63-32115 were accepted into the WSB to idle 27.4 acres. Once this right becomes licensed, the right holder will submit an application to lease the corresponding acres into the bank as well.

Diversion Rate: The diversion rate is exaggerated for this permit so the right holder can divert a lot of water in a short amount of time; in the field examiner's cover letter he states that they intend to divert water 8 hours at night. Existing rights provide 2.3 cfs (0.02 cfs/acre) for irrigation purposes. See Application Processing Memo #60 that allows up to 0.02 cfs/(8hrs/24hrs) or 0.06 cfs/acre for irrigating a golf course. Other limiting factors must be considered as below.

Review of Diversion Rates at each PD:

The field examiner and SPF made an argument that this right be licensed at 5.52 because of historical aquifer levels and variability in the ground water level. The following analysis of the diversion rate for each PD reflects what was actually measured and how that compares to the diversion rate that was requested.

Clubhouse Well: A measurement of 850 gpm or 1.89 cfs was photographed at the 2003 field examination (field examination Figure 4). I think we all agree that the clubhouse well has the capacity to produce **1.89 cfs** so the capacity of this well is not an issue.

Back Nine Well (formerly Front Nine Well): A photograph was taken at the field examination (Figure 3 of the field examination) that showed that the well was producing ~530 gpm. The field examiner suggested that the well is capable of producing 550 gpm or ~1.22 cfs. It appears that the field examiner rounded up to 550 gpm and that the photographic evidence of the well producing ~530 gpm-535 gpm or **1.19 cfs** will be used in the licensure of this right.

Front Nine Well (formerly Back Nine Well): The field examiner photographed the flowmeter reading 720-730 gpm (1.60 cfs – 1.63 cfs) during the field examination (see Figure 5 of the field examination). The field examiner thought that the well could easily produce 750 gpm (1.67 cfs) based on his measurements. However, he also thought that the receding ground water levels have inhibited the well from producing at its full capacity and that when the ground water levels have recovered the well could produce much more water. The water levels have steadily deepened ever since early 2000. According to records for the front nine well¹, the water levels have yet to reach historic levels. Given the history, there is no indication that ground water levels are recovering. I think that we can compromise and give the right holder **1.67 cfs** but there is no justification for granting any more than that for reasons discussed above.

Artesian Wells: The field examiner measured 150-175 gpm (0.33-0.39 cfs) based on a visual estimate. An actual measurement that was submitted later by the right holder's current consultant, SPF, reflected an actual measurement of 110 gpm (0.25 cfs) at the peak of the wells' production during the development period.² Records that were taken before and after the development period show that the wells were able to produce nearly 290 gpm-305 gpm (0.65 cfs – **0.68 cfs**). It appears that the flowing artesian wells vary in flow greatly and it would be acceptable to grant the right holder the highest capacity of the wells that has been recorded in connection with this right.

Volume: This right does not provide for any volume. No volume limit will be added to the face of the license but will be addressed in the conditions. For the purpose of verifying one of the conditions on the permit I calculated the volume that the rate can provide for:

The total volume that can be diverted by Crane Creek ground water rights:
 $1.9835 \times (8/24) \times 5.43 \text{ cfs} = 3.6 \text{ af over 8 hours}$

¹ Figure 7 of letter dated November 7, 2011 from Christian Petrich of SPF

² Figure 8 of letter dated November 7, 2011 from Christian Petrich of SPF

Diversion Rate Findings and Final Recommendation

Permitted Rate = **5.52 cfs**

Capacity of System = **5.43 cfs** total

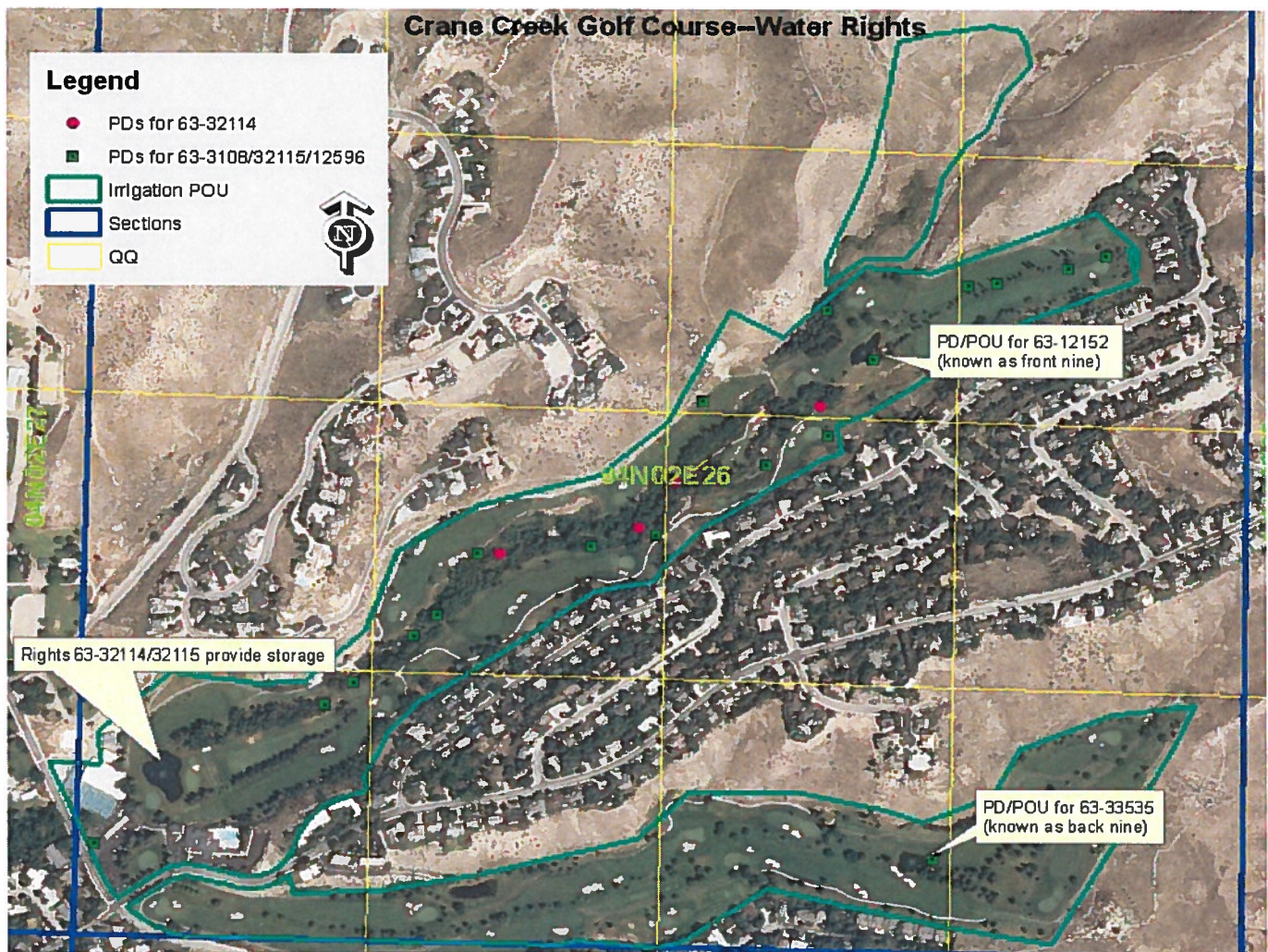
Duty of Water = **4.59 cfs** (license will issued for duty of water & limited to the capacity)

There are two other rights that divert from the same 18 PDs; 63-3108 and 63-32115 divert 2.06 cfs total. Since the system is only capable of diverting 5.43 cfs, a combined limit will apply to this right. The Crane Creek ground water right portfolio will be limited to 5.43 cfs on 114.8 acres or 0.05 cfs/acre.

Condition of Approval #10 limits this right to 3.7 af/day based on the historic use under 65-3108-- $1.9835 \times 1.84 = 3.7$ af/day. The volume was reduced when 65-3108 was reduced in acres for mitigation purposes. The new volume that can be diverted in a day is 3.6 af/day (1.9835×1.83). Since 4.59 cfs can only produce 3.0 af over 8 hours, the volume is self limiting but the condition will carry to the license.

Combined Limits:

Rights	Limit	Reason
63-3108, 63-12596, 63-32115, 63-12152, & 63-33535	5.43 cfs	The capacity of the 18 wells that are authorized under these rights is 5.43 cfs. The total of the rights without the limit is 6.89 so a limit is necessary.
63-3108, 63-12596, 63-32114, & 63-32115	114.8 acres & 516.6 af	All these rights are for the irrigation at the golf course. The acres are limited because that's the max amount of irrigated area historically and volume is limited because the acres are limited to the standard of 4.5 af/acre.



*note the front nine depicted on the map is now the back nine and the back nine is now the front nine.

Amendment?: Yes. The POU is meant to cover the exact same acreage that existing overlapping rights cover. Those rights cover 114.8 acres but due to a recently approved transfer, a PPU was created that encompasses 150 acres. The amendment of this permit will include the PPU and be limited to the 114.8 acres. In addition, the PDs need to be amended to reflect all 18 PDs as reflected in 63-3108 and 63-32115.

Non-Standard Conditions on Permit:

Condition	Complied?
The total annual diversion volume under this right shall not exceed 517.5 af.	This right was added to the permit as the volume under this right is provided by other overlapping rights. The volume will be modified to 516.6 af since the right had been decreased for the mitigation of right 63-12152.
The right holder shall install measuring devices of a type acceptable to the Department to record the flow rate withdrawn from each point of diversion.	Measuring devices have been installed on all the pumped diversions. The artesian wells combined into a single system that include a measuring device on the discharge pipe according to the attached system description (at the field exam the measuring device was not installed).
The total daily diversion under this right shall be limited to 3.7 af per day.	The total daily diversion under this right is actually 3.6 af per day—see volume section above.
All wells identified by this permit are existing.	Yes, no new wells were developed
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.	This condition has not been met to my knowledge. The purpose of this condition is to make sure that the conditions that set a diversion rate and volume requirement have been met. The rate and volumetric requirements have been met based on measurements and data that was submitted by the field examiner and SPF.
The measuring devices shall be calibrated by a method approved by the Department every three (3) years following the date of this approval.	The field examiners noted that the measuring devices appear to be in good working order and were consistent with pump curves, etc. On October 14, 2011, SPF conducted calibration tests on the three wells and found all within 2-4% of their measuring device. Additionally, on December 12, 2011, the measuring device on the common pipe was within 8% of SPF's measuring device. No other calibration records are available.
Diversion of water from the "Clubhouse Well" and any new points of diversion that may be authorized under this right in the future shall not exceed 1.84 cfs.	No new wells were developed during the development of this permit and the clubhouse well seems to be within the 1.84 cfs requirement. This condition will be eliminated.
Diversion of water under this right from the "Clubhouse Well" located in the SWSW, S26, T4N, R2E shall not exceed 1.84 cfs.	The golf course runs this well @ 1.67 cfs typically and has been witnessed to divert 1.62 cfs and 1.89 cfs. Currently there is no flow control installed but current production rates are below the maximum diversion allowed. This condition will carry to the license. The rate will be reduced to 1.83 cfs to account for the mitigation under 63-3108.