

MEMORANDUM

TO: Water Right File 63-33639

FROM: Daniel Nelson – Analyst 3

DATE: January 7, 2019

SUBJECT: Licensing Review of Water Right 63-33639

The field exam for this right was performed by Certified Field Examiner Scott King of SPF Water Engineering.

Mr. King recommended that permit 63-33639 be licensed as a primary water right for 3.18 cfs and 716 af for the irrigation of 159 acres. Mr. King suggested that an amendment was needed to correct the acres in each 40 acre tract. However, it was discovered that the 1 acre in the Lot 4 and 1 acre in Lot 1 were actually on Bureau of Land Management (BLM) lands, and not on lands owned by the permit holder. Mr. King stated that they did not want to include these two acres, so the total acres are reduced to 157 acres. Please see email dated February 18, 2019. By not including the BLM lands, an amendment would not be needed to correct the place of use.

Overlap:

Water rights 63-7270A and 63-7270B are diverted out of the same wells and irrigate a 142.1 acres of the 159 acres recommended by Mr. King. When these two rights are combined with this permit, the total number of acres that should be irrigated are 157 acres.

Water rights 63-7270A, 63-7270B, 63-8604, 63-11777, and this permit are all diverted out of the same two wells. There are no other wells that supplies water to these water rights. The capacity of the system is 4.35 cfs, and all of these rights need to be limited to this diversion rate. This diversion rate can provide a maximum of 2,240 af ($4.35 \text{ cfs} \times 1.9835 \times 260 \text{ days} = 2,243.3 \text{ af}$ rounded to 2,240 af), and when all of these rights are combined, they should be limited to an annual volume of 2,240 af.

Water rights 63-8604 and 63-11777 are supplemental water rights for Boise Kuna Irrigation District, so they may or may not need to use these two wells every year. Water rights 63-7270A, 63-7270B, and this permit are primary water rights for ground not covered by Boise Kuna Irrigation District water rights.

Acres:

Mr. King found 157 acres of irrigation on the lands not owned by BLM (see 2/18/2019 email). These 157 acres do not match exactly with the permissible place of use for water rights 63-7270A and 63-7270B, but it is clear that the 157 acres recommended by Mr. King are the only acres being irrigated in the permissible place of use described in water rights 63-7270A and 63-7270B. Mr. King excluded some rock piles and places where crops could not be grown, so I am comfortable with Mr. King's recommendation.

Water rights 63-7270A and 63-7270B authorize a total diversion rate of 1.41 cfs for 142.1 acres which is less than 0.01 cfs per acre ($1.41 \text{ cfs} / 142.1 = 0.0099 \text{ cfs}$). Therefore, we can authorize this permit for the entire 157 acres to bring the 142.1 acres up to the maximum amount of 0.02 cfs per acre.

Mr. King found 31 acres in the NENE of Section 29, but his shape file only shows 30 acres in this 40 acre tract. This could be a rounding error or the creation of maps on different mapping engines. Therefore, I will recommend 31 acres in the NENE of Section 29.

Diversion Rate:

Mr. King stated that he was unable to measure the wells at the time of the field exam and used the measurements taken on the Section 20 well in the 1977 field examination of right 63-7270, and the measurements taken on the Section 29 well in the 1984 field examination of right 63-8604. Both wells have newly installed measurement devices on them, so I am a little suspect of referring to the earlier measurements. Although I would have preferred a measurement of the current system capacity, both measurements were made using standard measurement practices. The 1977 measurement was made using a sprinkler test and the 1984 measurement was made using an annubar. Therefore, I feel the measurements are reasonable for the licensing of this permit.

The system has a capacity of 4.35 cfs according to the measurement data. Supplemental water rights 63-8604 and 63-11777 are diverted out of these points of diversion and primary water rights 63-7270A, 63-7270B and this permit are all diverted out of these two points of diversion. This limits the total diversion rate for all of these rights to 4.35 cfs. However, it is safe to assume that the entire flow of these two wells could be used for the primary irrigation in most years. Therefore, the diversion rate should be limited by the 157 acres found to be irrigated. A 157 acres at a diversion rate of 0.02 cfs per acre would have a maximum limit of 3.14 cfs ($157 \text{ ac} \times 0.02 \text{ cfs} = 3.14 \text{ cfs}$). Water rights 63-7270A and 63-7270B authorize a combined diversion rate of 1.41 cfs, so this permit should be limited to a total diversion rate of 1.73 cfs ($3.14 \text{ cfs} - 1.41 \text{ cfs} = 1.73 \text{ cfs}$).

A condition will be needed to limit the diversion rate of these two wells when water rights 63-7270A, 63-7270B, 63-8604, 63-11777, and this permit to the capacity of the system of 4.35 cfs. This will prevent the expansion of the system, and keep within the concerns of the protests that were filed on this water right.

Diversion Volume:

Mr. King recommended a diversion volume of 716 af, which is maximum volume that can be authorized for the 159 acres at the standard 4.5 af per acre ($159 \times 4.5 \text{ af/ac} = 715.5 \text{ af}$). As discussed above, the actual acre amount is limited to 157 acres or 707 af ($157 \times 4.5 \text{ af/ac} = 706.5 \text{ af}$). However water rights 63-7270A and 63-7270B already allow an annual volume of 639.3 af, so this permit should be limited to the difference or 67.2 af ($706.5 \text{ af} - 639.3 \text{ af} = 67.2 \text{ af}$).

The capacity for this water system is limited by the diversion rate of 4.35 cfs. Based on the irrigation season, the maximum amount of water that can be legally diverted from this system would be 2,240 af ($4.35 \text{ cfs} \times 260 \text{ days} \times 1.9835 = 2,243.3 \text{ af}$ rounded to 2,240 af). Therefore, when water rights 63-7270A, 63-7270B, 63-8604, 63-11777, and this permit are combined, they will need to be limited to a diversion volume of 2,240 af.

Conditions:

Based on the permit form, conditions 1 and 2 are standard permit conditions that are always removed at licensing. Condition 3 (26A) should also be removed at licensing as is standard. Condition 4 (004) should be carried forward to licensing, since the pipeline appears to cross a canal that may have easement requirements. Condition 6 (R65), 9 (01M altered), and 10 (020) should be carried forward to licensing. Condition 4 (121) should be changed to condition 103. Condition 7 (X36) should be changed to condition X35 and limited to 157 acres. A second condition X35 should be added that limits the total water use when water rights 63-7270A, 63-7270B, 63-8604, 63-11777, and 63-33639 to 4.35 cfs and 2,240 af. Condition 8 (115) should be kept, but altered to just say maintain and not install and maintain, since the measurement devices are already installed. I am also including condition F06 to show the water rights diverted out these wells.