

MEMORANDUM

TO: Water Right File 63-12253, 63-12254, 63-12255, and 63-33938

FROM: Daniel Nelson – Analyst 3

DATE: January 17, 2019

SUBJECT: Licensing Review of Water Rights 63-12253, 63-12254, 63-12254, and 63-33938

The field exams for these rights were performed by Certified Field Examiner Scott King of SPF Water Engineering. There are two farms, the South Farm and the North Farm, that share the same 6 wells. These two farms have several existing water rights for the same acres as the permits discussed below. Please see the History and Overlap portion of this memo for additional information on the overlapping water rights.

The South Farm is covered by water right permits 63-12253, 63-12254, and 63-12255. Mr. King recommended the following within a 1003 acre Permissible Place of Use (PPU) described as the South Farm:

63-12253 = 2.78 cfs, 626 af, and 139 acres of irrigation within the 1003 acre PPU
63-12254 = 3.25 cfs, 1,676 af and 537 acres within the 1003 acre PPU
63-12255 = 1.77 cfs, 913 af and 295 acres with the 1003 acre PPU

The North Farm is covered by water right permit 63-33938. Mr. King recommended that a 123 acres of the 147.4 acre farm be covered by this permit. The following is Mr. King's Recommendation:

63-33938 = 0.44 cfs, 42.3 af and 123 acres.

Mr. King also determined that the 6 wells had a combined maximum diversion capacity of 20.69 cfs. I was able to verify Mr. King's measurements, and I believe they are accurate. **Due to non-compliance with conditions of water right 63-33938, Mr. King decided it would be best to request an extension of time for this permit until proper monitoring can be accomplished according to the conditions.**

Mr. King also recommended that an amendment would be needed for the points of diversion and place of use. I concur with Mr. King's assessment, and the amendments will be needed.

History and Overlap:

I felt it was necessary to go through a bit of the history of these farms to allow a better understanding on my recommendations.

South Farm:

The 1003 acre South Farm is owned by Layne and Lori Thornton and Lavar and Wilma Thornton. Lavar and Layne Thornton are listed as the owners of permit 63-12253 and 63-12255. Lavar Thornton owns water right permit 63-12254. It appears from the records that this is a family farm.

The South Farm is already covered by existing water rights 63-3280, 63-3368, 63-7933, 63-7993, and 63-32355. Water right 63-32355 is an enlargement right and really doesn't add any additional diversion rate or volume, but it does add an additional 125.3 acres that can be irrigated. When water rights 63-3280, 63-3368, 63-7933, 63-7993, and 63-32355 are combined, they are limited to 8.60 cfs, 3620.6 af, and 960.3 acres. These rights authorize approximately 0.009 cfs and 3.77 af per acre. Therefore, we can increase the diversion rate and volume for these 960.3 acre up to 0.02 cfs and 4.5 af per acre per Department Standards. Water rights 63-3280, 63-3368, 63-7933, 63-7993, and 63-32355 are only authorized to divert out of four of the six wells. The four wells associated with the existing water rights are Well #1, Well #3, Well #5, and Well #6. Please see the attached map to see the location and numbers of each well. The permits were filed to bring the total diversion rate and volume for these lands up to the full rate per acre, and to add an additional 10.7 acres of irrigation.

North Farm:

The North Farm is owned by Layne and Lori Thornton, but it does divert from the same 6 wells as the South Farm. Although this portion of ground appears to operate as part of the family farm, it is being represented as a separate farm that uses the same wells.

Water rights 63-10228 and 63-33937 already cover a portion of the North Farm. Water right 63-33937 is for 101 acres which also covers a 24.4 acre portion of land that was sold for a development of a subdivision, and when the subdivision development fell through, the Thorton's regained ownership of this property. While the 24.4 acre portion of ground was in the developer's ownership, the developer did not change the owners of the water rights, so water right 63-33937 was never formally split. This 24.4 acre portion of water right 63-33937 is currently back on the market for sale, and it will be sold without access to the 6 irrigation wells. Unfortunately, the 24.4 acre portion will need to be included in any overlapping water right conditions, since water right 63-33937 hasn't been split. The development of the subdivision started between 2006 and 2008, and it doesn't appear as though the 24.4 acres have been irrigated since that time. Therefore, the Department may not be able to approve a transfer to add a new point of diversion because the water right on this 24.4 acres appears to have been forfeited or abandoned.

Permit 63-33938 was filed to cover a 123 acre portion of the farm, which didn't include the 24.4 acre described above. Water right 63-10228 authorizes 37 acres in the 123 acre portion, and water right 63-33937 authorizes 101 acres of which 76.6 acres are within the 123 acre portion recommended for permit 63-33938. With the withdrawal of the 63-33938, we cannot count the diversion rate or volume this permit would have added to the system, but I am leaving this information in place for when the permit will be field examined in the future.

Place of Use:

South Farm:

Mr. King recommended a 1003 acre permissible place of use. I have reviewed the records and confirmed that approximately 1003 acres at one time or another has been irrigated during the development period. However, I also determined that the maximum number of acres irrigated in any given year was 961 acres. According to Department imagery, 2013 and 2017 were the only years this number of acres were irrigated. The Department's imagery suggests that there were lesser number of acres irrigated in 2011, 2012, 2014, 2015, 2016, and 2018. I spoke with Mr. King concerning this information, and he stated that he felt the 961 acres was a reasonable determination of the acres irrigated.

Since the maximum number of acres irrigated was 961 acres in both 2013 and 2017, Mr. King and I agreed to recommend the following acre amounts for each right:

63-12253 = 139 acres of irrigation within the 1003 acre PPU
63-12254 = 527 acres within the 1003 acre PPU
63-12255 = 295 acres with the 1003 acre PPU

The above acre amounts when added together equals 961 acres.

Diversion Rate:

Mr. King measured all of the six wells to determine the system capacity, and determined that the entire system can provide a total of 20.69 cfs. The maximum diversion rate needed for all the acres associated with these two farms would be 22.17 cfs (123 acres + 24.4 acres + 961 acres X 0.02 cfs/acre = 22.168 cfs). There is not enough water to irrigate the entire farm at 0.02 cfs per acre all the time, but with a standard crop rotation, there should be more than enough water to irrigate both farms. There will need to be a combined condition to ensure that the current system capacity is not exceeded in the future.

South Farm:

The 961 acres at a maximum of 0.02 cfs per acre would require a diversion rate of 19.22 cfs. As described above, we can allow up to the full 19.22 cfs for the 961 acres. The permits can be licensed for 10.62 cfs or the total allowable diversion rate of 19.22 cfs minus the existing water rights diversion rate of 8.60 cfs. The following shows the maximum diversion rate allowable for each right and how it was calculated for each right:

$$63-12253 = (10.62 \text{ cfs} / 961 \text{ acres}) \times 139 \text{ acres} = 1.54 \text{ cfs}$$

$$63-12254 = (10.62 \text{ cfs} / 961 \text{ acres}) \times 527 \text{ acres} = 5.82 \text{ cfs (Limited by Permit to 3.25 cfs)}$$

$$63-12255 = (10.62 \text{ cfs} / 961 \text{ acres}) \times 295 \text{ acres} = 3.26 \text{ cfs (Limited by Permit to 1.77 cfs)}$$

Permit 63-12254 is limited to 3.25 cfs, so we cannot recommend more than the 3.25 cfs for this right. Permit 63-12255 is limited to 1.77 cfs, so we cannot recommend more than the 1.77 cfs. Permit 63-12253 was approved for the full amount to bring the 139 acres authorized by this right up to 0.02 cfs per acre, but a portion of the water supplied to those acres were from the existing rights. We cannot move the diversion rate for the existing water rights on the 139 acres associated with 63-12253 to different acres, because this would enlarge the water use. A total of 8.05 cfs can be authorized by these permits. This will be additive to the 8.60 cfs from the existing water rights for a total of 16.65 cfs when all the rights are combined.

Mr. King recommended the maximum rate per acre allowable by the permits, which would require a multiple combined limitation conditions. The above diversion rates will reduce the number of combined limitation conditions needed to properly describe the use developed under this permit. I believe the recommendations above provides a better representation of maximum diversion rate authorized without relying on combined limitation conditions.

Even though field exam for permit 63-33938 was withdrawn, we will still need a combined diversion rate limit with the North Farm's two existing water rights 63-10228 (0.53 cfs) and 63-33937 (1.96 cfs). When you combine the two existing rights from the North Farm with the 16.65 cfs allowable for the South Farm, the total rate of diversion would be limited to 19.14 cfs (0.53 cfs + 1.96 cfs + 16.65 cfs = 19.14 cfs).

Diversion Volume:

Mr. King measured all of the six wells to determine the system capacity, and determined that the entire system can provide a total of 20.69 cfs. The volumetric capacity of this system is 10,670 af (20.69 cfs X 1.9835 X 260 days = 10,669.9 af). The maximum volume needed for all the acres associated with these two farms would be 4,990 af (123 acres + 24.4 acres + 961 acres X 4.5 = 4987.8 af). This system can supply more than enough water for all the possible acres to be irrigated.

South Farm:

The 961 acres at a maximum diversion volume of 4.5 af per acre would require a diversion volume of 4324.5 af (4.5 X 961 = 4324.5 af). Since the system capacity exceeds the irrigation requirement, these permits can supply the additional water needed to supply the full diversion volume for the 961 acres. The existing water right authorize an annual volume of 3620.6 af when combined. The permits can be licensed for a combined 704 af (4324.5 af - 3620.6 af = 703.9 af). The following shows the diversion rates and how it was calculated for each right:

$$63-12253 = (704 \text{ af} / 961 \text{ acres}) \times 139 \text{ acres} = 102 \text{ af}$$

$$63-12254 = (704 \text{ af} / 961 \text{ acres}) \times 527 \text{ acres} = 386 \text{ af}$$

$$63-12255 = (704 \text{ af} / 961 \text{ acres}) \times 295 \text{ acres} = 216 \text{ af}$$

Mr. King recommended the maximum volume per acre allowable by the permits, which would require a multiple combined limitation conditions. The above diversion volumes will reduce the number of combined limitation conditions needed to properly describe the use developed under this permit. I believe the recommendations above provides a better representation of maximum diversion volumes authorized without relying on combined limitation conditions.

Even though field exam for permit 63-33938 was withdrawn, we will still need a combined diversion volume limit with the North Farm's two existing water rights 63-10228 (166.5af) and 63-33937 (454.5 af). When you combine the two existing rights from the North Farm with the 4324.5 af allowable for the South Farm, the total diversion volume would be limited to 4954.5 af rounded to 4950 af (166.5 af + 454.5 af + 4324.5 af = 4945.5 af).

Conditions:**South Farm:**

The conditions are the same on water rights 63-12253, 63-12254, and 63-12255, except that water right 63-12255 does not have a water bearing zone requirement. This farm is located outside the Basin 63 Groundwater Restricted Area, so the water bearing zone condition is no longer needed.

The first two conditions on all of the permits are always removed at licensing. Whereas each permit has a different order of the conditions for each permit, I will be addressing the codes and not the exact condition number of each right. Conditions 046 and 074 should be removed at licensing. Conditions 01M, 004, and R61 will be carried forward to licensing. Condition 121 should be changed to condition 103. Condition WB7 should be altered to 4,330 af to cover South Farm. Please Note: Condition WB7 is only for the place of use described as the South Farm, so the volume for the North Farm is not included. The volume for the existing rights for the North Farm are additive, so there should be no need to have a combined limitation for the volume when both farm's water rights are combined.

We will need to add condition F06 since water rights 63-3280, 63-3368, 63-7933, 63-7993, 63-10228, 63-12253, 63-12254, 63-12255, 63-32355, and 63-33937 are diverted out of the same six wells. We will also need a combined limitation condition (X35) when water rights 63-3280, 63-3368, 63-7933, 63-7993, 63-10228, 63-12253, 63-12254, 63-12255, 63-32355, and 63-33937 are combined should be limited to a total annual diversion of 19.14 cfs, which is the maximum allowed by the existing water rights condition limitations. A second combined limitation condition will be need to limit water rights 63-3280, 63-3368, 63-7933, 63-7993, 63-12253, 63-12254, 63-12255, and 63-32355 when combined to 961 acres. Conditions X27 should also be added to allow the use of a Permissible place of use. The place of use has changed during the development period, so they should be able to continue that practice.

Overlap Review Permits 63-12253, 63-12254, 63-12255, and 63-33938

	Southern Farm								Northern Farm		
	PERMITS			EXISTING RIGHTS					PERMIT	EXISTING RIGHTS	
Water Right Number	63-12253	63-12254	63-12255	63-3280	63-3368	63-7933	63-7993	63-32355 ¹	63-33938	63-10228	63-33937 ²
Acres	139	527	295	160	375	140	160	125.3	123	37	101
Diversion Rate	1.54	3.25	1.77	3.08	4.60	2.80	1.20	1.12	0.44	0.53	1.96
Volume	102	386	216	720	1687.5	630	583.1	N/A	42	166.5	454.5
Combined Limits Existing Rights				8.6 cfs -- 3620.6 af -- 960.3 acres						There are no combined limits for these rights	
Overall Combined Limits Southern Farm	16.65 cfs ³ -- 4324.5 -- 961 acres										
Overall combined limits Northern Farm MINUS the 24.4 acres not irrigated by 63-33938									2.46 cfs -- 554 af -- 123 acres		
Overall combined limits Northern Farm INCLUDING the 24.4 acres not irrigated by 63-33938									2.93 cfs -- 663 af -- 147.4 acres		
System Capacity Limits For All 6 Wells	20.69 cfs										
1.) 63-32355 is an enlargement Right, and provides no additional rate or volume.											
2.) Only 76.6 acres of water right 63-33937 directly overlaps the place of use for permit 63-33938. Therefore, only 76.6 acres are authorized for additional water from 63-33938											
3.) Permits 63-12554 and 63-12255 are limited by the permitted amount, while Permit 63-12253 is limited by the maximum rate per acre minus the amount per acre provided by the existing water rights.											

There are basically 2 farms irrigated out the same set of 6 wells. The Southern Farm is owned by Lavar Thorton, and the Northern Farm is owned by Lane and Lori Thorton. Both farms are irrigated from the same 6 wells. The 6 wells have a maximum diversion rate of 20.69 cfs, so when all of the rights are combined, they should not exceed that rate of diversion.

Southern Farm:

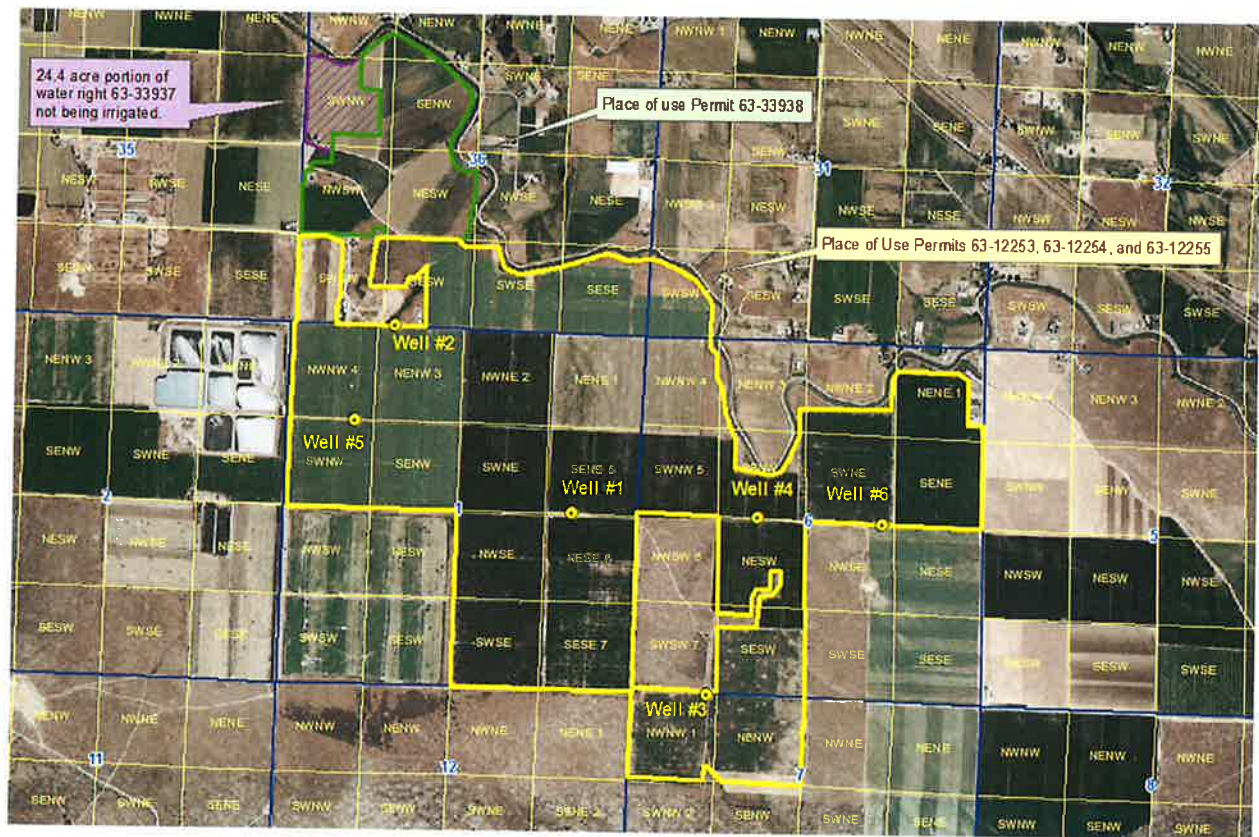
The Southern Farm has existing water rights that allow for the irrigation of 960.3 acres of land each year from 4 of the 6 wells (Well #1, Well #3, Well #5, and Well #6). The three permits were filed to increase the diversion rate of the entire 961 acres to 0.02 cfs and 4.5 af per acre. I recommended that the permits be limited to additional diversion rate and volume needed to bring the 961 acres to full irrigation standard from the wells. A combined limitation for the diversion rate, volume and acres will still be needed due to the combined diversion rate and volumes on the existing water rights. Water right 63-32355 is an enlargement right that doesn't provide any additional rate or volume to the system, and these permits do provide the volume and rate not authorized by 63-32355. Water right 63-32355 does allow the irrigation of the additional 125.3 acres at the original diversion rate, so it should remain as a valid water right in case the permits are curtailed, the permit holder can still irrigate the ground at lower diversion rate and volume.

Northern Farm:

A 24.4 acre portion of the Northern Farm was sold and re-acquired by Lane and Lori Thorton, and that 24.4 acre parcel of land has been placed on the market for resale. Although it is no longer considered part of the same system, the owners do not want to split water right 63-33937 and remove the 24.4 acres from the 101 acre water right until it is sold. Therefore, it must be considered as part of the Northern Farm. Permit 63-33938 was never developed to cover the 24.4 acre parcel, so permit 63-33938 cannot provide any additional water to the 24.4 acre parcel. Permit 63-33938 can only provide additional water to the 76.6 acres (101 acres - 24.4 acres = 76.6 acres) already covered by water right 63-33937. Permit 63-33938 can only provide water to the 123 acres irrigated during the development period. The existing water rights authorizes 113.6 acres [(101 acres + 37 acres) - 24.4 acres = 113.6 acres] of the 123 acres, which leaves an additional 9.4 acres not covered by an existing water right (123 acres - 113.6 acres = 9.4 acres). The existing water rights authorize a total of 2.02 cfs for the 123 acres associated with this permit [(1.96 cfs / 101 acres) X 76.6 acres + 0.53 cfs = 2.02 cfs]. The total allowable diversion rate for the 123 acres is 2.46 cfs (123 acres X 0.02 cfs/ac = 2.46 cfs). This leaves a total of 0.44 cfs available for appropriation under permit 63-33938 (2.46 cfs - 2.02 cfs = 0.44 cfs). Permit 63-33938 will authorize a diversion rate of 0.19 cfs (0.02 cfs/ac X 9.4 acres = 0.188 cfs) and 42 af (9.4 acres X 4.5 af/ac = 42.3 af) for the 9.4 acres. The permit will also authorize an additional 0.25 cfs to bring the diversion rate of the existing acres up to 0.02 cfs per acre. This will allow a diversion rate of 0.44 cfs and 42 af for the irrigation of the 123 acre farm.

License Review Map Permits 63-12253, 63-12254, 63-12255, and 63-33938.

The area outlined in the yellow border is the South Farm, which has a 1003 acre Permissible Place of Use. The South Farm is the place of use for permits 63-12253, 63-12254, and 63-12255. The area outlined in Green is the place of use for the North Farm, and is the place of use for permit 63-33938. The purple area is the 24.4 acres not irrigated by water right 63-33938, but is covered by water right 63-33937. The 24.4 acres are in the process of being sold, and haven't been irrigated since approximately 2008. The 6 yellow dots are the points of diversion for both farms and all four permits.



Nelson, Dan

From: Scott King <SKing@spfwater.com>
Sent: Thursday, January 10, 2019 11:22 AM
To: Nelson, Dan
Subject: Layne Thornton

Dan,

I have a call in to Layne.

When I look at Ada County Assessor, it looks like Layne owns the parcel we spoke about. I'll ask him about it.

Please change his phone number to 208 631-6998

The one on my report is an old, disconnected land line.

More to come.

Thanks,
Scott

Scott N. King, P.E. | Supervising Engineer

SPF Water Engineering, LLC

300 E Mallard Drive, Suite 350 | Boise, ID 83706

phone 208.383.4140 | **fax** 208.383.4156

email sking@spfwater.com | **web** www.spfwater.com

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