

MEMORANDUM

TO: File 22-13917

FROM: Daniel Nelson – Staff Hydrologist

DATE: July 14, 2014

SUBJECT: Licensing Review for 22-13917

This memo is a licensing review of the field exam that was supplied by the Certified Field Examiner (CFE), Scott King of SPF Engineering. This water right was split from water right 22-13220. The other portion of the split is 22-13918. Mr. King performed the field examination on both splits, and submitted the field exams as a package. There are couple issues that need to be addressed in the licensing of this permit. I will address each issue separately. Water rights 22-7641, 22-12272, 22-13917 and 22-13918 are direct overlapping water rights. Water right 22-7660 is a water right from an unnamed stream that overlaps the storage component described in 22-7641.

Diversion Rate:

The certified examiner measured the well for this permit as producing 519 gpm or 1.16 cfs. This seems like a reasonable capacity of the well. There are overlapping water rights using this well. This permit allows 0.10 cfs for the 5 acres developed under this permit. Water right 22-7641 allows 0.02 cfs from this well for domestic purposes, 0.10 cfs for aesthetic purposes, and 0.10 cfs for diversion to storage (for a separate pond) limited to 0.10 cfs. Water right 22-7641 has a combined condition for the domestic use with water right 22-12272, but the domestic use under 22-12272 comes from a separate well from the one used on this system. I couldn't determine from the records if the domestic well is connected into the system that supplies water to the irrigation and storage reservoirs, but Scott King did confirm the wells are connected together. Water right 22-12272 is for 0.10 cfs for domestic use. Water right 22-13918 allows 0.98 cfs for irrigation and 1.10 cfs for diversion to storage limited to 1.10 cfs. When all of the rights are added together for this well, the total diversion rate needed is 1.20 cfs. Water rights 22-7641 and 22-13918 are in the ownership of Curlew Partners LLLP and 22-13917 and 22-12272 are in the ownership of JRG Partners. This makes reducing the diversion rate for one of the permits difficult because of the split ownership. It gets further complicated when considering the different water uses and the fact that water right 22-7641 is already a licensed right and 22-12272 is a decreed right. The only way to prevent confusion is to ensure that the capacity of the well associated with this right doesn't change and limit all the water rights when combined to the amount measured by their examiner of 1.16 cfs.

Water right 22-13917 can be licensed for the full amount recommended in the permit of 0.10 cfs for the 5 acres. When water rights 22-7641, 22-12272, and 22-13917 are combined, they can irrigate 5.5 acres with a diversion rate of 0.12 cfs and 19.3 afa.

Diversion Volume:

The field examiner determined that this permit 22-13917 should be limited to a diversion volume of 17.5 af. I agree with the field examiner's assessment. However as stated above, there are other water rights on this system. The field examiner originally included the pond volumes in the field exam recommendation for permit 22-13918, but has sent a letter retracting that assessment and limited the volume to consumptive use or the evaporation losses of the ponds to 14 acre feet. I reviewed the examiners evaporation calculations and agree with his assessment. Permit 22-13918 also allows 171.5 af for irrigation for a total of 185.5 af. Water right 22-7641 allows a total volume of 14.3 af. Water right 22-12272 is for 13,000 gpd or a maximum of 14.6 af per year. A diversion rate of 1.16 cfs can provide 840 af ($1.16 \text{ cfs} \times 1.9835 \times 365 = 840 \text{ af}$). The volume for all of the water rights are added together is 231.9 af, which is well below the capacity of the well. The diversion to storage, Aesthetic, and Domestic use are year round uses, so I had to use 365 days to calculate the volume amount.

Mitigation:

The mitigation for this permit is discussed in a memorandum composed by L. Glen Saxton on August 8, 2002. Whereas this permit was issued based on this mitigation plan, changing the mitigation to meet with current modeling standards is not acceptable unless the applicant provides an updated mitigation plan. No plan was submitted by the field examiner, therefore, we must assess this permit based on the information provided.

The original mitigation plan proposed to retire 70 acres of water right 31-2327B. According the 2002 memo, the 70 acres of water right 31-2327B could provide 93 acre feet of consumptive volume to be used for mitigation of permits 22-13917 and 22-13918. In the analysis, it was determined that 21 af would be needed for evaporation, and 92 af for consumptive use of irrigation for 54 acres for a total of 113 af. The difference of 20 af was attributed to the different seasons of use of the two water rights (15 af) and allowance of the margin of error (5 af).

The field examiner found that all 5 acres permitted were irrigated, so the portion of the mitigation right 31-2327B associated with this permit would be a proportionate share of the 70 acres. The field examiner also found that the full 49 acres of water right 22-13918 were irrigated, but that only 14 acre feet could be assessed for the consumptive use or evaporation from the ponds. When you calculate the consumptive use for both permits you still have 106 acre feet which reduces the amount of error to 13 acre feet instead of the 20 acre feet allowed in the 2002 memo.

Therefore, I used a proportionate split of the acres to determine the number of acres from water right 31-2327B that needs to be assessed to each water right. This is important because the original permit was split and there are now two different owners. The attached spreadsheet shows how I split the 70 acres between the two water right permits. My calculations show that 5.5 acres of water right 31-2327B should be used to mitigate 22-13917 and 64.5 acres of water right 31-2327B should be used to mitigate 22-13918. Please see the attached spreadsheet for more details.

Conditions:

Conditions 3(046), and 6(048) were removed at licensing. Conditions 1(01M) and 3(R63) were carried forward to licensing. Condition 2(068) was replaced with a non standard condition. Condition 5 was replaced with condition 170. I also added condition X35 to account for the combined uses discussed in the diversion rate section of this memo. The condition will state the following:

When the irrigation components of 22-7641 and 22-12272 are combined with 22-13917 they shall not exceed a total diversion rate of 0.12 cfs, a total annual maximum diversion volume of 19.3 af at the field headgate, and the irrigation of 5.5 acres.

A second X35 condition is needed that deals with the diversion rate from this well when all of the water rights are combined. Water right 22-12272 is not included in this condition, since it is diverted from a separate well. All of the volumes and acre amounts are additive from this well, so we will not have to include the volumetric amount or an acre limit. The condition will state the following:

Rights 22-7641, 22-13917 and 22-13918 when combined shall not exceed a total diversion rate of 1.16 cfs.

The final X35 condition needed is as follows:

When the irrigation components of 22-7641, 22-12272, 22-13917 and 22-13918 are combined they shall not exceed a total diversion rate of 1.09 cfs.

Condition 170 was placed on this right and water right 31-2327B was changed to mitigation.

To mitigate for the depletion of water resulting from the use of water under this right and to prevent injury to senior water right holders, the right holder shall cease diverting and using water as authorized by the following water rights for the purposes and amounts specified below. Moreover, the official record for the following water right will be changed to show that diversion and use of water is not authorized because the rights, or portion thereof, are being dedicated to mitigation purposes.

Right No.	Use Changed to Mitigation	Mitigation Rate (cfs)	Mitigation Volume (AF)	Mitigation Acres
31-2327B	Irrigation	0.09	19.3	5.5

The land that will no longer be irrigated under this right is located within the NE, Section 26, Township 6N, Range 35E, B.M.

If the specified mitigation right, or portion thereof, is sold, transferred, leased, used on any place of use, or is not deliverable due to a shortage of water or a priority call, then the amount of water authorized for diversion under this right approval shall be reduced by the same proportion as the reduction to the mitigation rights.

Permits	22-13917 and 22-13918
By	Dan Nelson
Date	7/14/2014

L. Glen Saxton Memo dated 8/8/2002 stated that the 70 acres of water right 31-2327B could provide 93 af of consumptive volume to permits 22-13917 and 22-13918. This calculation allowed for 20 acre feet for error in the calculations due mainly to the irrigation season of use. Therefore, the storage component should be taken out of the total consumptive use needs, and the irrigation components for both permits should split the remaining amount of 31-2327B.

Storage Calculation

Storage Volume in Acre Feet.	Conversion back to acres on 31-2327B*	Total Acres Required from 31-2327B for Mitigation
14	1.325	10.6

* The 2002 memo states that to convert the volume for 31-2327B you multiply each acre by 2.5 af (consumptive volume) and then multiply that number again by 0.53 for the losses of moving the water from Basin 31 to Basin 22. This shows that for every acres of mitigation under 31-2327B there is 1.325 af available for mitigation.

Permit	Acres Irrigated Per permit	Consumptive use in Basin 22 per 2002 memo	Total Volume needing Mitigated	Conversion back to acres on 31-2327B	Total Acres Required From 31-2327B for Mitigation
22-13917	5	1.7	8.5	1.325	6.4
22-13918	49	1.7	83.3	1.325	62.9

Total Acres Needed for Mitigation from 31-2327B =	79.8
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As you can see from the total acres needed from 31-2327B that there is still some error in the mitigation even with the 7 acre feet reduction of the storage consumptive use. Therefore, we will need to split the remaining mitigation acres after the storage acres are removed by the proportionate share of each water right. After you remove the 10.6 acres required for the storage use from the 70 acres of mitigation, there are 59.4 acres left. See below for the proportionate share of the remaining mitigation acres that need to be assessed to each water right.

Permit	Acres Irrigated on permit	Percentage of total acres irrigated under both permits	Mitigation Acres Remaining	Acres from 31-2327B that needs to be charged to each right for irrigation
22-13917	5	0.09	59.4	5.5
22-13918	49	0.91	59.4	53.9

Total Acres From 31-2327B Needed to Mitigate 22-13917 = 5.5 acres

Total Acres From 31-2327B Needed to Mitigate 22-13918 = 53.9 acres