

MEMORANDUM

TO: Shelley Keen

FROM: Monica Van Bussum

CC: Michele Edl, Craig Saxton

DATE: December 2, 2009

RE: 63-10034 analysis of Application for Amendment of Permit

Per your request, I have been reviewing the Application for Amendment of Permit 63-10034 (Simplot) with several objectives:

1. Determining the quantity needed to bring irrigation use on the appurtenant acres to 0.02 cfs per acre and 4.5 acre feet per acre,
2. Determining the correct quantity (flow rate and volume) for the non-irrigation season industrial use under this right,
3. Understanding the overlap between surface water and ground water delivery systems for the Simplot rights in this area,
4. Determining the extent of Pioneer Dixie Ditch Co. rights on the Simplot POU,
5. Determining if the ground water sought in this application was developed as a supplemental use to surface water and if this right should be conditioned as such.

This memo serves to document my current analysis of these objectives based on the evidence in the file, database and spatial data.

Determining quantity for irrigation rights

I examined tabular data to determine acres covered by other rights and the associated duty of water for those acres. I should emphasize I used tabular data. I attempted examining spatial data but found frequent occurrences where the tabular data for 63-10034 and overlapping rights were identical but the associated shapes markedly different. Since it is my understanding tabular data trumps spatial data, I made the assumption if each right showed 29 acres in a given 40-acre tract, those 29 acres were identical between the rights, regardless of how the shapes overlapped. I carried this logic forward through the entire overlap review.

The overlapping ground water rights were recommended as a 933-acre permissible place of use (PPU). The associated acreage for 63-10034 is 932.1 acres. I made the assumption the 932.1 acres included under 63-10034 were the same acres included in the overlapping rights of 933 acres. The rights included in the PPU were 63-5036, 63-5037, 63-5038 and 63-5039. In the SRBA, each of these rights was limited to a specific acreage within the 933-acre PPU:

- 63-5036 was limited to 133.5 acres of irrigation
- 63-5037 was limited to 111.5 acres of irrigation

- 63-5038 was limited to 67 acres of irrigation
- 63-5039 was limited to 89 acres of irrigation
- Total is 401 acres of irrigation within the 933-acre PPU

Each of these rights was recommended a flow rate consistent with 0.02 cfs of irrigation per acre given the associated acreage.

Rights not included in the 933-acre PPU, but which do overlap 63-10034 are 63-2239, 63-2241, 63-2386, 63-2425 and 63-2657, which are all surface water rights.

In doing this analysis, I found 401 acres of direct overlap with the other ground water rights in the PPU, as mentioned before. Subtracting 401 from 932.1, I found that 531.1 acres are not covered under the PPU by ground water in any given season. In examining the surface water rights that overlap the PPU, I found that 414.7 acres of the surface water rights directly overlap with 63-10034 and provide a duty of 0.02 cfs/ac for those 414.7 acres. Given this total of 815.7 acres (401 acres + 414.7 acres) where the irrigated POU was recommended 0.02 cfs/ac, I was then able to calculate the amount of live flow needed to bring the entire 932.1-acre POU to 0.02 cfs:

$$116.4 \text{ acres} * \frac{0.02 \text{ cfs}}{\text{ac}} = 2.3 \text{ cfs}$$

In the equation above, 116.4 acres is the result of subtracting 815.7 acres from 932.1 acres.

It appears this right was developed as supplemental to the surface water rights already existing. Because of this, I would recommend adding conditions 065 and 104 and not recommending an annual volume for irrigation.

IDWR calculates volume for irrigation rights two ways and then recommends the lower of the two results. The calculations are shown below:

$$116.4 \text{ acres} * 4.5 \frac{\text{AF}}{\text{ac}} / \text{yr} = 525 \text{ AFA}$$

$$260 \text{ days} * 1.9835 * 2.3 \text{ cfs} = 1186 \text{ AFA}$$

In the first equation, 4.5 AF per acre per year is the field headgate requirement for consumptive irrigation in this area. In the second equation, 260 is the number of days in the irrigation season and 1.9835 is a conversion factor. Given the results of these calculations, I would put 525 AFA on the license for irrigation under this right.

I did add a combined use limit for irrigated to this right to address the overlapping surface water rights. While surface water rights overlapped a large portion of the POU for 63-10034, they also extended beyond its borders. I found a total of 170.3 acres covered by the overlapping surface water rights that were outside of the boundary for 63-10034, thus giving a combined use limit for the overlapping surface water rights of 1102.4 acres.

Calculating quantity for industrial rights

The Application for Amendment draft I was given showed 8.83 cfs as the diversion rate. Pursuant to information she received, Kay Walker of IDWR's Western Region office, calculated the maximum rate of industrial beneficial use to be 8.83 cfs. Carter Fritschle, in his July 1, 1987, field exam, measured 2731 gpm (6.1 cfs) of waste water leaving the treatment through the Parshall flume. It appears Kay calculated 8.83 cfs by adding the industrial flow rate for the overlapping industrial rights from ground water, which are 63-2731, 63-4968, 63-5036, 63-5038 and 63-5039. There is one surface water industrial right for Simplot of 0.80 cfs (63-2239), and adding the 0.80 cfs allowed under 63-2239 to 8.83 cfs gives a total of 9.63 cfs under all of Simplot's existing industrial rights. Since 9.63 cfs can be diverted under existing industrial rights, I would recommend 9.63 cfs as the diversion rate for industrial under this right. To recommend the full 9.63 cfs allowable under their industrial rights, I am assuming a completely non-consumptive industrial use.

It was noted that industrial use under 63-10034 is application of waste water to the irrigated place of use during the non-irrigation season. My calculations reflect this understanding.

IDWR calculates volume for industrial rights as shown here:

$$120days * 1.9835 * 9.63 = 2292.1AFA$$

In the calculation above, 120 days is the number of days in the non-irrigation season, which is when water would be applied under the industrial use applied for here. Based on the results of this calculation, I would recommend 2292.1 AFA as the volume for industrial use under this right. 2292.1 AFA is less than the sum of the volumes authorized by Simplot industrial rights, which were all granted for a year-round season of use.

Is surface and ground water delivered through a common system for Simplot's rights in this area?

I spoke with Carter Fritschle, now the Technical Section Chief of the Adjudication Bureau at IDWR, who completed the licensing field exam for this right in July 1987. Carter and I looked at the maps and pictures from his field exam, as well as more recent aerial imagery, and determined surface and ground water must be delivered through a common system. It appears that, in the Snake River Basin Adjudication, the surface water should have been included in the 933-acre PPU and conditioned accordingly.

Since the surface water rights have already been partially decreed in the SRBA, we can not go back and condition them again. However, we can address the PPU issue for the surface water rights in this license. I would recommend adding acreage limit conditions for both the ground water and surface water rights. Surface water rights were discussed under the POU heading above. Ground water under this right should be limited to 532 acres within the described POU.

Extent of Pioneer Dixie Ditch Co. water on the POU of 63-10034

The Pioneer Dixie Ditch Co. is represented by a number of rights that overlap this POU: 63-137A, 63-222C, 63-222M, 63-222N, 63-233C, 63-233L and 63-374. All of these rights completely encompass the POU of 63-10034 except for approximately 30 acres in Township 4 North, Range 3 West, Section 20 SENW, which is not covered by any Pioneer Dixie Ditch Co. right, but is covered by other Simplot rights.

Because this POU is covered almost entirely by Pioneer Dixie Ditch Co. water rights, I would recommend adding the usual conditions that address ditch company rights.

Was the ground water sought in this application developed as a supplemental to surface water?

It appears the ground water use sought in this application is supplemental to surface water, as 414.7 acres of surface water rights are recommended within the 933-acre POU sought here, along with most of the POU being covered by Pioneer Dixie Ditch Co. As I said before, 401 acres are covered by the overlapping ground water rights. I consulted on this matter with Carter Fritschle and he agreed, stating any ground water rights on this property would have been developed as supplemental to surface water because the Stewart Decree clearly showed surface water rights as appurtenant to this ground. The Stewart Decree would have far pre-dated any ground water development in this area. Because of this, I would recommend adding conditions 065 and 104 to the right and not recommending an annual diversion volume for irrigation because we can not determine the volume contributed by the ground water rights to the overall crop requirement.