

Memorandum

To: Karl Dreher

From: Tim Luke

Date: July 3, 2003

Re: Investigation of Junior Priority Water Rights and Water Uses upstream of Fisheries Development Corp. Diversion on Billingsley Creek, Hagerman Area

On July 3, 2003, I made a trip to Hagerman and investigated several diversions and water rights upstream of the Fisheries Development Corporation's (FDC) diversion on Billingsley Creek to determine if there were any consumptive water rights being used that are junior to the FDC Billingsley Creek water right. A number of measurements were made at the various diversions. Assisting me with these measurements and investigations were Corbin Knowles and Steve Burrell of IDWR. Frank Erwin, watermaster of Water District 36-A, accompanied us at each diversion. Earlier this week and prior to leaving for Hagerman on July 3, I researched water rights located upstream of the FDC Billingsley Creek diversion that are junior to FDC right 36-7725. The FDC right has a priority date of 11/29/1976 and has an authorized diversion rate from the creek of 100 cfs for fish propagation. This memo summarizes the diversions and rights investigated.

Field Summary

1. FDC Diversion on Billingsley Creek
Facility has a 16 ft and 12 ft ramped broad crested weir on diversion flume from creek. Water was measured through the 16 ft weir; the 12 ft weir was dry. The 16 ft weir had a gage height of 1.20 ft that corresponds to a flow of 65.6 cfs on the rating table that we have for this particular weir.
2. Hagerman Water Users Association Diversion from Springs, tributary to Billingsley Creek
Water Right 36-15168 has a 4/7/1906 priority date for irrigation and 13.27 cfs but a portion of the right in excess of 9.34 cfs is subordinated to all ground water and surface water rights with priority dates of 12/31/1999 or earlier. A discharge measurement was made at the diversion using a 4 ft rectangular suppressed weir. The discharge was 8.2 cfs. Thus, no portion of the right exceeded 9.34 cfs and no portion of the diversion could be subordinated or junior to the FDC right on Billingsley Creek.
3. C-Can Partners Diversion from Sherman Springs, tributary to Billingsley Creek
Water Right 36-47 has a 7/10/1910 priority date for irrigation and 1.6 cfs but a portion of the right in excess of 0.6 cfs is subordinated to all ground water and surface water rights with priority dates of 12/31/1999 or earlier. Thirteen of the 43 acres under the right are also subordinated to rights earlier than 12/31/1999. No water was being diverted or used from this diversion. We observed that the conveyance pipeline to the irrigation place of

use was disconnected from the spring source. Frank Erwin said that the place of use was irrigated once or twice earlier in the spring but not irrigated since. We observed what looked to be a dry and short alfalfa crop. It appeared that there had been no use at the place of use for some time this season. Water not diverted at this site is captured in ditches that are diverted under the Hagerman Water Users Assn right.

4. Big Spring Water Users Association pipeline diversion from Big Springs, tributary to Billingsley Creek.

Water Right 36-22 has a 3/21/1901 priority date for irrigation and 12.9 cfs diversion rate for irrigation, municipal, domestic and stock water. Right 36-23 has a priority date of 4/1/1911 for 1.62 cfs for irrigation, domestic and stock. The two rights appear to be additive for a total flow rate of 14.52 cfs. Right 36-15681 has a priority date of 9/30/1987 for fish propagation for 6 cfs. Use of this right with right 36-22 is limited to a combined diversion rate of 12.9 cfs. Big Spring Water Users Association owns all three rights.

A discharge measurement was made on the pipeline using a portable ultrasonic meter. The measured discharge was 12.86 cfs. A measurement was made of George Lemmon's fish hatchery diversion using a 4 ft. rectangular weir at the end of the facility. The weir measurement discharge was 3.30 cfs. Lemmon was diverting some water from the end of the hatchery above the weir to an irrigation pump. The pump was being used at one small pivot and one wheel line (estimate flow at around 1.5 cfs). Lemmon had two other pumps at the end of the hatchery that was not running at the time. These other pumps are used to operate several different size pivots. The discharge from the hatchery that is not diverted for irrigation runs to a wastewater ditch or drain that ultimately discharges to the Buckeye Ditch. The point of diversion for the Buckeye Ditch is out of Billingsley Creek and located downstream of the FDC diversion.

The City of Hagerman, who is a shareholder in the Big Springs pipeline system, was diverting water from the pipeline at the time of our investigation and measurements on the main pipeline and Lemmon's hatchery. The city diverts water from the main Big Springs pipeline to a large storage tank via a lateral pipe and pump. A flow meter is installed on the lateral pipe that carries the water pumped from the Big Springs pipeline to the city tank. The city was diverting 1.98 cfs from the Big Springs pipeline at the time of our visit. The city diversion from the Big Springs pipeline cycles periodically each day. When the city does not divert water from the Big Springs pipeline, the water is either distributed to other parts of the system or backs up the pipeline and spills at the spring collection box near the head of the pipeline. Any water spilled at the head of the pipeline becomes tributary to Billingsley Creek above FDC.

The watermaster and I noticed an increase of about two tenths of a foot at Lemmon's hatchery weir just before we left the hatchery. We could not determine for sure whether this may have been related to any change or shut-off of the city diversion from the Big Springs pipeline.

Some water on the Big Springs system may also be used at a fish hatchery owned by Billingsley Creek Ranch and which may not even be covered by any valid water right from Big Springs. However, any water from Big Springs that may be used at this latter hatchery does return to the Creek above FDC. This use was not investigated during our visit.

5. Jones Irrigation Pumps diverted from Weatherby and Three Springs, tributary to Billingsley Creek

Water Right 36-68 has a 2/1/1888 priority date for irrigation, domestic and stock for 10.74 cfs. Right 36-69 has a priority date of 2/1/1888 for irrigation and stock for 1.00 cfs. The two rights combined shall not exceed a flow rate of 10.74 cfs but a portion of the combined rights in excess of 8.51 cfs is subordinated to all ground water and surface water rights with priority dates of 12/31/1999 or earlier. A discharge measurement was made at Jones irrigation pumps (located in a settling pond at the tail end of the Jones hatchery) using portable ultrasonic meters. The total measured discharge was 6.6 cfs. Thus, no portion of the right exceeded 8.51 cfs and no portion of the diversion could be subordinated or junior to the FDC right on Billingsley Creek. The measured flow of the Jones pumps represents the peak operating flow of the system and is consistent with prior measurements made by the Department.

6. Curren Ditch

Buckeye Farms has several junior priority rights for fish propagation and recreational ponds (1977 and 1987 priorities). We made a measurement of water diverted to the head of the ditch from Billingsley Creek using the 10 ft rectangular weir. The measured flow was 6.85 cfs. We also current metered the ditch just below the injection of the North Snake Ground Water District mitigation pipeline that brings water to the ditch via the Sandy Ponds and Northside Canal Company system. We metered the ditch at about 25.7 cfs. The cross section of the ditch was not particularly ideal and the measurement is considered as fair only. The total flow contributed to the ditch from the pipeline, after subtracting the Billingsley Creek diversion, was about 18.9 cfs.

We estimated about 9 cfs flowing to the creek downstream over the check structure near the head of the Curren ditch. When I visited the ditch on June 24, 2003, only seepage water from the check structure was flowing downstream to the creek and the creek was nearly dry at this point. Obviously, the flow in the pipeline has been increased significantly to allow additional flow down the creek. The watermaster said that flows from the mitigation pipeline have not been consistent thus far but that the ground water district had hired an employee from Northside Canal Co to manage the system. The watermaster hoped that this would improve consistency in deliveries on the pipeline and benefit the Billingsley Creek downstream.

The 6.85 cfs diverted to the head of Billingsley Creek is less than half the amount of water needed to satisfy the most senior irrigation water right on the Curren Ditch (an 1884 priority right for 15 cfs). The second and last irrigation right on the ditch is for 20 cfs, thus only about three-fourths of the two senior priority irrigation rights were filled from a combination of Billingsley Creek and the mitigation pipeline. The watermaster

said that all the water in the ditch was being used for irrigation. He said none of the water was being used for any fish or recreational ponds.

Buckeye Farms also has a junior priority right (1987) from the Bar-S ditch that is injected to the Curren Ditch for use in aesthetic and recreational ponds. We made no measurement of the Bar-S but we had understood from the watermaster that the water in the Bar-S was all being used for senior priority irrigation rights; no water from this source was being used for other uses or rights.

Conclusions & Recommendations

- I've researched all the rights on Billingsley Creek and tributary to the creek upstream of the FDC diversion on Billingsley Creek. The Big Springs Water Users right (36-15681, 1987 priority) for fish propagation appears to be the only right that is potentially being diverted out of priority. Water that goes to this use does not return to Billingsley Creek and is thus entirely consumptive to the creek.
- The subordinated portions of water rights upstream of FDC are not an issue since those subordinated portions of the rights are not being diverted.
- Curtailment of the Lemmon hatchery on the Big Springs Water Users Assn pipeline and assuring consistent and adequate flows on the North Snake GWD mitigation pipeline are the only potential immediate actions that can be taken at this time to provide some additional water to Billingsley Creek and address the FDC call.
- The Big Spring Water Users Assn demanding full delivery of their senior right, which is 12.9 cfs, may compromise curtailment of the Lemmon hatchery. Such a demand might nullify any benefit of curtailing the hatchery use. It is not clear if the remaining users or uses on the system would actually use the full amount of water under the 12.9 cfs senior right.