WEST STANISLAUS IRRIGATION DISTRICT

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Subject: 2019 Summary of San Joaquin River diversion report for West Stanislaus Irrigation District

During the 2019 year, West Stanislaus Irrigation District (WSID) diverted under its license #003957 a total of 57,674 acre-feet of water at a maximum rate of 284 cubic feet per second. WSID is unable to divert all of the water to which it is entitled from the San Joaquin River pursuant to its license for several reasons. First, water levels during the summer period have been reduced by operation of the Central Valley Project Friant Division, and low water levels prevent the District from pumping the full diversion amount to which it is entitled. Additionally, pumping and mechanical failures during the irrigation season sometimes limit the District's ability to utilize its licensed right. Also, water quality problems restrict the use of the District's appropriative rights for some purposes. Low river flows and poor water quality issues were not a concern in 2019; however, during most years, this is a significant issue. No groundwater was pumped during the year. Table 1 below summarizes the District diversions in 2019.

Table 1. 2019 Diversions for West Stanislaus Irrigation District.

Month	WSID SJR Diverted, AF	CVP Diverted, AF	Ground Water Diversions, AF	Total SJR Appropriations, AF
January	0	0	0	0
February	0	0	0	0
March	1,094	0	0	1,094
April	4,767	0	0	4,767
May	6,923	0	0	6,923
June	11,284	0	0	11,284
July	12,825	53	0	12,878
August	10,168	0	0	10,168
September	5,482	0	0	5,482
October	3,906	0	0	3,906
November	2,292	0	0	2,292
December	0	0	0	0
Total	***58,740***	***53***	***0***	***58,793***

Not included in the above table is groundwater recharged from canals through seepage and water lost to evaporation, water that would have served land that was left fallow, water saved through conservation projects, and groundwater from private wells conveyed through District facilities. Also not provided in the above table is water accounted for as beneficially used due to conservation efforts as discussed on attachment with subject heading "Summary of water conservation efforts by West Stanislaus irrigation District." groundwater recharged from canals through seepage and water lost to evaporation, water that would have otherwise been used on fallow land, conserved water, and private groundwater conveyed by the District are included in Table 2 below because that water is beneficially used pursuant to California law. Data provide in the table below is the total water appropriated by the District and should count toward the maximum beneficial use of the District under its license in 2019.

Table 2. WSID 2019 Summary of San Joaquin River Appropriations.

Appropriation Type	***Total SJR Appropriations, AF**
**WSID SJR Diversion	58,740
CVP Diversion	53
District Groundwater Diversions	0
Private Groundwater Use	1,463
Fallow Land	335
Conservation Projects	6,677
***Canal Seepage	334
***Canal Evaporation	115
Total:	***67,717***

* 2019 Total SJR appropriations should include all types listed in this table.

**Measured at the pump station at the end of the 2 mile long Intake Canal.

***Loss between SJR Point of Diversion and measuring point at end of the 2 mile Intake Canal.

Details of canal seepage and evaporation are provided in Table 3 below. Seepage and evaporation rates are found from references provided in the table. These sources are commonly accepted by U.S. Bureau of Reclamation and C.A. Department of Water Resources. Seepage and evaporation losses shown below occur between the Point of Diversion off the San Joaquin River and measuring point located at the head of the distribution laterals supplied by the Main Canal. This additional quantity of water should be included in San Joaquin River appropriations by the District in 2019.

Table 3. Seepage and Evaporation Loss in WSID Distribution Facilities.

Seepage Quantities in WSID Distribution Facilities

Source: Kishel, J. (1989), Seepage and Contraction Joints In Concrete Canal Lining. Journal of Irrigation and Drainage Engineering, Vol. 115, No. 3

Sonnichsen, R.P., (1993), Seepage Rates From Irrigation Canals. Water Resources Program, Open-File Technical Report

Days of Irrigation: 266

Sites	Length, mi.	Wetted Width, ft.	Top Water Surface Area, Ft.^{2}	Wetted Perimeter, Ft.	Wetted Perimeter Area, Ft.^{2}	Seepage, Ft.^{3}/day	Annual Seepage, AF
Intake Canal	2	80	844,800	74	781440	54,701	334

Evaporation Quantities in WSID Distribution Facilities

Source: Mean Monthly, Seasonal, and Annual Pan Evaporation for the United States, NOAA Technical Report NWS 34, Washington, D.C., December 1982, 22 p, Station Index 9565

Month	Evap. Rate in./mo.	Intake Canal Evap., AF
January	1.38	2
February	2.32	4
March	4.61	7
April	6.65	11
May	8.98	15
June	10.55	17
July	10.91	18
August	9.06	15
September	7.4	12
October	5.16	8
November	2.44	4
December	1.54	2
	Total:	***115***

In addition, in 1928 WSID entered into an agreement with Burkhard Investment Company[1] as amended June 7, 1939, wherein the parties acknowledged that the Burkhard lands had installed diversion and irrigation works to divert 45 cfs of riparian water for irrigation of riparian land. In that agreement, WSID agreed to "pump the said water to which the [Burkhard land] is entitled. . ." for irrigation. That agreement is still binding between the parties, and imposes upon WSID the continuing obligation to dedicate 45 cfs of pumping capacity to the Burkhard riparian lands. Water diversion and use for the White Lakes Mutual Water Company is represented by a Statement of Water Diversion and Use filed by that entity.

[1] The White Lake Mutual Water Company was formed on September 11, 1941, and represents the Burkhard properties by virtue of its Articles of Incorporation and Bylaws.