

REPORT OF KERN RIVER WATER MASTER

Description of Service Area

The Kern River runoff, which flows out of the Sierra Nevada Mountains, is entirely absorbed for beneficial uses on the floor of the San Joaquin Valley in three general areas. These areas are the First Point service area, the Second Point service area, and the Lower River service area. Incorporated herein as Plate 1 is a map of the Kern River service areas.

Water diverted from Kern River between First Point of Measurement, which is located in Section 2, T. 29 S., R. 28 E., and Second Point of Measurement, which is located in Section 24, T. 30 S., R. 25 E., is utilized in the First Point service area.

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The major entities diverting water within the First Point service area are the North Kern Water Storage District, Kern County Land Company, Kern County Canal and Water Company, Anderson Canal, Inc., Buena Vista Canal, Inc., Central Canal Company, The Farmers Canal Company, East Side Canal Company, Kern-Boquillas Company, James Canal, Inc., Joyce Canal, Inc., Kern Island Canal Company, Kern River Canal and Irrigating Company, Pioneer Canal, Inc., Plunket Canal, Inc. and Stine Canal, Inc.

The Second Point service area embraces those entities which divert water from Kern River between Second Point of Measurement and the Wasco-Paso Robles Highway (Highway 466), located along the north line of Township 27 South, Range 22 East, MDB&M. Entities in the Second Point area are the Buena Vista Water Storage District, Miller & Lux, Incorporated and Buena Vista Associates Incorporated,

Hacienda Water District and Tulare Lake Basin Water Storage District are the major entities in the Lower River area, which extends northerly from the Wasco-Paso Robles Highway to and including the Tulare Lake area.

Allocation of Runoff

Kern River runoff is allocated to the First and Second Point service areas in accordance with that certain contract known as the Miller-Haggin Agreement,

dated July 28, 1888, and recorded in the office of the County Recorder of Kern County, California, in Book 2 of Agreements, at Page 40, as amended and supplemented. In addition, the water is allocated among the First Point, Second Point, and Lower River users in accordance with the "Kern River Water Rights and Storage Agreement", by and among Buena Vista Water Storage District, North Kern Water Storage District, Tulare Lake Basin Water Storage District and Hacienda Water District, dated December 31, 1962.

Isabella Reservoir began operation on April 16, 1954. On November 6, 1963, an "Agreement for the Establishment and Maintenance of Minimum Recreation Pool of 30,000 Acre Feet in Isabella Reservoir", between Buena Vista Water Storage District, North Kern Water Storage District, Tulare Lake Basin Water Storage District and Hacienda Water District, and the County of Kern, was entered into. In essence, this agreement provides that water in Isabella Reservoir will not be withdrawn for irrigation purposes below 30,000 acre feet.

#### Records of Flow

In accordance with provisions of the Miller-Haggin Agreement, measurements and records of flow at First Point and Second Point of Measurement have been maintained since 1894. Included as Plate 2 is a table which sets forth pertinent information regarding Kern River runoff and absorptions for beneficial use within the Kern River service area during the 70-year period of record.

Studies by Mr. C. E. Grunsky, as reported in Bulletin 100, Irrigation Investigations of the U.S. Department of Agriculture, and subsequent records by the U.S. Geological Survey and others, indicate that the entire Kern River runoff has been absorbed within the Kern River service area since 1878. These reports state that 1878 was the most recent year in which the water level in Tulare Lake was high enough for water to flow out to the Pacific Ocean. The complete absorption of the Kern River water supply by the Kern River water users is thus clearly demonstrated.

Also included, as Plate 3, is a graph of Kern River runoff at First Point of Measurement for the 70-year period of record, portraying the annual runoff of the river arranged in order of magnitude. This graph illustrates the magnitude and frequency of the various annual amounts of Kern River runoff. Erratic flows are characteristic of Kern River. The runoff exceeds the average in only one-third of the years. Conversely, in two-thirds of the years the runoff is less than average. Thus, water deficiencies are normal in the Kern River service area.

#### Additional Water Requests

The shortage or deficiency of water within the Kern River service area is substantial. This shortage is well demonstrated by the positive efforts of the irrigation users to import additional water supplies. Since shortly after the U.S. Bureau of Reclamation completed construction of the Friant-Kern Canal, the Kern River water users have maintained standing requests for additional water. The quantity of water actually acquired by Kern River water users from the Friant-Kern Canal is shown in Column 6, Page four of Plate 2. The Kern County Water Agency has also contracted with the State of California for the delivery of 1,000,000 acre-feet of water annually. By resolution, Buena Vista Water Storage District has indicated to the Kern County Water Agency its desire to purchase 85,000 acre-feet annually of additional water as soon as possible. Before December 31, 1963, Tulare Lake Basin Water Storage District entered into a contract with the State of California to purchase an annual supply of 110,000 acre-feet, and Hacienda Water District entered into a contract to purchase an annual supply of 8,500 acre-feet.

#### Conclusion

For more than 70 years all Kern River water has been utilized beneficially; in fact, there is a serious shortage of water. This shortage is further emphasized by the positive actions to contract for imported supplies. Any decrease

in the supply of Kern River water available to the service areas could cause further declines in the ground-water table, with the inherent increases in well and pump costs, and could cause serious crop and financial losses.

W. I. Balch, C.E.#8330  
Kern River Water Master

Approved on behalf of the  
FIRST POINT SERVICE AREA:

By C. H. Williams  
C. H. Williams, C.E.#11317  
Engineer, North Kern Water  
Storage District

Approved on behalf of the  
SECOND POINT SERVICE AREA:

By H. K. Russell  
H. K. Russell, C.E.#11739  
Engineer-Manager, Buena Vista  
Water Storage District

Approved on behalf of the  
LOWER RIVER SERVICE AREA:

By S. M. Barnes  
S. M. Barnes, C.E.#9173  
Engineer, representing Tulare Lake  
Basin Water Storage District and  
Hacienda Water District

Dated: February 4, 1964



TABLE OF KERN RIVER RUNOFF AND ABSORPTION FOR BENEFICIAL USE

ALL UNITS -- THOUSANDS OF ACRE FEET

JAN. 1964

(1) YEAR	(2) KERN RIVER RUNOFF	(3) ISABELLA RESERVOIR CAPACITY (4) LOSS	(5) MEASURED AT FIRST POINT OF MEASUREMENT	(6) MEASURED FROM POINT OF MEASUREMENT TO POINT OF MEASUREMENT	(7) FLOWS AT POINT OF MEASUREMENT	(8) AT WAGON POINT HIGHWAY	(9) ABSORPTION FOR BENEFICIAL USE IN SERVICE AREA			(11) LOSS FROM LAVERA POOL	(12) TOTAL
							FIRST POINT	SECOND POINT	THIRD POINT		
1901	A		533.2		53.9	0	479.3	53.9	0	0	533.2
95			1022.8		329.5	0	693.3	329.5	0	0	1022.8
96			619.6		141.4	0	478.2	141.4	0	0	619.6
97			893.1		242.2	0	650.9	242.2	0	0	893.1
98			251.7		14.7	0	237.0	14.7	0	0	251.7
99	SAME		338.8		38.5	0	300.3	38.5	0	0	338.8
1900			332.4		29.6	0	302.8	29.6	0	0	332.4
1	AS		879.8		241.9	0	637.9	241.9	0	0	879.8
2			552.2		129.2	0	423.0	129.2	0	0	552.2
3			546.3		106.4	0	439.9	106.4	0	0	546.3
4			492.8		56.1	0	436.7	56.1	0	0	492.8
5	(5)		531.6		54.9	0	476.7	54.9	0	0	531.6
6			1899.9		944.6	(e)	(e)	(e)	(e)	(e)	1899.9
7			1038.4		(e)	(e)	(e)	(e)	(e)	(e)	1038.4
8			493.1		(e)	(e)	(e)	(e)	(e)	(e)	493.1
9			1838.0		(e)	(e)	(e)	(e)	(e)	(e)	1838.0
1910			658.8		(e)	(e)	(e)	(e)	(e)	(e)	658.8
11			1013.0		(e)	(e)	(e)	(e)	(e)	(e)	1013.0
12			387.4		26.2	0	361.2	26.2	0	0	387.4
13			367.7		55.6	0	322.1	55.6	0	0	367.7

(a) Actual runoff at First Point of Measurement prior to construction of Isabella Reservoir.

After construction of Isabella Reservoir, runoff which, in the absence of storage in Isabella Reservoir, would have passed First Point of Measurement.

(b) Exclusive of Kern County Recreation Pool effects.

(c) Net storage withheld in Reservoir (-) or net storage withdrawn from Reservoir (+).

(d) Friant-Kern Canal inflow to Kern River per U.S. Bureau of Reclamation records.

(e) No measurements, or only partial records available.

(f) Per records of U.S. Corps of Engineers.

TABLE OF KERN RIVER RUNOFF AND ABSORPTION FOR BENEFICIAL USE  
ALL UNITS -- THOUSANDS OF ACRE FEET

(10) Year	(9) Kern River Runoff	(8) (a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z)	(7) Measured at First Point of Measurement	(6) (a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z)	(5) (a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z)	(4) (a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z)	(3) (a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z)	(2) (a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z)	(1) (a) (b) (c) (d) (e) (f) (g) (h) (i) (j) (k) (l) (m) (n) (o) (p) (q) (r) (s) (t) (u) (v) (w) (x) (y) (z)	ABSORPTION FOR BENEFICIAL USE IN SERVICE AREA		(17) TOTAL
										First Point of Measurement	Second Point of Measurement	
1914	A		11132							(e)	(e)	11132
15			6462							(e)	(e)	6462
16			19916							(e)	(e)	19916
17			8230							(e)	(e)	8230
18			5394							(e)	(e)	5394
19	Same		4991							0	4233	1046
1920			6006							0	4577	1429
21	1/5		5096							0	4129	967
22			8614							0	5660	2954
23	General		5003							0	4019	904
24			1876							0	1773	103
1925	(S)		4657							0	2903	854
26			3667							0	3118	549
27			7926							0	5478	2448
28			3129							0	2778	351
29			3231							0	2745	486
1930			3499							0	2934	565
31			1857							0	1762	95
32			7376							0	5352	2024
33			9411							0	3659	752

(a) Actual runoff at First Point of Measurement prior to construction of Isabella Reservoir.  
 After construction of Isabella Reservoir, runoff which, in the absence of storage in Isabella Reservoir, would have passed First Point of Measurement.  
 (b) Exclusive of Kern County Recreation Pool effects.  
 (c) Net storage withheld in Reservoir (-) or net storage withdrawn from Reservoir (+).  
 (d) Front-Kern Canal Inflow to Kern River per U.S. Bureau of Reclamation records.  
 (e) No measurements, or only partial records available.  
 (f) Per records of U.S. Corps of Engineers.

JAN. 1964

PLATE 2  
TABLE OF KERN RIVER RUNOFF AND ABSORPTION FOR BENEFICIAL USE  
ALL UNITS -- THOUSANDS OF ACRE FEET

JAN. 1964

Year	Flow at Point of Measurement (1)	Flow at Point of Measurement (2)	Flow at Point of Measurement (3)	Flow at Point of Measurement (4)	Flow at Point of Measurement (5)	Flow at Point of Measurement (6)	Flow at Point of Measurement (7)	Flow at Point of Measurement (8)	Absorption for Beneficial Use in Service Area			Total
									First Point	Second Point	Lower Point	
1941	4270	4270	151	0	0	0	0	0	2124	151	0	2275
1942	4741	4741	1025	0	0	0	0	0	3716	1025	0	4741
1943	7163	7163	2357	0	0	0	0	0	5607	2357	0	7964
1944	12452	12452	6572	2320	0	0	0	0	6029	4351	2320	12602
1945	2337	2337	6923	3925	0	0	0	0	6223	3925	0	10148
1946	4611	4611	841	0	0	0	0	0	2730	891	0	4611
1947	7891	7891	2917	0	0	0	0	0	4974	2917	0	7891
1948	14310	14310	7752	4416	0	0	0	0	6259	3226	4416	14010
1949	7719	7719	2395	1098	0	0	0	0	4211	2410	1098	7719
1950	2705	2705	6912	4542	0	0	0	0	5218	2447	4542	12208
1951	6252	6252	1822	0	0	0	0	0	4423	1822	0	6252
1952	1251	1251	3551	0	0	0	0	0	5820	3551	0	9281
1953	4307	4307	1830	0	0	0	0	0	4677	1830	0	6507
1954	4065	4065	673	0	0	0	0	0	3412	653	0	4065
1955	2204	2204	511	0	0	0	0	0	2750	511	0	3261
1956	2028	2028	432	0	0	0	0	0	2576	432	0	3008
1957	6013	6013	1283	0	0	0	0	0	4730	1283	0	6013
1958	1422	1422	659	0	0	0	0	0	3763	659	0	4422
1959	15010	15010	7072	2102	0	0	0	0	7744	5164	2102	15010
1960	5438	5438	1021	0	0	0	0	0	4467	1021	0	5488

(a) Actual runoff at First Point of Measurement prior to construction of Isabella Reservoir.  
 After construction of Isabella Reservoir, runoff which, in the absence of storage in Isabella Reservoir, would have passed First Point of Measurement.  
 (b) Exclusive of Kern County Recreation Pool effects.  
 (c) Net storage withheld in Reservoir (-) or net storage withdrawn from Reservoir (+).  
 (d) Triant-Kern Canal inflow to Kern River per U.S. Bureau of Reclamation records.  
 (e) No measurements, or only partial records available.  
 (f) For records of U.S. Corps of Engineers.  
 (g) Includes 19,400 acre feet which by-passed Second Point of Measurement via Goose Lake Slough.

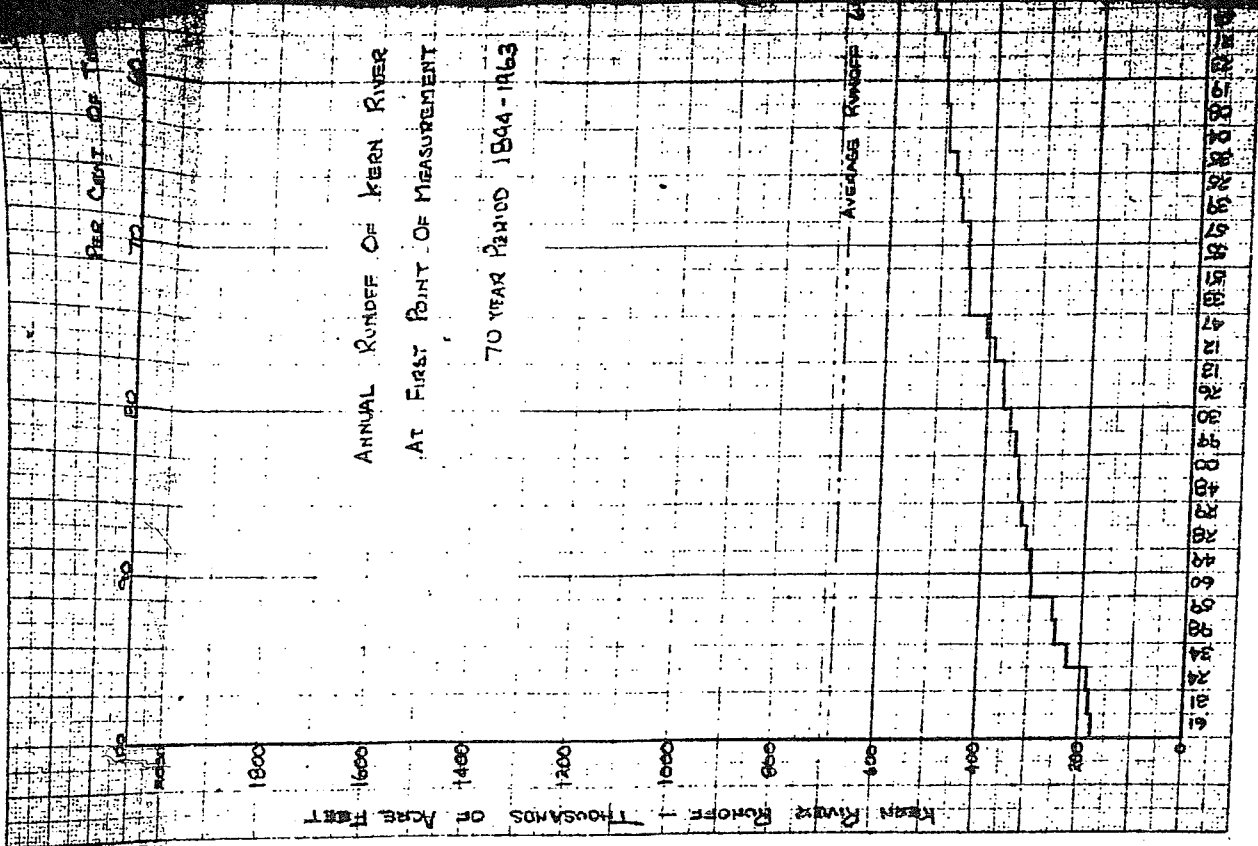
PLATE 2  
 TABLE OF KERN RIVER RUNOFF AND ABSORPTION FOR BENEFICIAL USE  
 ALL UNITS -- THOUSANDS OF ACRE FEET

JAN. 1964

YEAR	KERN RIVER RUNOFF	ISABELLA RESERVOIR CONSERVATION (1971-3)	ISABELLA RESERVOIR STORAGE LOSS	MEASURED FLOW AT FIRST POINT OF MEASUREMENT TO KERN RIVER	MEASURED FLOW AT SECOND POINT OF MEASUREMENT - HIGHWAY	ABSORPTION FOR BENEFICIAL USE IN SERVICE AREA		TOTAL
						FIRST POINT SECONDARY	LOWERING	
59	6224	-596	85	0	962	4141	962	5103
60	4113	-690	75	0	477	3201	477	2679
61	5109	-745	309	1291	2446	6400	2446	5641
62	4415	-254	459	12	745	3724	745	4471
63	1197	-92	192	7	227	7276	227	1250
64	2290	-123	22	3	518	3217	518	3310
65	3110	+329	12	29	320	2170	320	3210
66	1776	+62	65	07	0	1720	0	1720
67	6977	-579	220	312	1659	4702	1659	6361
68	5211	-379	365	279	1200	5923	1200	7123

(a) Actual runoff at First Point of Measurement prior to construction of Isabella Reservoir. After construction of Isabella Reservoir, runoff which, in the absence of storage in Isabella Reservoir, would have passed First Point of Measurement.  
 (b) Exclusive of Kern County Recreation Pool effects.  
 (c) Net storage withheld in Reservoir (-) or net storage withdrawn from Reservoir (+).  
 (d) Friant-Kern Canal Inflow to Kern River per U.S. Bureau of Reclamation records.  
 (e) No measurements, or only partial records available.  
 (f) Per records of U.S. Corps of Engineers.





DATE: 11/10/63

MAR 1964

PLATE 3

TO OR GREATER THAN



1000 ACRES PER ACRE

1900 1910 1920 1930 1940 1950 1960 1970 1980 1990 2000  
 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100  
 2110 2120 2130 2140 2150 2160 2170 2180 2190 2200  
 2210 2220 2230 2240 2250 2260 2270 2280 2290 2300  
 2310 2320 2330 2340 2350 2360 2370 2380 2390 2400  
 2410 2420 2430 2440 2450 2460 2470 2480 2490 2500  
 2510 2520 2530 2540 2550 2560 2570 2580 2590 2600  
 2610 2620 2630 2640 2650 2660 2670 2680 2690 2700  
 2710 2720 2730 2740 2750 2760 2770 2780 2790 2800  
 2810 2820 2830 2840 2850 2860 2870 2880 2890 2900  
 2910 2920 2930 2940 2950 2960 2970 2980 2990 3000  
 3010 3020 3030 3040 3050 3060 3070 3080 3090 3100  
 3110 3120 3130 3140 3150 3160 3170 3180 3190 3200  
 3210 3220 3230 3240 3250 3260 3270 3280 3290 3300  
 3310 3320 3330 3340 3350 3360 3370 3380 3390 3400  
 3410 3420 3430 3440 3450 3460 3470 3480 3490 3500  
 3510 3520 3530 3540 3550 3560 3570 3580 3590 3600  
 3610 3620 3630 3640 3650 3660 3670 3680 3690 3700  
 3710 3720 3730 3740 3750 3760 3770 3780 3790 3800  
 3810 3820 3830 3840 3850 3860 3870 3880 3890 3900  
 3910 3920 3930 3940 3950 3960 3970 3980 3990 4000  
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 4710 4720 4730 4740 4750 4760 4770 4780 4790 4800  
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 5810 5820 5830 5840 5850 5860 5870 5880 5890 5900  
 5910 5920 5930 5940 5950 5960 5970 5980 5990 6000  
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 6110 6120 6130 6140 6150 6160 6170 6180 6190 6200  
 6210 6220 6230 6240 6250 6260 6270 6280 6290 6300  
 6310 6320 6330 6340 6350 6360 6370 6380 6390 6400  
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 6710 6720 6730 6740 6750 6760 6770 6780 6790 6800  
 6810 6820 6830 6840 6850 6860 6870 6880 6890 6900  
 6910 6920 6930 6940 6950 6960 6970 6980 6990 7000  
 7010 7020 7030 7040 7050 7060 7070 7080 7090 7100  
 7110 7120 7130 7140 7150 7160 7170 7180 7190 7200  
 7210 7220 7230 7240 7250 7260 7270 7280 7290 7300  
 7310 7320 7330 7340 7350 7360 7370 7380 7390 7400  
 7410 7420 7430 7440 7450 7460 7470 7480 7490 7500  
 7510 7520 7530 7540 7550 7560 7570 7580 7590 7600  
 7610 7620 7630 7640 7650 7660 7670 7680 7690 7700  
 7710 7720 7730 7740 7750 7760 7770 7780 7790 7800  
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 8710 8720 8730 8740 8750 8760 8770 8780 8790 8800  
 8810 8820 8830 8840 8850 8860 8870 8880 8890 8900  
 8910 8920 8930 8940 8950 8960 8970 8980 8990 9000  
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 9210 9220 9230 9240 9250 9260 9270 9280 9290 9300  
 9310 9320 9330 9340 9350 9360 9370 9380 9390 9400  
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 9910 9920 9930 9940 9950 9960 9970 9980 9990 10000

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