DEPARTMENT OF PUBLIC WORKS

STATE OF CALIFORNIA

REPORTS OF THE

DIVISION OF WATER RESOURCES

EDWARD HYATT, State Engineer

REPORT ON

WATER MASTER SERVICE

ON

EMERSON CREEK

MODOC COUNTY, CALIFORNIA

FOR SEASON OF 1930

By Leslie C. Jopson, Modoc County Water Master

Sacramento, California
February 1931

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STATE OF CALIFORNIA

Department of Public Works

SACRAMENTO

DIVISION OF WATER RESOURCES
401 PUBLIC WORKS BUILDING

EDWARD HYATT, STATE ENGINEER
CHIEF OF DIVISION

Mr. Harold Conkling
Deputy State Engineer
Sacramento, California

Dear Sir: Attention: Mr. Gordon Zander, Hydraulic Engineer

There is transmitted herewith a report covering water master service on Emerson Creek, Modoc County, California, during the period from March 21 to August 20, 1930.

The report describes the methods and practices followed in the distribution of the waters of Emerson Creek in accordance with the provisions of the decree in the case of F. A. Murphy, et al. vs. W. G. Warren, et al., and presents the results obtained under this distribution.

Respectfully submitted,

Leslie C. Johnson
Modoc County Water Master

ORGANIZATION

Walter E. Garrison	Director of Public Works
Edward Hyatt	State Engineer

Harold Conkling	Deputy State Engineer

GORDON ZANDER

In Supervising Charge

T. Russel Simpson	Supervising Water Master
Leslie C. Jopson	Modoc County Water Master

GENERAL DESCRIPTION OF WORK

Water master service was conducted on Emerson Creek during the 1930 season in accordance with the provisions of the decree in the case entitled F. A. Murphy, et al. vs. W. G. Warren, et al., dated March 25, 1930.

The Water Commission Act provides that whenever the rights to water on a stream have been determined a water district may be created by the state to facilitate the handling of water master service on the stream. This procedure was followed on Emerson Creek and an order was entered by the Department of Public Works on April 2, 1930 creating the Emerson Creek Water District. Inasmuch as the water users did not submit a petition for water master service in the district until late in the season, and the need for such service being urgent, the Division of Water Resources appointed a water master to act during 1930 under the authority given by the above mentioned decree.

Water master service was commenced on March 21, 1930 and was terminated for the season on August 20, 1930. Mr. L. C. Jopson acted as water master during the 1930 season.

All diversions on Emerson Creek were opened in 1930 although the Hill and the Taylor ditches were open for only a few days. These ditches had only a small fraction of the land under them irrigated in 1930 due to lack of water to fill their priority classes.

A deficiency in water supply was present throughout the 1930 season as there was at no time sufficient water to fill the allot-

ments to all priority classes. The maximum ten day delivery of water was 77 per cent of the total allotments and the minimum ten day delivery was 6 per cent of the total allotments.

The dry weather flow dropped to 72 per cent of the domestic allotments but was sufficient to insure a continuous flow to all parties.

Crop failure occurred on three ranches on Emerson Creek in 1930 due to the lack of irrigation water. These ranches were the Taylor, Hill and Cook places whose irrigation water rights are in the third and fourth priority classes.

DISCUSSION OF RESULTS FOR THE SEASON

The monthly and seasonal precipitation at Cedarville for the period of water master service in Surprise Valley is tabulated in Table 1. The mean precipitation for the station from 1894 to 1930 is also shown as well as a tabulation of the precipitation in 1929-30 in per cent of the total mean precipitation. The seasonal precipitation in 1929-30 was about 81.3 per cent of the average mean precipitation.

It will be noted that in December, January and February the precipitation was above normal but that for the remainder of the season the rainfall was very much below normal.

Table 2 is a tabulation in cubic feet per second of the daily discharge of Emerson Creek above diversion.

Plate 1 graphically shows the water supply as tabulated in Table 3. The water supply in 1927 is also shown as well as allotment lines to indicate the relation of the 1930 water supply to normal.

Table 3 is a tabulation of the per cent of allotments delivered to each priority class during ten day periods throughout the season. The table also includes a tabulation of the total deliveries, per cent of total allotments, total water supply and per cent channel loss or accretion for each of the indicated periods.

Table 4 is a tabulation of the crop yields on typical lands

irrigated from Emerson Creek in 1930. This table shows very clearly the effects of the deficient water supply as practically every crop listed yielded a subnormal return.

CONTROVERSIES

No controversies of importance occurred on Emerson Creek in 1930.

RECOMMENDATIONS

All the necessary Parshall Measuring Flumes have been installed on Emerson Creek but there is a need for better headgates on some of the ditches as it is now necessary to regulate the water to a great extent by rock dams.

It has been observed during the seasons of 1929 and of 1930 that the Hill and the Taylor ranches have received very little water due to their late priority. Their lands are mostly in alfalfa and could be irrigated early in the season if the water was made available for them. Therefore, it is suggested that efforts be made hereafter to let them have any surplus water that occurs early in the season before the other users have their meadows in shape to start irrigating. It might be possible for them in this way to get at least a partial irrigation even in dry years when if they had to wait for their allotments to become available according to the schedule the deficient run-off would eliminate all chances of them receiving any water.

FINANCIAL STATEMENT

The finances for conducting investigations and water master service on all streams in Northern California, except in water districts operating under the procedure of Sections 37 to 37f of the Water Commission Act, during the 1930 season were combined into one fund. This was done because a portion of the work on the various streams was related and because of convenience in bookkeeping. The streams included under the fund were Emerson, Davis and Mill Creeks in Modoc County, Clover, North Cow, and Oak Run Creeks in Shasta County, Little Shasta and Lower Shasta Rivers in Siskiyou County, and Pit River in Big Valley.

The work was financed partly by subscription from the water users and partly by contribution by the Division of Water Resources. No segregation was made in the expense of conducting the work on the nine stream systems during the 1930 season. The total unit cost of the work was about twenty-four cents per acre of irrigated land, of which about half was borne by the state.

A financial statement in which receipts and disbursements are itemized follows.

FINANCIAL STATEMENT

NORTHERN CALIFORNIA WATER DISTRIBUTION

1930 SEASON

Receipts

Contributed by Emerson Creek Water Users	$290.10
Contributed by Davis Creek Water Users	389.20
Contributed by Mill Creek Water Users	500.00
Contributed by Clover Creek Water Users	372.00
Contributed by North Cow Creek Water Users	442.87
Contributed by Oak Run Creek Water Users	94.48
Contributed by Little Shasta River Water Users	926.02
Contributed by Lower Shasta River Water Users	200.00
Contributed by Pit River	450.00
Contributed by Division of Water Resources	3950.00
	$ 7614.67

Disbursements

Salaries and Wages	$4987.18
Travel and Field Expenses	2550.92
Printing and Blueprinting	43.42
Miscellaneous	33.15
	$ 7614.67

TABLES

TABLE 1

PRECIPITATION DATA
Cedarville, California

Season	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March	April	May	June	July	Aug.	Seasonal
1924 – 25	0.25	2.06	1.86	1.66	1.08	1.34	0.61	0.65	1.59	0.49	0.29	0.30	12.18
1925 – 26	1.34	1.57	1.31	1.25	1.06	1.18	0.13	1.26	1.07	T	0.09	0.09	10.35
1926 – 27	0.15	0.53	2.73	1.16	1.82	2.02	1.73	0.81	0.95	0.35	T	T	12.25
1927 – 28	0.32	0.86	2.87	0.86	0.92	0.75	2.93	0.81	T	0.55	0.00	0.00	10.87
1928 – 29	0.40	0.15	1.43	0.42	2.08	0.59	1.20	1.85	0.29	1.98	0.00	T	10.39
1929 – 30	0.07	0.19	0.00	3.02	3.39	1.53	0.83	0.51	0.67	T	0.02	T	10.23
Mean 1894 – 1930	0.25	1.01	1.59	1.61	1.81	1.64	1.49	0.89	1.12	0.68	0.28	0.21	12.58
1929 – 30 in per cent of Total Mean	0.6	1.5	0.0	24.0	26.9	12.2	6.6	4.0	5.3	0.0	0.2	0.0	81.3

Note: Per cent of total mean from May 1st to August 31st of Average Year is 18.2 per cent, whereas in 1930 it was 5.5 per cent.

TABLE 2

CONTINUOUS RECORDS OF DAILY DISCHARGE IN CUBIC FEET PER SECOND OF EMERSON CREEK ABOVE ALL DIVERSIONS FOR THE PERIOD MARCH 21 to AUGUST 20, 1930.

Day	March	April	May	June	July	Aug.	
1		9.9	12.5	16.6	4.4	2.00	
2		11.3	13.1	15.4	4.4	2.00	
3		12.5	14.3	14.8	4.1	2.00	
4		12.1	13.7	14.8	3.8	1.85	
5		12.9	14.3	14.3	3.6	1.85	
6		15.4	14.8	13.7	3.5	1.75	
7		17.2	14.3	13.7	3.5	1.85	
8		16.5	14.8	13.7	3.5	* 1.85	
9		16.5	14.3	13.1	3.6	* 1.85	
10		16.6	14.3	13.1	3.5	2.00	
11		16.0	14.3	11.9	3.3	2.00	
12	NO	15.4	14.8	11.3	3.1	2.1	
13		16.0	15.4	10.8	2.9	2.1	
14	RECORD	14.8	16.0	10.4	2.8	2.00	
15		14.3	17.2	9.5	2.8	2.00	
16		13.7	17.2	9.0	2.6	1.85	
17		13.7	17.9	8.5	2.6	2.00	
18		13.7	18.5	8.1	2.6	1.85	
19		14.3	19.9	8.1	2.6	1.85	
20		15.4	21	7.6	2.4	1.85	
21	5.8	16.6	21	7.2	2.4		
22	6.1	17.2	19.9	6.7	2.4		
23	6.7	16.6	21	6.7	* 2.4	NO	
24	7.6	16.0	21	6.4	* 2.3		
25	8.5	15.4	21	5.8	* 2.3		
26	9.0	14.8	21	5.5	* 2.3		
27	9.9	13.7	22	5.2	2.1		
28	10.8	13.7	22	5.2	2.1	RECORD	
29	11.7	13.1	21	5.0	2.1		
30	11.3	12.5	21	4.7	2.00		
31	10.4		17.9		2.00		
Total Sec. Feet Days	97.8	441.8	541.4	296.8	90.0	38.6	153 Day Period
Mean Sec. Feet	8.89	14.7	17.5	9.89	2.90	1.93	9.85
Maximum Sec. Feet	11.7	18.5	22	16.6	4.4	2.1	22
Minimum Sec. Feet	5.8	9.9	12.5	4.7	2.00	1.75	1.75
Total Acre Feet	194	876	1070	589	178	77	2980

* Estimated

TABLE 3

WATER DELIVERIES ON EMERSON CREEK COMPARED WITH ALLOTMENTS
1930 SEASON

Period	Per cent of Allotment Delivered				Total Deliveries c.f.s.	Per cent of Total Allotment Delivered	Continuous Flow above all Diversion c.f.s.	Per cent channel Loss or Accretion
	1st Priority	2nd Priority	3rd Priority	4th Priority				
4/1 - 4/10	100	93	3	0	13.04	53	14.49	10
4/11- 4/20	95	95	5	0	13.26	54	14.73	10
4/21- 4/30	100	99	0	0	13.46	55	14.96	10
5/1 - 5/10	100	92	0	0	12.64	51	14.04	10
5/11- 5/20	100	98	32	0	15.50	63	17.22	10
5/21- 5/30	100	100	75	11	18.98	77	21.09	10
5/31- 6/9	100	97	0	0	13.32	54	14.80	10
6/10- 6/19	100	61	0	0	9.06	37	10.07	10
6/20- 6/29	100	28	0	0	5.33	22	6.13	13
6/30- 7/9	100	12	0	0	3.41	14	3.91	13
7/10- 7/19	100	3	0	0	2.43	10	2.88	16
7/20- 7/29	89	0	0	0	1.83	7	2.28	20
7/30- 8/8	72	0	0	0	1.47	6	1.92	23
8/9 - 8/18	75	0	0	0	1.53	6	1.98	23

Note: 1st Priority = 2.05 cubic feet per second
2nd Priority = 11.55 cubic feet per second
3rd Priority = 6.50 cubic feet per second
4th Priority = 4.55 cubic feet per second
Total Allotments = 24.65 cubic feet per second

TABLE 4

ESTIMATED CROP YIELDS ON TYPICAL LANDS IRRIGATED FROM EMERSON CREEK - 1930

Owner	Crop	Acres	Total Yield		Yield per Acre	
			Sacks	Tons	Sacks	Tons
John Erramouspe	Alfalfa Hay	100		254.5		2.5
	Meadow Hay	40		54		1.4
	Orchard and				Fair	
	Garden	0.8			Fair	
	Pasture	50			Good	
Jesse Parman	Alfalfa Hay	40		80		2.0
	Grain Hay	10		20		2.0
John Price Estate	Wheat	6.8	50		7.4	
	Orchard	0.7			Fair	
	Garden	1.0			Fair	
Lena H. Scott	Alfalfa Hay	30		65		2.2
	Meadow Hay	500		700		1.4
	Barley	56	1270		22.7	
	Rye	25	275		11.0	
	Wheat	9	200		22.2	
	Orchard	1			Fair	
	Garden	0.5			Fair	
J. W. Taylor	Wheat	5	28		5.6	
	Alfalfa Seed	30	1680#		56#	

PLATES

May | June | July | August | September

20 25 30 5 10 15 20 25 30 5 10 15 20 25 30 5 10 15 20 25 30 5 10 15 20 25 30 5 10 15 20 25 30

HYDROGRAPHS OF EMERSON CREEK SHOWING DISCHARGE ABOVE ALL DIVERSIONS 1927-1930

1927

Total Allotments

4th Priority

3rd Priority

2nd Priority

1930

Domestic

1st Priority

20 25 30 5 10 15 20 25 30 5 10 15 20 25 30 5 10 15 20 25 30 5 10 15 20 25 30 5 10 15 20 25 30

PLATE 1