STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS

REPORTS OF THE
DIVISION OF WATER RESOURCES
EDWARD HYATT, STATE ENGINEER

REPORT ON

WATER MASTER SERVICE

ON

SUSAN RIVER AND ITS TRIBUTARIES

LASSEN COUNTY, CALIFORNIA

1941 SEASON

By

J. W. McPartland
Water Master

Sacramento, California

TABLE OF CONTENTS

	Page
LETTER OF TRANSMITTAL	
INTRODUCTION	1
WATER SUPPLY	2
Precipitation	2
Stream Flow	3
DISTRIBUTION OF WATER	4
SUMMARY	9
CONTROVERSIES	10
RECOMMENDATIONS	10
PENDING APPLICATIONS BEFORE DIVISION OF WATER RESOURCES	10

TABLES

1. Precipitation at Susanville, California.
2. Daily Discharge in Cubic Feet per Second, Natural Flow of Susan River above Ramsey Ditch, April 24 to September 30, 1941.
3. Daily Discharge in Cubic Feet per Second, Susan River above Ramsey Ditch Including Water Released from Storage, April 24, to September 30, 1941.
4. Daily Discharge in Cubic Feet per Second of Susan River below Ramsey Ditch including Water Released from Storage, April 24 to September 30, 1941.
5. Daily Discharge in Cubic Feet per Second, Old Channel of Susan River below Woodstock Dam, April 24 to September 30, 1941.
6. Daily Discharge in Cubic Feet per Second, Susan River at Johnstonville, June 6 to September 30, 1941.

Tables (Continued)

7. Daily Discharge in Cubic Feet per Second, Willow Creek below Belfast Bridge, May 15 to September 30, 1941.

8. Daily Discharge in Cubic Feet per Second, Gold Run Creek above Diversions, May 1 to September 30, 1941.

9. Estimated Daily Discharge in Cubic Feet per Second, Ramsey Ditch at Head, April 24 to September 30, 1941.

10. Daily Discharge in Cubic Feet per Second of Released Stored Water from McCoy Reservoir above Ramsey Ditch, July 14 to August 21, 1941.

Plate 1. Hydrographs of Water Supply at Recorder Stations on Susan River, Willow Creek and Gold Run Creek, 1935 and 1941.

EDWARD HYATT, STATE ENGINEER
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SACRAMENTO

DIVISION OF WATER RESOURCES
401 PUBLIC WORKS BUILDING

December 16, 1941

Mr. Harold Conkling
Deputy State Engineer
Sacramento, California

Attention Gordon Zander
Supervising Hydraulic Engineer

Dear Sir:

The report on water master service on Susan River and its tributaries in Lassen County, California, during the 1941 season is submitted herewith.

The report includes a history of the court reference proceedings during the 1941 season, a description of precipitation and water supply conditions in the area during 1941, and a discussion of the distribution and use of water available for diversion during the 1941 irrigation season.

Runoff records on the principal streams have been tabulated and are included with hydrographs of the main sources of supply.

Respectfully submitted,

J. W. MCPARTLAND
Water Master

FOR VICTORY
BUY
UNITED
STATES
SAVINGS
BONDS
AND STAMPS

Report on

Water Master Service

on

Susan River and Its Tributaries

Lassen County, California

During Season of 1941

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INTRODUCTION

The case of J. J. Fleming, et al., vs. J. R. Bennett, et al., Superior Court, County of Lassen, No. 4573, was referred to the Division of Water Resources by order of reference dated August 21, 1934. A decree defining the various water rights on the stream system was entered by the Honorable J. O. Moncur, Judge Presiding of the Superior Court of the State of California in and for the County of Lassen, on April 18, 1940. An appeal in the matter was taken before the State Supreme Court to prevent the Superior Court, Lassen County, California, from enforcing the judgment and and supplemental order in the above entitled case.

The appeal was decided in favor of and upholding the jurisdiction of the Superior Court of Lassen County on August 27, 1941.

Water master service has been rendered on the Susan River stream system during the irrigation seasons of 1935 to 1941, inclusive. Water master service was rendered during the 1941 season by a supplemental decree entered by the Superior Court in said case on April 22, 1941, pending the

appeal of the State Supreme Court.

As authorized by the above mentioned supplemental decree, water master service on the Susan River stream system for the 1941 season covered the period from April 22, to October 15, inclusive, and distribution of the available water supply was administered by a water master during said period in accordance with the water rights defined in the judgment and decree was entered April 18, 1940. J. W. McPartland was water master from April 22 to September 30, inclusive and G. M. Vickroy served as water master from October 1 to 15, inclusive. The water masters served under the immediate supervision of Harrison Smitherum, supervising water master, and the general supervision of the Division of Water Resources.

WATER SUPPLY

Precipitation

Data on the precipitation recorded at Susanville, as compiled from the records of the United States Weather Bureau, are presented in Table 1 of this report. This table gives a comparison of the monthly and seasonal precipitation for the 1940-41 season with the mean monthly and mean seasonal precipitation for 42 years of record, together with a comparison of the recorded snowfall.

In 1940-41, the total seasonal precipitation was 21.47 inches, for the months of October to March, inclusive, 1718, and for the remainder of the season 4.29 inches, as compared to the mean over 42 years of record for like periods of 18.56 inches 14.97 inches and 3.59 inches, respectively. States in per cent the total precipitation for the 1940-41 season was 115 per cent; that for October to March, inclusive, 114 per cent; and that for the remainder of the season 119 per cent of normal.

The total snowfall as recorded at Susanville for the 1940-41 season amounted to 15.8 inches as compared to normal of 64.1 inches.

The results of the "California Snow Surveys" published April 10, 1941 shows that the snowpack as of April 1, 1941, was in excess of normal at elevations of 7500 feet and over. The water content of snow as measured at Fredonyer Pass, elevation 5750 feet, was about 65 per cent of normal.

Stream Flow

Measuring stations equipped with water stage recorders were maintained on Susan River below the Ramsey Ditch and at Johnstonville; on Old Channel of Susan River below Woodstock Dam; on Gold Run Creek above all diversions; and on Willow Creek below Belfast Bridge. Intermittent measurements and gage heights observations were made on various streams and ditches not equipped with water stage recorders. The data compiled from the records obtained at the various mearuging stations are presented at the end of this report in Tables 2 to 10, inclusive.

Tables 4 to 9, inclusive, are tabulations of the flows recorded for the key measuring stations maintained during the 1941 season. Table 3 gives the flow of Susan River above the Ramsey Ditch as compiled from a summation of the flow of Susan River above the Ramsey Ditch, Table 4, and the discharge of the Ramsey Ditch, Table 9. Table 2 gives the natural flow of Susan River above the Ramsey Ditch, as determined by deducting the adjusted storage release from McCoy Flat Reservoir as tabulated in Table 10, from the flow of Susan River above the Ramsey Ditch, Table 3. Table 10 gives the net amount of storage released from McCoy Flat Reservoir measured at Susanville.

Hydrographs of Susan River below the Ramsey Ditch, Gold Run

Creek above all diversions for the period April 1 to September 30 in 1935 and in 1941, also Willow Creek at Belfast bridge for 1941 are shown on Plate 1, presented at the end of this report.

Sufficient runoff records for the Susan River stream system are not available to permit a direct comparison of the run-off for the 1941 irrigation season. It appears, however, from the records presented in this report, that the run-off for 1941 followed the pattern of the distribution and character of the precipitation as discussed above. Therefore, it is probable that the run-off for the 1941 irrigation season was above normal. It is to be noted that the total precipitation, as measured at Susanville was 115 per cent of normal, but that the precipitation which fell in the form of snow and precipitation which occurred during the irrigation season from April to September was 120 per cent of normal. Susan River and Gold Run Creek in following this pattern showed a high run-off up to about June 5, subsequent to which date the flows of these streams decreased. Normally the melting snows would sustain the spring run-off until the first week in June.

DISTRIBUTION OF WATER

As stated above, the waters of the Susan River stream system were distributed during the 1941 season in accordance with the water rights defined in the decree in the case of J. J. Fleming, et al., vs. J. R. Bennett, et al., Superior Court, Lassen County, No. 4573, entered April 18, 1940.

The decree divides the water in the Susan River stream system into three groups according to the source, or sources, of water supply. Schedule 3 defines the water rights from upper and lower Willow Creek including the water rights from that source appurtenant to lands in the

Susan River delta area. Schedule 4 defines the water rights from Gold Run Creek, Lassen Creek, and Piute Creek above the confluence of those creeks with Susan River. Schedules 5 and 6 define the water rights from Susan River exclusive of the tributaries.

A description of the distribution of the available water in the three groups in accordance with the schedules and related rights and of the results accomplished in the distribution follows:

Willow Creek (Schedule 3)

Upper Willow Creek is largely dependent upon springs for its water supply during the irrigation season. The flow available for direct diversion at the beginning of the irrigation season was 16.0 cubic feet per second. This supply held nearly constant during the entire season.

During the season the available water supply supplemented by water released from the Walsh Reservoir, was adequate to insure sufficient water to users in Willow Creek Valley. Subsequent to June 10, the stored water being exhausted, deliveries to the second priority rights dropped to about 37 per cent of allotments by the end of June. The first priority allotments were delivered in full throughout the season.

Lower Willow Creek is supplied by springs, lying below Willow Creek valley, by drainage water from Willow Creek valley and by water released from Walsh Reservoir. The water supply from the sources averaged about 27.0 cubic feet per second in April; 26.7 cubic feet per second in May and by releasing all water stored in the Walsh Reservoir from May 3 to May 26, 19.3 cubic feet per second in June. The Lower Willow Creek water supply described above was supplemented by water from Susan River during May and June so that both the first and second priority users in Schedule 3

received approximately full allotments during April, May and June.

The following table has been prepared to show the average monthly amounts of water available in Willow Creek above diversions in the Upper and Lower Willow Creek areas. The deficiency in the water supply as compared with the per cent allotments of water delivered was made up by return water and storage release from the Walsh Reservoir in the upper area and by return water and Susan River water in the lower area.

*

Month	Mean Water Supply Available Above Diversions in C.F.S.		Per Cent Allotments Delivered			
			Upper Willow Creek		Lower Willow Creek	
	Upper Willow Creek at Old Sawmill	Lower Willow Creek below Belfast Bridge	1st Priority 4.70 c.f.s.	2nd Priority 25.15 c.f.s.	1st Priority 3.10 c.f.s.	2nd Priority 19.20 c.f.s.
April 24 to 30	16.0	27.0	100	100	100	100
May	15.0	26.7	100	100	100	100
June	14.0	19.3	100	37	100	84
July	14.0	16.8	100	37	100	69
August	14.0	20.9	100	37	100	93
September	15.0	19.7	100	41	100	87

Walsh Reservoir was filled to its capacity of 2500 acre-feet during the early spring months. The stored water was released starting May 3 and empty by June 9, so that the upper meadows on the Walsh Ranch and the lower meadows below the dam would dry out for the haying period. A concrete dam was constructed in the old Eagle Lake Canal west of the spillway of the Walsh Reservoir. During the haying period of Upper Willow Creek the flow of Willow Creek is by-passed into the Eagle Lake Canal for the Lower Willow users, this method is also used during the latter part of the season when

the cattle are returned to meadows.

No attempt was made to get supplementary water for the lower Willow Creek area from Horse Lake during the 1941 season.

Lassen, Gold Run, Hills and Piute Creeks (Schedule 4)

Lassen Creek supplied full allotments to all priorities during April, May and June. Throughout the remainder of the season the flow of Lassen Creek diminshed so that it was entirely utilized in supplying the first priority rights.

Gold Run Creek: The flow of Gold Run Creek was sufficient during the months of April and May for full allotments to all three priority classes, but diminished that there was no water for the third priority class on June 1, and none for the second priority class after July 30. The flow available for the first priority class was from 100 per cent of allotments on July 30 to August 12, about 69 per cent on August 30, 62 per cent on September 30.

Hills Creek: The flow of Hills Creek on June 6, was 4.65 cubic feet per second with 57 per cent delivered to the Emerson Ranch and 43 per cent to the Ridenour and Clark Ranches. The flow diminished to 1.16 cubic feet per second on July 23 and the same percentage of the total was delivered to the users through proportional weirs for the remainder of the season.

Piute Creek: Full allotments of 3.14 cubic feet per second were available for all water users on Piute Creek during April, May and June. Subsequent thereto, the flow decreased so that only about 60 per cent of allotments was available during the remainder of the season. The California-Pacific Utilities Company maintained an automatic water stage

recorder at their weir, on the Creek below the outlet to the by-pass pipe to record the delivery to the lower users during the 1941 season.

Susan River (Schedules 5 and 6)

Distribution of the available water supply on Susan River is carried on in accordance with the allotments and priorities set forth in Schedules 5 and 6 of the Susan River decree.

The water supply during the months of May and up to June 16, was more than adequate to fill all requirements and a surplus was permitted to flow into Honey Lake. After June 16, the flow diminished to 48 per cent allotment available for the second priority at the end of the month. The first priority rights diverted 100 per cent allotment throughout the entire season of 1941.

The average flow of Susan River above the Ramsey Ditch and the per cent of allotments delivered to the first and second priority rights in Schedules 5 and 6 during July, August and September are tabulated as follows:

Month	Average Available Natural Flow of Susan River above Ramsey Ditch C.F.S.	Percent of Allotments Delivered	
		1st Priority *4.90 C.F.S.	2nd Priority 67.55 C.F.S.
July	19.8	100	22.0
August	14.5	100	14.2
September	11.2	100	9.3

*Does not include 11.05 cubic feet per second allocated to lands upstream from the gaging station.

The Barham, Johnston and Chappins, and Colony Dams were used during the 1941 season. The Coulthurst Upper Dam was out and a new dam built in the fall of 1941, so water could be diverted during the spring of 1942.

Susan River (Reservoirs) 1941

The two reservoirs maintained by the Lassen Irrigation Company, namely, McCoy Flat Reservoir and Hog Flat Reservoir, received sufficient water from melting snows in the early spring to fill them.

McCoy Flat Reservoir filled to capacity in 1941 with approximately 13,000 acre feet of storage available when the outlet was opened July 14. A discharge of about 100 cubic feet per second was released from the reservoir which diminished in flow, that on August 21 the outlet gates were closed for the season. Due to the storage available for the Lassen Irrigation Company from Lake Leavitt and the amount of water which was available direct from Susan River, only sufficient water was released from McCoy Flat Reservoir to care for the seepage and evaporation of Lake Leavitt. Approximately 5000 acre feet of storage was left in McCoy Reservoir.

Hog Flat Reservoir filled to about 80 per cent of its full capacity of approximately 5100 acre feet. The outlet gate remained closed during the entire season of 1941, with no use being made of the water, which will be carried over to the 1942 season.

SUMMARY

In summarizing the foregoing discussion as to the allotments of water delivered to the various rights and priorities in the several schedules of use in the Susan River decree, it is apparent that the water supply was nearly adequate to fill all rights and priorities throughout the irrigation season. The crops grown in 1941 produced nearly normal yields throughout the entire Susan River area.

After the haying season little water was available in excess of that required for stock and garden purposes.

CONTROVERSIES

The water right owners cooperated fully with the water master during the entire season and there were no controversies over the regulation of diversions from the stream system.

RECOMMENDATIONS

The Tanner slough Head Dam should be replaced or the rocks now used for a dam should be concreted so they would remain in place.

A new diversion structure should be built at the head of the Hartson Slough so that the proper regulation could be made.

A diversion box or weir should be installed at the head of Emerson's Ditch on Hills Creek so the Division of Water between Emerson and Ridenour and Clark could be made.

PENDING APPLICATIONS

Application 9123 was filed by the Tanner Slough Irrigation Association on September 21, 1937, requesting a permit to appropriate 2600 acre feet from Willow Creek tributary to Susan River, to be stored from October 15th of each year to May 1st of the succeeding year. Permit 5139 was issued on April 25, 1938.

Application 9797 was filed by Johnston and Chappins on January 3, 1940, requesting a permit to appropriate 3.00 cubic feet per second by direct diversion from Willow Creek, tributary to Susan River during the period from February 1st to March 1st for irrigation purposes, and 70 acre feet for storage, to be stored from November 15th of each year to March 1st of the succeeding year, for stock watering purposes. Permit 5654 was issued in October 24, 1940.

Application 9943 was filed by the Tanner Slough Irrigation Association on June 29, 1940, requesting a permit to appropriate 10,000 acre feet from Eagle Lake, to be stored from January 1st to December 31st of each year.

No permit has been issued.

Application 10026 was filed by Mardis Barry on October 3, 1940, requesting a permit to appropriate 175 acre feet from an unnamed stream, tributary to Susan River, to be stored from October 15th of each year to April 15th of the succeeding year. Permit 5686 was issued on December 14, 1940.

TABLES

Table 1

Precipitation at Susanville, California
Elevation 4268 feet.

Comparison Between Precipitation for Seasonal Year
1940-41 and for 42-year Period

Month	Monthly Mean 42 Years		1940-1941		Snowfall in Inches	
	Inches	Per cent of total mean	Inches	Per cent of Total Mean	Normal	1940-1941
October	1.13	6.1	1.32	7.1		
November	2.09	11.3	3.12	16.8		T
December	3.08	16.6	5.23	28.2	15.3	3.0
January	3.38	18.2	2.76	14.9	26.3	10.8
February	2.79	15.0	4.10	22.1	11.0	2.0
March	2.50	13.5	.65	3.5	9.6	T
April	1.12	6.0	1.22	6.6	1.9	T
May	.83	4.5	1.21	6.5		
June	.49	2.6	.95	5.1		
July	.28	1.5	.31	1.7		
August	.33	1.8	.33	1.8		
September	.54	2.9	.27	1.5		
Totals	18.56	100.0	21.47	115.8	64.1	15.8

Table 2

Daily Discharge in Cubic Feet per Second

NATURAL FLOW OF SUSAN RIVER ABOVE RAMSEY DITCH

April 24 to September 30, 1941

Day	Apr.	May	June	July	Aug.	Sept.	
1		237.	242.	34.0	16.4	11.9	
2		244.	208.	31.0	16.0	11.9	
3		487.	177.	28.0	16.0	11.8	
4		559.	145.	25.0	16.0	11.3	
5		559.	138.	25.0	16.0	11.3	
6		548.	126.	24.0	16.0	10.8	
7		529.	105.	23.0	15.8	10.8	
8		494.	96.0	22.0	15.8	10.8	
9		460.	90.5	21.0	15.8	10.7	
10		446.	85.5	20.0	15.8	10.7	
11		463.	85.5	18.8	15.6	10.7	
12		516.	85.5	18.8	15.6	10.7	
13		650.	82.5	17.8	15.6	10.7	
14		634.	80.5	17.7	15.4	10.7	
15		596.	77.5	17.5	15.4	10.7	
16		576.	72.5	17.5	15.4	10.7	
17		528.	70.0	17.3	15.0	10.7	
18		464.	68.0	17.3	15.0	10.7	
19		402.	67.0	17.0	14.5	10.7	
20		340.	63.0	17.0	14.0	10.7	
21		274.	58.0	17.0	14.0	11.4	
22		287.	53.0	17.0	13.8	11.5	
23		287.	49.0	16.8	13.8	12.7	
24	174.	300.	50.0	16.8	13.5	11.7	
25	189.	325.	50.0	16.8	12.7	11.7	
26	203.	348.	47.0	16.8	12.7	11.7	
27	222.	357.	46.5	16.6	12.2	11.6	
28	246.	334.	42.5	16.6	11.6	11.6	
29	248.	309.	42.5	16.6	11.5	11.6	
30	232.	286.	37.5	16.6	11.5	11.6	
31		278.		16.4	12.0		
Total Sec. Feet Days	*1544.	13117.	2641.0	613.7	450.4	336.1	160 day Period
Mean Sec. Feet	220.	423.	88.0	19.8	14.5	11.2	116.8
Max Sec. Feet	248.	650.	242.	34.0	16.4	12.7	650.
Min. Sec. Feet	174.	237.	37.5	16.4	11.5	10.7	10.7
Total Acre Feet	3060.	26000.	5240.	1220.	893.	666.	37079.

* 7 day period

Table 3

Daily Discharge in Cubic Feet Per Second
SUSAN RIVER ABOVE RAMSEY DITCH
INCLUDING WATER RELEASED FROM STORAGE
April 24 to September 30, 1941

Day	Apr.	May	June	July	Aug.	Sept.	
1		237.	242.	34.0	94.4	11.9	
2		244.	208.	31.0	89.4	11.9	
3		487.	177.	28.0	88.4	11.8	
4		559.	145.	25.0	88.4	11.3	
5		559.	138.	25.0	87.4	11.3	
6		548.	126.	24.0	61.4	10.8	
7		529.	105.	23.0	56.4	10.8	
8		494.	96.0	22.0	59.4	10.8	
9		460.	90.5	21.0	60.4	10.7	
10		446.	85.5	20.0	59.4	10.7	
11		463.	85.5	18.8	59.5	10.7	
12		516.	85.5	18.8	61.5	10.7	
13		650.	82.5	17.8	58.5	10.7	
14		634.	80.5	* 17.7	39.4	10.7	
15		596.	77.5	47.7	28.4	10.7	
16		576.	72.5	106..	28.4	10.7	
17		528.	70.0	108.	27.4	10.7	
18		464.	68.0	113.	27.4	10.7	
19		402.	67.0	113.	26.4	10.7	
20		340.	63.0	113.	25.3	10.7	
21		274.	58.0	112.	** 24.3	11.4	
22		287.	53.0	113.	21.3	11.5	
23		287.	49.0	113.	17.2	12.7	
24	174.	300.	50.0	112.	13.5	11.7	
25	189.	325.	50.0	105.	12.7	11.7	
26	203.	348.	47.0	99.5	12.7	11.7	
27	222.	357.	46.5	99.5	12.2	11.6	
28	246.	334.	42.5	99.5	11.6	11.6	
29	248.	309.	42.5	99.5	11.5	11.6	
30	232.	286.	37.5	99.5	11.5	11.6	
31		278.		99.5	12.0		
Total Sec. Feet Days	a 1544.	13117.	2641.0	2078.8	1287.7	336.1	160 Day Period
Mean Sec. Feet	220.	423.	88.0	67.1	41.5	11.2	131.3
Max. Sec. Feet	248.	650.	242.	113.	94.4	12.7	650.
Min. Sec. Feet	174.	237.	37.5	17.7	11.5	10.7	10.7
Total Acre Feet	3060.	26000.	5240.	4120.	2550.	666.	41636.

* Released stored water from McCoy Reservoir
** McCoy Reservoir closed
a 7 day period

Table 4

Daily Discharge in Cubic Feet per Second
SUSAN RIVER BELOW RAMSEY DITCH
INCLUDING WATER RELEASED FROM STORAGE
April 24 to September 30, 1941

Day	April	May	June	July	Aug.	Sept.	
1		234.	237.	31.0	92.0	10.5	
2		241.	203.	28.0	87.0	10.5	
3		484.	172.	25.0	86.0	10.5	
4		555.	140.	22.0	86.0	10.0	
5		555.	133.	22.0	85.0	10.0	
6		544.	121.	21.0	59.0	9.50	
7		522.	100.	20.0	54.0	9.50	
8		488.	91.0	19.0	57.0	9.50	
9		454.	86.0	18.0	58.0	9.50	
10		440.	81.0	17.0	57.0	9.50	
11		457.	81.0	16.0	57.0	9.50	
12		510.	81.0	16.0	59.0	9.50	
13		644.	78.0	15.0	56.0	9.50	
14		628.	76.0	* 15.0	37.0	9.50	
15		590.	73.0	45.0	26.0	9.50	
16		570.	68.0	103.	26.0	9.50	
17		522.	66.0	106.	25.0	9.50	
18		458.	64.0	110.	25.0	9.50	
19		396.	63.0	110.	24.0	9.50	
20		334.	59.0	111.	23.0	9.50	
21		269.	54.0	110.	** 22.0	10.0	
22		282.	49.0	110.	19.0	10.0	
23		282.	45.0	110.	15.0	11.0	
24	172.	295.	46.0	110.	12.0	10.0	
25	187.	320.	46.0	102.	11.0	10.0	
26	201.	343.	43.0	97.0	11.0	10.0	
27	220.	352.	43.0	97.0	10.5	10.0	
28	244.	329.	39.0	97.0	10.0	10.0	
29	246.	304.	39.0	97.0	10.0	10.0	
30	230.	281.	34.0	97.0	10.0	10.0	
31		273.		97.0	10.5		
Total Sec. Feet Days	[a]1550.	12956.	2511.	1994.	1220.	295.0	160 day Period
Mean Sec. Feet	214.	417.	83.7	64.3	39.4	9.83	128.2
Max. Sec. Feet	246.	644.	237.	111.	92.0	11.0	644.
Min. Sec. Feet	172.	234.	34.0	15.0	10.0	9.50	9.50
Total Acre Feet	3070.	25700.	4980.	3950.	2420.	585.	40705.

* Released stored water from McCoy Reservoir.
** McCoy Reservoir closed.
a 7 day Period.

Table 5

Daily Discharge in Cubic Feet per Second
OLD CHANNEL OF SUSAN RIVER BELOW WOODSTOCK DAM
April 24 to September 30, 1941

Day	April	May	June	July	Aug.	Sept.	
1		16.0	13.7	8.30	7.70	6.90	
2		16.6	12.4	8.30	7.50	7.10	
3		22.3	8.6	8.10	7.50	6.90	
4		23.6	11.2	7.70	7.50	6.20	
5		23.6	12.7	7.30	7.50	5.60	
6		22.8	12.7	6.50	7.30	5.60	
7		22.0	12.0	7.40	7.30	5.80	
8		21.2	12.8	7.80	7.70	5.60	
9		20.6	13.7	7.40	7.80	6.20	
10		20.3	13.4	7.70	7.80	6.50	
11		20.8	13.4	6.40	7.80	5.90	
12		22.0	13.3	6.60	7.80	5.40	
13		25.4	13.0	7.50	7.70	5.60	
14		25.1	12.7	8.00	7.10	5.80	
15		23.6	12.5	8.60	6.90	5.80	
16		21.1	12.0	10.6	6.80	5.80	
17		18.9	11.8	10.3	6.50	5.60	
18		18.1	11.7	9.80	6.50	5.40	
19		17.2	11.7	8.90	6.40	6.50	
20		16.3	11.2	9.10	6.30	6.80	
21		15.7	11.0	9.30	5.90	7.30	
22		14.4	10.7	8.90	6.80	7.40	
23		15.5	10.4	8.90	6.50	7.40	
24	13.6	16.1	10.6	8.40	6.00	6.80	
25	13.8	15.8	10.6	8.10	6.40	7.00	
26	14.2	17.2	9.80	8.20	6.80	6.80	
27	15.2	17.5	9.60	8.10	6.30	7.10	
28	15.7	16.9	9.00	7.80	6.40	7.70	
29	15.0	16.4	8.90	7.80	6.80	8.20	
30	15.4	15.8	8.40	7.90	7.00	8.20	
31		15.7		8.10	7.30		
Total Sec. Feet Days	* 102.9	594.5	345.5	253.8	217.6	194.9	160 day Period
Mean Sec. Feet	14.7	19.2	11.5	8.18	7.02	6.49	10.7
Max. Sec. Feet	15.7	25.4	13.7	10.6	7.80	8.20	25.4
Min. Sec. Feet	13.6	14.4	8.40	6.50	5.90	5.40	5.40
Total Acre Feet	204.	1180.	685.	503.	432.	386.	3390.

* 7 day period

Table 6

Daily Discharge in Cubic Feet per Second
SUSAN RIVER AT JOHNSTONVILLE
June 6 to September 30, 1941

Day	June	July	August	September	
1		14.0	4.10	2.10	
2		11.3	4.10	2.10	
3		9.10	3.70	2.50	
4		7.40	3.40	2.90	
5		7.00	3.40	2.80	
6	55.4	6.80	3.20	2.60	
7	57.7	6.40	3.10	2.60	
8	55.0	6.40	3.30	2.60	
9	59.2	6.00	3.30	2.60	
10	57.7	6.00	3.40	2.60	
11	55.4	5.80	3.40	2.60	
12	53.5	5.00	3.20	2.60	
13	53.2	4.60	3.10	3.80	
14	52.2	4.20	3.10	2.60	
15	50.0	7.00	3.20	2.50	
16	41.0	5.00	3.20	2.30	
17	36.0	4.30	3.10	2.30	
18	34.7	4.10	3.10	2.10	
19	34.2	3.60	3.10	2.10	
20	33.8	3.60	3.20	2.10	
21	29.8	3.60	3.10	2.60	
22	27.2	3.60	3.10	2.80	
23	24.3	3.60	2.80	2.80	
24	26.0	3.60	2.60	2.80	
25	31.0	3.60	2.60	2.80	
26	24.3	3.70	2.50	2.80	
27	26.3	3.80	2.60	2.80	
28	24.0	3.80	2.50	2.70	
29	21.2	3.80	2.70	2.60	
30	17.6	4.10	2.60	2.60	
31		4.10	2.30		
Total Sec. Feet Days	* 980.7	168.9	96.1	77.7	117 day Period
Mean Sec. Feet	39.2	5.45	3.00	2.59	11.3
Max. Sec. Feet	59.2	14.0	4.10	2.90	59.2
Min. Sec. Feet	17.6	3.60	2.30	2.10	2.10
Total Acre Feet	1940.	335.	191.	154.	2620.

* 25 day period

Table 7

Daily Discharge in Cubic Feet per Second
WILLOW CREEK BELOW BELFAST BRIDGE
May 15 to September 30, 1941

Day	May	June	July	Aug.	Sept.	
1		25.1	14.5	22.6	17.1	
2		25.1	14.8	23.0	17.1	
3		25.1	15.2	23.4	17.5	
4		25.1	15.2	23.8	17.5	
5		24.7	15.2	23.8	17.5	
6		24.7	15.2	24.3	17.9	
7		24.7	15.2	24.7	17.9	
8		24.7	15.2	25.6	18.3	
9		24.7	15.2	26.0	18.3	
10		23.4	15.2	26.5	18.3	
11		21.6	15.2	27.0	18.8	
12		19.9	15.5	27.5	18.8	
13		19.6	15.5	25.6	18.8	
14		19.1	15.5	23.8	18.3	
15	28.0	18.8	15.5	22.1	18.3	
16	28.0	18.3	15.5	20.3	18.3	
17	27.5	17.9	15.9	18.8	18.3	
18	27.5	17.5	15.9	18.3	18.3	
19	27.5	17.1	16.3	18.3	18.3	
20	27.0	16.7	16.7	17.5	18.8	
21	27.0	16.3	17.1	17.5	19.1	
22	27.0	15.9	17.1	17.1	19.9	
23	26.5	15.2	17.5	17.1	20.8	
24	26.5	14.5	17.9	16.7	21.6	
25	26.5	13.7	18.3	16.7	22.6	
26	26.0	13.4	19.1	16.7	23.4	
27	26.0	13.4	20.3	16.7	24.3	
28	26.0	13.7	21.2	16.7	25.1	
29	25.6	13.7	21.2	16.7	25.6	
30	25.6	14.0	21.6	16.7	25.6	
31	25.6		22.1	16.7		
Total Sec. Feet Days	*453.8	577.6	521.8	648.2	590.4	139 day Period
Mean Sec. Feet	26.7	19.3	16.8	20.9	19.7	20.1
Max. Sec. Feet	28.0	25.1	22.1	27.5	25.6	28.0
Min. Sec. Feet	25.6	13.4	14.5	16.7	17.1	13.4
Total Acre Feet	900.	1140.	1040.	1280.	1170.	5530.

* 17 day period

Table 8

Daily Discharge in Cubic Feet per Second
GOLD RUN CREEK ABOVE DIVERSIONS
May 1 to September 30, 1941

Day	May	June	July	August	Sept.	
1	26.0	21.0	6.60	1.50	.90	
2	28.0	20.6	6.30	1.40	.90	
3	28.4	20.2	6.10	1.10	.90	
4	28.0	16.9	6.00	1.10	.90	
5	30.8	16.2	5.60	1.40	.80	
6	32.8	16.2	5.30	1.40	.80	
7	30.8	14.8	4.90	1.40	.80	
8	34.2	13.6	4.60	1.40	.80	
9	34.7	13.3	4.60	1.40	.80	
10	35.2	13.3	4.20	1.40	.80	
11	38.7	13.3	4.00	1.40	.80	
12	40.6	12.9	4.00	1.40	.60	
13	41.0	12.9	3.60	1.20	.60	
14	40.1	13.3	3.60	1.20	.60	
15	38.2	12.9	3.80	1.20	.60	
16	35.2	11.2	3.80	1.20	.60	
17	35.8	10.6	3.60	1.20	.60	
18	32.8	10.2	3.20	1.20	.80	
19	30.0	10.0	3.00	1.20	.80	
20	30.0	9.40	2.60	1.10	.80	
21	30.4	8.40	2.60	1.10	.80	
22	32.8	8.40	2.60	1.10	.80	
23	42.5	8.20	2.60	1.10	.80	
24	39.8	8.40	2.30	1.10	.80	
25	40.6	7.90	2.10	.90	.80	
26	39.2	7.90	2.30	.90	.80	
27	37.4	7.40	2.50	.90	.80	
28	34.8	7.10	2.50	.90	.80	
29	33.2	7.10	2.10	.90	.80	
30	25.2	6.80	2.10	.90	.80	
31	23.0		1.70	.90		
Total Sec. Feet Days	1050.2	360.4	114.8	35.6	23.2	153 Day Period
Mean Sec. Feet	33.9	12.0	3.70	1.15	.77	10.4
Max. Sec. Feet	42.5	21.0	6.60	1.50	.90	42.5
Min. Sec. Feet	23.0	6.80	1.70	.90	.60	.60
Total Acre Feet	2080.	715.	228.	70.1	46.0	3139.1

Table 9

Estimated Daily Discharge in Cubic Feet per Second
RAMSEY DITCH AT HEAD
April 24 to September 30, 1941

Day	April	May	June	July	Aug.	Sept.	
1		3.00	5.00	3.00	2.40	1.40	
2		3.00	5.00	3.00	2.40	1.40	
3		3.00	5.00	3.00	2.40	1.30	
4		4.00	5.00	3.00	2.40	1.30	
5		4.00	5.00	3.00	2.40	1.30	
6		4.00	5.00	3.00	2.40	1.30	
7		6.90	5.00	3.00	2.40	1.30	
8		6.00	5.00	3.00	2.40	1.30	
9		6.00	4.50	3.00	2.40	1.20	
10		6.00	4.50	3.00	2.40	1.20	
11		6.00	4.50	2.80	2.50	1.20	
12		6.00	4.50	2.80	2.50	1.20	
13		6.00	4.50	2.80	2.50	1.20	
14		6.00	4.50	2.70	2.45	1.20	
15		6.00	4.50	2.70	2.45	1.20	
16		6.00	4.50	2.70	2.45	1.20	
17		6.00	4.00	2.60	2.45	1.20	
18		6.00	4.00	2.60	2.40	1.20	
19		6.00	4.00	2.60	2.40	1.20	
20		6.00	4.00	2.60	2.30	1.20	
21		5.50	4.00	2.60	2.30	1.40	
22		5.50	4.00	2.60	2.30	1.50	
23		5.00	4.00	2.60	2.20	1.75	
24	2.50	5.00	4.00	2.50	2.00	1.75	
25	2.60	5.00	4.00	2.50	1.75	1.75	
26	2.40	5.00	4.00	2.50	1.70	1.75	
27	2.40	5.00	3.50	2.50	1.70	1.60	
28	2.30	5.00	3.50	2.50	1.60	1.60	
29	2.30	5.00	3.50	2.50	1.50	1.60	
30	2.30	5.00	3.50	2.50	1.50	1.60	
31		5.00		2.50	1.40		
Total Sec. Feet Days	*16.8	161.9	130.0	84.7	68.35	41.3	160 Day Period
Mean Sec. Feet	2.80	5.22	4.33	2.73	2.21	1.37	3.13
Max. Sec. Feet	2.60	6.90	5.00	3.00	2.50	1.75	6.90
Min. Sec. Feet	2.30	3.00	3.50	2.50	1.40	1.20	1.20
Total Acre Feet	33.3	321.	258.	168.	136.	81.9	998.2

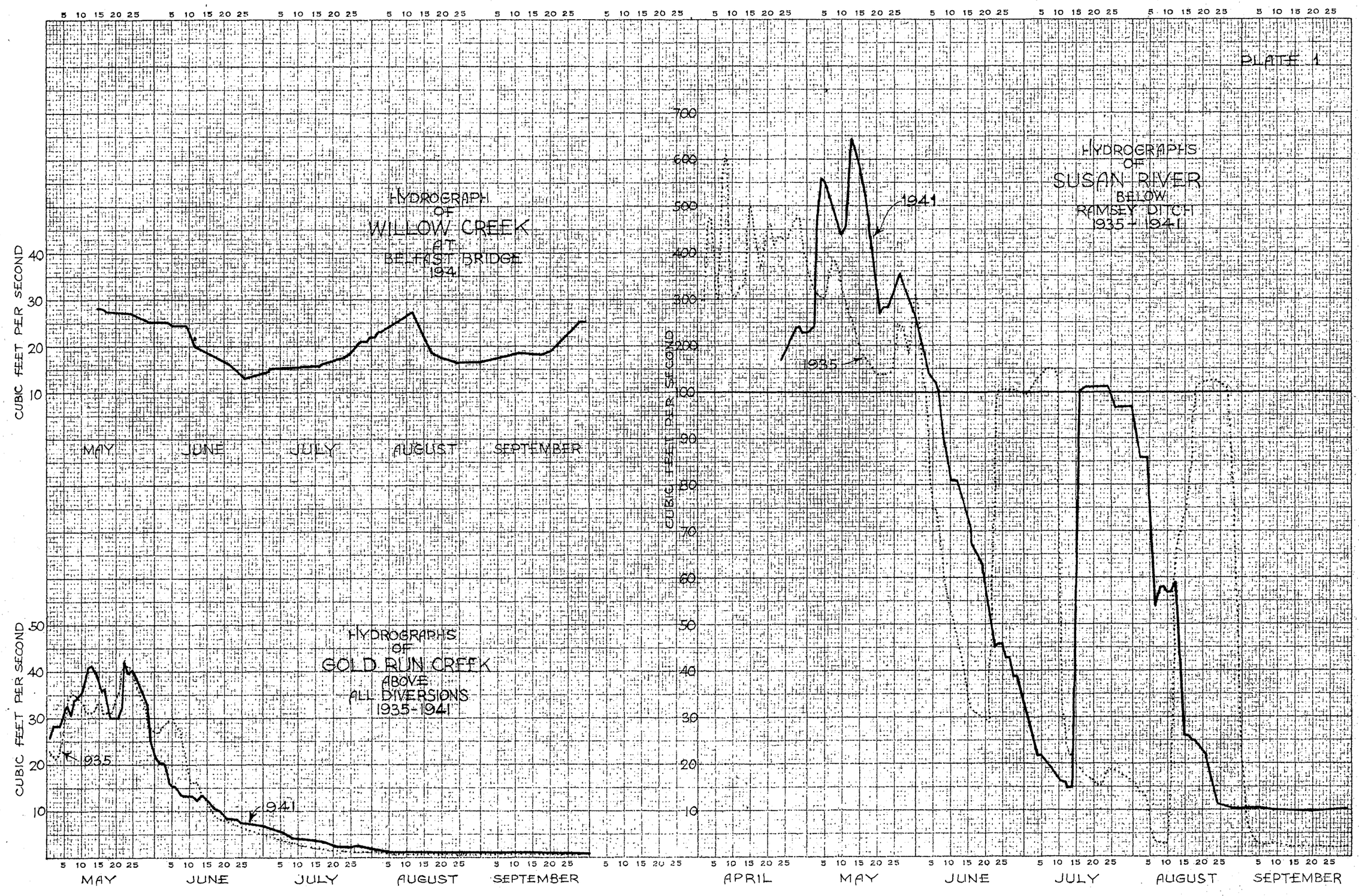
* 7 day period

Table 10

Daily Discharge in Cubic Feet per Second
RELEASED STORED WATER FROM McCOY RESERVOIR ABOVE RAMSEY DITCH
July 14 to August 21, 1941

Day	July	August	
1		78.0	
2		73.4	
3		72.4	
4		72.4	
5		71.4	
6		45.4	
7		40.6	
8		43.2	
9		44.6	
10		43.6	
11		43.9	
12		45.9	
13		42.9	
14	*	24.0	
15	30.2	13.0	
16	88.2	13.0	
17	91.3	12.4	
18	95.3	12.4	
19	95.6	11.9	
20	96.6	11.3	
21	95.6	** 10.3	
22	95.6	7.5	
23	95.8	2.4	
24	95.7		
25	87.7		
26	82.7		
27	82.9		
28	82.9		
29	82.9		
30	82.9		
31	83.1		
Total Sec. Feet Days	a 1465.0	b 835.9	40 day Period
Mean Sec. Feet	86.2	36.4	57.5
Max. Sec. Feet	96.6	78.0	96.6
Min. Sec. Feet	30.2	2.4	2.4
Total Acre Feet	2900.	1660.	4560.

* Released stored water from McCoy Reservoir
** McCoy Reservoir closed.
a 17 day period
b 23 day period



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