STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

o

EARL WARREN, Governor

C. H. PURCELL, Director of Public Works

EDWARD HYATT, State Engineer

REPORT ON

WATERMASTER SERVICE

IN

SUSAN RIVER WATERMASTER SERVICE AREA
Lassen County, California

1946 SEASON

By

W. R. Gianelli
Assistant Hydraulic Engineer

Sacramento, California

TABLE OF CONTENTS

Page

Letter of Transmittal

Introduction - 1

Water Supply

Precipitation - 1

Stream Flow - 2

Distribution of Water - 3

Willow Creek (Schedule 3) - - - - - - - - - - - - - - - - - 4

Lassen, Gold Run, Hills, Haulscrew and Piute Creeks (Schedule 4) - - - - - - - - - - - - - 5

Susan River (Schedules 5 and 6 - - - - - - - - - - - - - - - 6

Susan River (Reservoirs) - - - - - - - - - - - - - - - - - - 7

Summary - 8

Ownership of Lands and Water Rights within Susan River Watermaster Service Area

Changes of Ownership - 9

Tables

1. Precipitation at Susanville, California - - - - - - - - 11

2. Daily Discharge in Cubic Feet per second Natural Flow of Susan River above Ramsey Ditch April 15 to September 24, 1946 - - - - - - - - - - - - - - - - - 12

3. Daily Discharge in Cubic Feet per Second Susan River above Ramsey Ditch Including Stored Water April 15 to September 24, 1946 - - - - - - - - - - - - - 13

4. Daily Discharge in Cubic Feet per Second Susan River below Ramsey Ditch Including Stored water April 15 to September 24, 1946 - - - - - - - - - - - - - 14

5. Daily Discharge in Cubic Feet per second Old Channel of Susan River below Woodstock Dam April 15 to September 26, 1946 - - - - - - - - - - - - - 15

6. Daily Discharge in Cubic Feet per second Susan River at Johnstonville April 15 to September 26, 1946. - 16

TABLE OF CONTENTS (CONT'D)

Tables, Cont'd. Page

7. Daily Discharge in Cubic Feet per second Willow Creek below Belfast Bridge or at Old Nett Ranch April 15 to September 20, 1946 - 17

8. Daily Discharge in Cubic Feet per second Gold Run Creek above Diversions April 15 to September 26, 1946 - - - - - - - - - - - - - - 18

9. Daily Discharge in Cubic Feet per second Ramsey Ditch at Head April 15 to September 24, 1946 - 19

10. Daily Discharge in Cubic Feet per second Water Released from McCoy and Hog Flat Reservoirs and Available for Rediversion at Susanville June 12 to August 20, 1946 - - - 20

EDWARD HYATT, STATE ENGINEER
CHIEF OF DIVISION

EARL WARREN
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STATE OF CALIFORNIA

Department of Public Works

SACRAMENTO (5)

DIVISION OF WATER RESOURCES
401 PUBLIC WORKS BUILDING

Sacramento, California
November 25, 1946

Mr. Gordon Zander
Principal Hydraulic Engineer
Sacramento, California

Attention: Mr. Harrison Smitherum
Supervising Hydraulic Engineer

Dear Sir:

Herewith is submitted the annual report covering watermaster service within the Susan River Watermaster Service Area, Lassen County, California, during the 1946 season.

The report presents a general description of water supply conditions in 1946 and a discussion of the results obtained in the distribution thereof.

Records of precipitation, runoff and other pertinent data are included.

Respectfully submitted,

William R. Gianelli
Assistant Hydraulic Engineer

WRG:DT

INTRODUCTION

The Susan River Watermaster Service Area was created by order of the State Engineer on November 10, 1941, in accordance with Sections 4,000 to 4,360 of the Water Code. The service area as created includes all the water rights set forth in the decree in the case of J. J. Fleming, et. al. vs. J. R. Bennett, et. al., No. 4573, Superior Court, Plumas County, entered April 18, 1940, with the exception of certain rights excluded in the order, which have been discussed heretofore in the watermaster report for the 1943 season.

Watermaster service, as provided in the aforementioned code sections, was commenced for the 1946 season on April 15 and terminated on September 30. W. R. Gianelli, appointed watermaster by the department for the Susan River Watermaster Service Area, was in charge of the distribution during the season under the supervision of Harrison Smitharum, Supervising Watermaster.

WATER SUPPLY

Precipitation

Table 1 contains data obtained from U. S. Weather Bureau records collected at Susanville, California. Monthly precipitation and snowfall records are shown for the period October 1945 to September 1946 with the 45 year means for each month.

The total seasonal precipitation for 1945-46 was 13.20 as compared with the 45 year mean of 18.56 inches.

The results of the California Cooperative Snow Surveys published in April 1946 show the water content of the snow in the general vicinity of the Susan River watershed as of 1 April 1946 to be about 90% of the long time mean.

Stream Flow

Measuring stations equipped with water stage recorders were maintained at the following points.

(1) Susan River at Haws (below Ramsey ditch)
(2) Old Channel of Susan River at Stan Browns
(3) Susan River at Johnstonville Bridge
(4) A & B Canal at Johnstonville
(5) Gold Run Creek above all diversions
(6) Willow Creek below Belfast Bridge

The measuring stations located on the Old Channel of Susan River and on the A & B Canal are affected by backwater from diversion dams located immediately downstream, thus rendering the gage height-discharge ratio unreliable at some stages. The data obtained from the records at the various measuring stations are presented in Tables 2 to 10, inclusive of this report.

Tables 4 to 8, inclusive, are tabulations of the discharge at the key measuring stations. Table 9 gives the discharge of Ramsey ditch at its head, and Table 3 gives the discharge of Susan River above Ramsey ditch as compiled from a summation of Tables 4 and 9. Table 2 gives the natural flow of Susan River above the Ramsey ditch determined by deducting the adjusted storage release from Hog Flat and McCoy Reservoirs (Table 10) from the discharge of Susan River above the Ramsey ditch (Table 3).

Sufficient records of run-off for the Susan River stream system are not available for computation of satisfactory normals. However, by comparison with the natural flow at Haws for previous years of record, it appears that the run-off in 1946 deviated from the pattern of other years. Due to above normal temperatures and sub-normal rainfall, the run-off reached a maximum during the month of April instead of May as has been the tendency heretofore. The total run-off at Haws for the season was considerably below that for any other season since 1940, with the exception of 1945. The run-

off of Gold Run Creek followed a pattern similar to Susan River.

The following table offers a comparison, since 1940 of the natural flow available in Susan River above Haws.

NATURAL FLOW AVAILABLE IN SUSAN RIVER

ABOVE HAWS - AC. FT.

Year	April	May	June	July	Total
1940	(a) 7,250	11,700	1,560	706	21,216
1941	(b) 3,060	26,000	5,240	1,220	35,520
1942	(c)10,300	18,600	9,160	1,570	40,630
1943	(d) 5,800	8,890	4,050	1,320	20,060
1944	(e) 7,390	9,240	3,460	1,180	21,270
1945	(f) 5,650	6,030	2,970	978	15,628
1946	(g) 6,880	6,200	1,710	880	15,670

(a) 10 day period
(b) 7 day period
(c) 15 day period
(d) 11 day period
(e) 24 day period
(f) 18 day period
(g) 16 day period

DISTRIBUTION OF WATER

The waters of Susan River and tributaries included in the watermaster service area were distributed during the 1946 season in accordance with the water rights defined in the judgment and decree in the case of J. J. Fleming, et. al., vs. J. R. Bennett, et. al., Superior Court, Lassen County, California, No. 4573.

The decree divides the waters of the stream system into three groups, depending upon the source, or sources of water supply. Schedule 3 of the decree defines the rights to water from Willow Creek which in-

cludes Upper Willow Creek Valley, Lower Willow Creek and a part of the requirements for the Susan River delta area below Colony dam. Schedule 4 of the decree defines the rights to water from Gold Run Creek, Piute Creek, Mills Creek, Haulscraw Creek, and Lassen Creek above their confluence with Susan River. Schedules 5 and 6 of the decree define the rights to Susan River exclusive of the tributaries.

A discussion of water distribution in the three groups in accordance with the schedules follows:

Willow Creek (Schedule 3)

The major part of the run-off on Upper and Lower Willow Creek resulting from ~~spring rains~~ and melting snow occurred prior to the beginning of watermaster service in 1946. As a result, irrigation use was almost entirely dependent upon the flow from springs during the irrigation season. Some water was stored in Walsh Reservoir prior to April 1, which was available during the irrigation season to supplement the spring flow.

Release of the stored water was commenced on April 27th to supplement the spring flow and was continued until 24th of May when the last flashboard was removed.

On June 3rd water was turned into the District By Pass Canal at the upper end of the Walsh ranch in an attempt to deliver the allotted amounts to the lower users. However, this water did not reach through until a temporary manure dam had been constructed just above the outlet in the Walsh Reservoir to force the water down Willow Creek instead of allowing it to run back into the Walsh tule bed.

When haying began on Upper Willow Creek ranches, about the middle of July, some difficulty was again experienced in getting water through to the lower users due to the flooding of some of the upper hay lands where the creek would not carry the water.

A heavy rain in Upper Willow Creek Valley on July 25th did some damage to the hay crops and increased the stream flow so that on July 26th all water available below the Walsh and Murrer ranches was turned into the District By Pass Canal for use on Lower Willow Creek and the Susan River Delta Area.

The Susan River Delta Area was entirely dependent upon spring flow from Lower Willow Creek and drainage from Upper Willow Creek Valley after about June 6th when Susan River water failed to reach Colony Dam.

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

Lassen Creek

The flow of Lassen Creek was adequate to fill all irrigation requirements during April and most of May. From June on throughout the rest of the season the entire flow was used on the Hulsman ranch.

Gold Run Creek

The flow of Gold Run Creek was adequate to meet all irrigation requirements until about June 1st. During June an increasingly smaller percentage of 2nd priority water could be delivered and finally, about the 10th of July, it was only possible to deliver 1st priority water.

Hills Creek

The flow of Hills Creek was sufficient to meet all requirements until the early part of June. On June 17th there was about 3.50 cubic feet per second available above the Emerson - Ridenour, Van Dyke division. At that time regulation was made to divert 57% of the flow into the Emerson ditch and 43% was allowed to continue down the creek to the Ridenour and Van Dyke ranches. On July 9th only 2.0 cubic feet per second remained in Hills creek above all diversions. By the end of the season there was only enough water in Hills Creek to reach the Van Dyke ranch.

Haulscraw Creek

This creek supplied water to 1.6 acres of the Hulsman Upper meadow and to 22.3 acres of the Emerson upper meadow. During April there was sufficient water

available to irrigate both of the above areas. During May only enough water was diverted onto the Hulsman land to keep the meadow wet and the remainder was diverted onto the Emerson land. Flow varied in May from about 0.20 cubic foot per second to .06 cubic foot per second above the two diversions. After the 1st of June there was insufficient water to reach the Emerson meadow. Haulsceraw Creek had failed entirely by July 10th.

Piute Creek

There was a surplus of water in Piute Creek in April and May and sufficient water to meet all requirements in June and July. On August 10th the California Public Utilities Company released sufficient water to deliver 0.27 cubic foot per second to the lower users as required by agreement. This release was maintained by the Utilities Company until September 11th, at which time adequate flow from other sources was present in Piute Creek to meet the demand of lower users.

During August there was only enough water available to deliver between 40% and 60% of allotments.

Susan River (Schedules 5 and 6)

There was adequate water in Susan River during April to meet all the requirements of schedules 5 and 6. During May the water dropped so that practically no water was available for schedule 6 and only about 90% of the requirements of schedule 5 could be satisfied. A definite increase in flow was noted in the Susan River Delta area after May 27th when the B arham dam failed and released considerable stored water. By the early part of June no water from Susan River reached the Colony dam and the delta area was entirely dependent thereafter upon flow from Willow Creek.

The average flow of Susan River above the Ramsey ditch and the per cent of allotments delivered to the first and second priority rights under Schedule 5, during the months of May, June, July, August and September,

are given in the following tabulation:

Month	Aver Available Natural Flow of Susan River above Ramsey ditch c.f.s.	Per Cent of Allotments delivered	
		1st Priority * 4.90 c.f.s.	2nd Priority 67.55 c.f.s.
May	100.4	100 %	100 %
June	28.9	100 %	55 %
July	14.7	100 %	18 %
Aug.	8.9	100 %	5 %
Sept.	** 5.8	100 %	1 %

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

** 24 day period.

The Woodstock, Bantley, Johnstonville, Ripley, Barham, Shanks, Johnson and Chappius, Upper Coulthurst, and Colony dams were all used during the 1946 season. The Barham dam failed completely on May 27th and was not replaced during the watermaster season.

Susan River Reservoirs 1946

The two mountain reservoirs of McCoy and Hog Flat, maintained by the Lassen Irrigation Company were both drained during the 1946 season. On May 29th, McCoy Reservoir filled to a maximum capacity with the water level reaching a depth of 10 feet, 6 inches at the outlet. Hog Flat filled to only about 50% of the maximum capacity.

Prior to release of stored water from these reservoirs it was necessary to begin spilling water on May 18th in order to pass the natural flow through for prior irrigation rights below Susanville. This natural flow through the reservoirs reached a maximum of 47 sec. ft. on May 25th and tapered off to zero on June 5th.

The stored water was first released on June 12th by releasing 40 cubic feet per second from Hog Flat and 61 cubic feet per second from McCoy. On June 19th the Hog Flat outflow was increased to 50 cubic feet per second while on June 22, McCoy flow was increased to 100 cubic feet per second and Hog Flat reduced to 10 cubic feet per second. On July 3rd the capacity of the A & B Canal had been reduced to such a degree by moss and weed growth that the total outflow from the reservoirs had to be reduced to 65 cubic feet per second. Further reduction to 45 cubic feet per second was necessary on July 17th. The supply of reservoir water began to fail on August 10th and stopped completely by August 20th with both reservoirs empty. The total amount of stored water passing Susanville for re-diversion into Lake Leavitt was 8110 acre feet for the season.

Water stored in Lake Leavitt and water diverted directly from the river through Lake Leavitt or Colony Dam supplied the demands of the Lassen Irrigation Company until June 15th. The Colony Dam ditch of the Lassen Irrigation Company was used from April 22nd until May 9th.

SUMMARY

The warm and dry spring caused all crops to mature earlier than usual. The crops grown during the 1946 season produced near normal yields with the exception of a few hay crops where the yield was poor.

The demands upon the irrigation water from Susan River and its tributaries were exceedingly heavy as the normal spring precipitation, ordinarily available to supplement ground moisture content, was entirely lacking. The high early spring temperatures melted the snow pack rapidly and the resultant high stream flow wasted a large percentage of the water crop before it could be put to beneficial use. After haying a limited amount of irrigation water was available in favored localities. Stock water was delivered without serious

difficultly through the season.

OWNERSHIP OF LANDS AND WATER RIGHTS WITHIN SUSAN RIVER WATERMASTER SERVICE AREA

Changes of Ownership

The following tabulation lists the changes in ownership of lands and water rights occurring in the Susan River Watermaster Service Area subsequent to the filing of said statment for 1946. These changes shall be included in the statement of this service area for 1947.

WATER RIGHTS OWNERSHIP CHANGES FOR 1947

Tract No.	Name of Water Right Owner Appearing in 1946 Statement	Name of Water Right Owner to appear in 1947 Statement	Amount of Water c.f.s.
12-46	Bangham, J. T.	Long, W.W. & Long, Maybelle J.	1.19
12-55	Bangham, Ross E.	Ferrell, Harvey G.	0.90
12-97	Bank of Lassen County	Wagner, Gus	0.60
12-38	Barry, Mabel and Barry, Estate of Mardis	Ulch, Millard & Ulch, Claire	1.05
12-22	Beterbide, John and Beterbide, Mary	Beard, Marion and Beard, Margaret	0.035
12-43	Burch, Marble	Burch, Marble	0.14
12-43	Burch, Marble	Rhodes, John H.	1.32
12-66	Clark, Lester & Clark, Lena	Wheeler, Lee	.08
12-66	Clark, Lester & Clark, Lena	Clark, Lester & Clark, Lena	.62
12-48	Dedek, Paul & Dedek, Mary	Jenkins, Tom	.155
12-74	Elledge, Grace E.	Taylor, P. A.	2.45
12-112	DeWitt, W.H. & DeWitt, Josephine C.	DeWitt, W.H. & DeWitt, Josephine C. & Capezzoli, Dorothy & John	7.50
12-100	Lewis, Richard	Taylor, P. A.	1.20
12-92	Loiselle, Roy S. & Loiselle, Carrie	Castnealas, Richard & Castnealas, Agnes C.	0.80
12-30	Lucas, Edward	Brooks, Lawrence & Brooks, Hazel	0.04
12-123	Morgan, William	McAlister, R.F.	0.15

TABLES

TABLE 1

PRECIPITATION AT SUSANVILLE, CALIFORNIA
ELEVATION 4,238 FEET
COMPARISON BETWEEN PRECIPITATION FOR
SEASONAL YEAR 1945-46 AND FOR 45 YEAR PERIOD

	Monthly Mean 45 years		1945-46		Snowfall in inches	
	Inches	Per Cent of total mean	Inches	Per Cent of total mean	Normal	1945-46
October	1.13	6.1	2.92	15.7	-	-
November	2.09	11.3	2.01	10.8	-	-
December	3.08	16.6	3.63	19.6	14.1	8.0
January	3.38	18.2	0.40	2.2	25.0	T
February	2.79	15.0	0.89	4.8	12.9	4.0
March	2.50	13.5	1.21	6.5	8.9	1.0
April	1.12	6.0	0.25	1.3	1.7	T
May	.83	4.5	.07	.4	-	0
June	.49	2.6	.01	.1	-	0
July	.28	1.5	.59	3.2	-	0
August	.33	1.8	0	0	-	0
September	.54	2.9	.20	1.1	-	0
	18.66	100.0	12.20	65.7	62.6	13.0

TABLE 2

DAILY DISCHARGE IN CUBIC FEET PER SECOND
NATURAL FLOW OF SUSAN RIVER ABOVE RAMSEY DITCH
APRIL 15 to SEPTEMBER 24, 1946

(EXCLUDING RELEASED STORAGE WATER)

Day	April	May	June	July	August	September
1		175	59.3	17.9	10.9	5.7
2		170	57.1	17.7	10.8	5.9
3		152	56.0	17.5	10.8	5.9
4		141	54.0	17.3	10.7	5.9
5		134	45.2	17.1	10.6	5.9
6		134	39.6	16.9	10.5	5.9
7	No	128	33.0	16.7	10.5	5.9
8	Record	123	31.4	16.5	10.4	5.9
9		116	29.0	16.3	10.3	5.2
10		110	26.9	16.1	10.3	5.5
11		98.5	26.2	15.9	10.2	6.0
12		93.5	24.8	15.7	10.2	6.0
13		89.6	24.5	15.5	10.1	5.0
14		87.2	24.3	15.3	10.0	5.7
15	215	84.8	24.0	15.1	10.0	5.7
16	239	81.2	23.7	14.9	9.8	5.9
17	256	77.6	23.5	14.7	9.7	6.1
18	265	76.4	22.8	14.5	9.5	5.9
19	256	86.0	22.4	14.5	9.3	5.9
20	223	89.6	22.0	14.1	9.1	6.1
21	207	86.0	21.7	13.9	8.5	5.9
22	190	82.4	21.5	13.7	7.0	5.7
23	190	86.0	20.8	13.5	6.7	5.2
24	198	80.0	20.4	13.3	6.5	5.2
25	215	78.8	20.0	13.1	6.4	
26	215	92.0	19.7	11.9	6.3	
27	201	86.0	19.3	11.7	6.2	No
28	198	77.6	18.9	11.5	6.1	Record
29	193	70.4	18.6	11.3	6.0	
30	187	64.7	18.2	11.1	5.8	
31		62.5		11.0	5.5	
Total	*3448	3113.6	868.4	456.0	274.7	**138.0
Mean	* 215.5	100.4	28.9	14.7	8.86	** 5.75
Runoff in Ac.Ft.	*6840	6170	1720	903	546	**273

* 16 day period
** 24 day period

Total acre feet for period 16,500

TABLE 3

DAILY DISCHARGE IN CUBIC FEET PER SECOND
SUSAN RIVER ABOVE RAMSEY DITCH
INCLUDING WATER RELEASED FROM STORAGE
APRIL 15 to SEPTEMBER 24, 1946

Day	April	May	June	July	August	September
1		175	59.3	105.8	61.7	5.7
2		170	57.1	107.2	60.6	5.9
3		152	56.0	108.6	61.7	5.9
4		141	54.0	96.5	59.5	5.9
5		134	45.2	88.8	60.6	5.9
6		134	39.6	90.0	60.6	5.9
7	No	128	33.0	87.6	59.5	5.9
8	Record	123	31.4	87.6	60.6	5.9
9		116	29.0	84.0	60.6	5.2
10		110	26.9	82.8	59.5	5.5
11		98.5	26.2	81.6	55.1	6.0
12		93.3	24.8	79.2	47.0	6.0
13		89.6	60.5	74.4	36.0	5.0
14		87.2	103.0	75.6	32.0	5.7
15	215	84.8	100.4	75.6	30.4	5.7
16	239	81.2	100.4	76.8	28.8	5.9
17	256	77.6	101.7	75.6	25.9	6.1
18	265	76.4	100.4	73.2	19.2	5.9
19	256	86.0	100.4	66.0	10.5	5.9
20	223	89.6	103.0	63.8	9.1	6.1
21	207	86.0	107.2	61.6	8.5	5.9
22	190	82.4	110.0	63.8	7.0	5.7
23	190	86.0	108.6	63.7	6.7	5.2
24	198	80.0	111.4	62.7	6.5	5.2
25	215	78.8	112.8	68.4	6.4	
26	215	92.0	112.8	71.0	6.3	
27	201	86.0	110.0	63.9	6.2	No
28	198	77.6	107.2	59.5	6.1	Record
29	193	70.4	105.8	59.5	6.0	
30	187	64.7	103.0	60.6	5.8	
31		62.5		61.7	5.5	
Total	* 3448	3113.6	2341.1	2376.1	969.3	**138.0
Mean	* 215.5	100.4	78.0	76.6	31.3	** 5.75
Runoff in: Ac.Ft.	* 6840	6170	4640	4730	1920	**273

* 16 day period
** 24 day period

Total acre feet for period 24,600

TABLE 4

DAILY DISCHARGE IN CUBIC FEET PER SECOND
SUSAN RIVER BELOW RAMSEY DITCH
INCLUDING WATER RELEASED FROM STORAGE
APRIL 15 to SEPTEMBER 24, 1946

Day	April	May	June	July	August	September
1		169	55.3	108.8	59.7	4.0
2		164	53.1	104.2	58.6	4.2
3		146	52.0	105.6	59.7	4.2
4		135	50.0	93.5	57.5	4.2
5		128	41.2	85.8	58.6	4.2
6		128	35.6	87.0	58.6	4.2
7	No Record	122	30.0	84.6	57.5	4.2
8		117	28.4	84.6	58.6	4.2
9		110	26.0	81.0	58.6	3.8
10		104	23.9	79.8	57.5	4.0
11		93.5	23.2	78.6	53.1	6.0
12		88.3	21.8	76.2	45.0	4.2
13		84.6	57.5	71.4	34.0	3.6
14		82.2	100.0	72.6	30.0	4.0
15	208	79.8	97.4	72.6	28.4	4.0
16	232	76.2	97.4	73.8	26.8	4.2
17	249	72.6	98.7	72.6	23.9	4.4
18	258	71.4	97.4	70.2	17.2	4.2
19	249	81.0	97.4	63.0	8.5	4.2
20	216	84.6	100.0	60.8	6.5	4.4
21	200	81.0	104.2	58.6	5.6	4.2
22	183	77.4	107.0	60.8	4.8	4.0
23	185	81.0	105.6	59.7	4.6	3.8
24	191	75.0	108.4	59.7	4.5	3.8
25	208	73.8	109.8	65.4	4.4	
26	208	87.0	109.8	69.0	4.4	
27	194	81.0	107.0	61.9	4.4	No Record
28	191	72.6	104.2	57.5	4.2	
29	186	65.4	102.8	57.5	4.2	
30	180	59.7	100.0	58.6	4.0	
31		57.5		59.7	4.0	
Total	* 3336	2948.6	2245.1	2289.1	907.4	** 98.6
Mean	* 208.5	95.1	74.8	73.8	29.3	** 4.11
Runoff in Ac.Ft.	* 6650	5850	4450	4550	1800	** 197

* 16 day period
** 24 day period

Total acre feet for period 23,500

TABLE 5

DAILY DISCHARGE IN CUBIC FEET PER SECOND
OLD CHANNEL OF SUSAN RIVER BELOW WOODSTOCK DAM
APRIL 15 to SEPTEMBER 26, 1946

Day	April	May	June	July	August	September
1		21.0	16.0	10.0	6.0	4.5
2		20.0	16.0	9.0	6.0	4.5
3		20.0	18.0	9.0	6.0	4.5
4		19.5	17.5	9.0	5.5	4.5
5		19.0	16.0	9.0	5.5	4.0
6		19.0	14.0	8.0	5.5	4.0
7	No	18.0	14.0	8.0	5.5	4.0
8		16.0	13.0	8.0	5.5	4.0
9	Record	16.0	13.0	8.0	5.5	4.0
10		17.5	13.0	8.0	5.0	4.0
11		20.0	13.5	7.5	5.0	4.0
12		21.5	12.5	7.5	5.0	4.0
13		16.0	12.5	7.5	5.0	4.0
14		16.5	12.5	7.5	5.0	4.0
15	20.0	16.5	12.5	7.5	5.0	4.0
16	22.5	17.0	12.0	7.5	5.0	4.0
17	24.0	17.5	11.0	7.5	5.0	4.0
18	24.0	17.5	11.0	7.0	5.0	4.0
19	22.5	17.5	11.0	7.0	5.0	4.5
20	24.0	18.5	11.0	7.0	5.0	4.5
21	22.5	18.5	10.0	7.0	5.0	4.5
22	21.0	19.0	10.0	7.0	5.0	4.5
23	21.0	19.0	10.0	7.0	5.0	4.5
24	21.0	19.0	10.0	6.5	5.0	4.5
25	21.0	19.0	10.0	6.5	5.0	4.5
26	21.0	19.0	10.0	6.5	4.5	4.5
27	21.0	18.5	10.0	6.5	4.5	
28	21.0	18.5	10.0	6.5	4.5	No
29	21.0	18.5	10.0	6.0	4.5	Record
30	21.0	18.5	10.0	6.0	4.5	
31		17.0		6.0	4.5	
Total	* 348.5	569.0	370.0	231.0	158.0	** 110.0
Mean	* 21.8	18.4	12.3	7.45	5.10	** 4.23
Runoff in: Ac.Ft.	* 692	1130	734	458	314	** 218

* 16 day period
** 26 day period

Total acre feet for period - 3,550

Note. Values in above table only approximate because of gage height variation caused by back water from dam below recording gage.

TABLE 6

DAILY DISCHARGE IN CUBIC FEET PER SECOND
SUSAN RIVER AT JOHNSTONVILLE
APRIL 15 to SEPTEMBER 26, 1946

Day	April	May	June	July	August	September
1		104	35.0	11.1	7.9	2.7
2		107	32.7	12.7	7.9	2.6
3		85.0	32.7	10.9	7.9	2.7
4		70.6	29.6	9.6	8.2	2.7
5		68.0	25.0	8.6	8.2	2.2
6		65.4	22.6	8.7	8.4	1.8
7	No	58.0	18.7	8.7	8.6	1.5
8	Record	55.6	17.7	8.9	8.8	1.4
9		51.1	17.3	8.9	8.8	1.4
10		45.2	15.6	8.7	8.8	1.4
11		32.7	15.2	9.1	8.8	1.4
12		34.3	17.7	9.3	8.6	1.5
13		41.5	15.6	9.1	7.4	1.6
14		37.0	14.0	8.9	5.8	1.8
15	184	34.3	13.4	9.1	5.5	1.7
16	191	36.0	13.0	8.7	5.5	1.8
17	202	39.6	12.7	8.9	5.3	1.8
18	230	38.9	12.5	8.9	5.2	1.8
19	233	49.1	12.5	8.9	5.0	1.8
20	202	49.1	12.0	8.9	4.9	2.2
21	170	49.1	11.8	8.7	4.9	2.2
22	136	47.1	12.2	8.9	4.5	2.1
23	133	51.1	12.5	9.3	4.1	2.1
24	139	45.2	13.2	9.5	4.0	2.2
25	149	53.2	12.2	10.0	3.8	2.2
26	160	82.0	11.4	11.8	3.5	
27	149	73.2	12.0	8.6	3.2	No
28	143	47.2	11.4	8.2	3.1	Record
29	133	44.5	10.6	8.0	5.0	
30	130	38.8	10.7	8.0	3.0	
31		34.3		7.9	2.9	
Total	* 2684	1668.1	503.3	285.5	185.3	** 43.6
Mean	* 167.7	53.8	16.7	9.2	6.0	** 1.9
Runoff in Ac. Ft.	** 5310	3290	1000	565	367	** 96

* 16 day period
** 25 day period

Total acre feet for period - 10,630

TABLE 7

DAILY DISCHARGE IN CUBIC FEET PER SECOND
WILLOW CREEK BELOW BELFAST BRIDGE OR OLD NETT RANCH
APRIL 15 to SEPTEMBER 20, 1946

Day	April	May	June	July	August	September
1		20.6	19.0	19.3	29.1	25.6
2		20.6	18.2	19.6	28.5	25.6
3		20.6	18.0	19.6	26.2	25.6
4		19.0	18.2	19.6	25.6	24.7
5		18.5	19.0	19.8	25.6	24.7
6		18.3	18.8	19.8	25.3	25.0
7	No	18.8	19.8	19.8	25.3	25.0
8	Record	18.8	19.6	19.8	25.3	25.0
9		18.8	19.3	19.8	24.7	25.0
10		19.6	19.3	19.8	24.4	25.6
11		20.4	19.6	19.8	24.4	24.7
12		20.1	19.6	19.8	24.7	24.7
13		19.8	19.6	19.8	25.6	24.4
14		19.8	19.6	19.8	25.9	24.1
15	26.6	19.8	19.6	20.6	26.2	24.1
16	26.0	19.8	19.6	21.0	26.2	24.7
17	25.0	19.8	19.6	21.2	26.2	24.1
18	23.2	19.8	19.6	20.6	25.9	26.2
19	22.4	19.8	19.3	20.4	25.3	26.8
20	22.0	19.8	19.6	21.0	25.6	26.2
21	21.9	19.8	19.6	21.2	25.6	
22	21.6	19.8	19.6	21.6	25.9	
23	21.6	19.6	19.6	21.6	25.9	
24	21.2	19.3	19.6	22.0	25.9	
25	21.0	19.6	19.3	23.2	25.9	
26	20.6	19.6	19.3	22.9	25.9	
27	20.1	19.8	19.3	23.2	25.6	No
28	19.8	20.1	19.3	23.8	25.9	Record
29	19.6	20.1	19.6	24.7	26.2	
30	20.1	20.1	19.6	25.6	26.2	
31		20.4		26.2	26.2	
Total	* 352.7	610.9	580.7	656.9	801.2	**501.8
Mean	* 22.0	19.7	19.3	21.2	25.8	** 25.1
Runoff in: Ac. Ft.	* 700	1210	1150	1300	1590	**995

* 16 day period
** 20 day period

Total acre feet for period - 6,950

TABLE 8

DAILY DISCHARGE IN CUBIC FEET PER SECOND
GOLD RUN CREEK ABOVE DIVERSIONS
APRIL 15 to SEPTEMBER 26, 1946

Day	April	May	June	July	August	September
1		36.0	15.8	2.7	0.6	0.3
2		36.0	15.2	2.5	0.5	0.3
3		40.0	14.7	2.3	0.4	0.3
4		44.0	11.8	2.1	0.4	0.4
5		44.0	11.8	1.9	0.4	0.4
6		44.0	10.4	1.7	0.4	0.4
7	No	44.0	9.4	1.5	0.4	0.4
8	Record	41.6	8.4	1.4	0.5	0.4
9		40.0	8.0	1.3	0.4	0.4
10		39.2	8.0	1.3	0.4	0.4
11		36.0	6.3	1.3	0.4	0.4
12		35.2	5.9	1.3	0.4	0.4
13		34.4	5.6	1.2	0.4	0.4
14		31.2	5.6	1.2	0.4	0.4
15	24.0	28.8	5.3	1.1	0.4	0.4
16	28.8	29.6	4.6	1.1	0.4	0.8
17	35.2	29.6	4.2	1.0	0.3	0.7
18	35.2	29.6	3.8	1.0	0.3	0.5
19	32.0	28.8	3.5	.9	0.3	0.6
20	26.4	28.0	3.3	.8	0.3	0.5
21	25.6	25.6	3.1	.8	0.3	0.4
22	28.0	22.7	3.1	.7	0.3	0.4
23	31.2	20.7	3.1	.6	0.3	0.4
24	40.0	19.5	2.9	.9	0.3	0.4
25	46.4	19.5	3.1	1.3	0.3	0.4
26	42.4	19.5	2.9	1.3	0.3	0.4
27	39.2	17.5	2.9	.9	0.3	
28	40.0	16.4	2.7	.7	0.3	No
29	40.0	16.4	2.7	.6	0.3	Record
30	38.4	15.8	2.7	.6	0.3	
31		15.8		.6	0.3	
Total	* 542.8	929.4	190.8	39.0	11.3	**11.5
Mean	* 35.9	29.9	6.36	1.26	.36	** .43
Runoff in Ac.Ft.	*1075	1845	379	77.4	22.4	** 22.4

* 16 day period
** 26 day period

Total acre feet for period - 3,420

TABLE 9

DAILY DISCHARGE IN CUBIC FEET PER SECOND
RAMSEY DITCH AT HEAD
APRIL 15 to SEPTEMBER 24, 1946

Day	April	May	June	July	August	September
1		6.0	4.0	3.0	3.0	1.7
2		6.0	4.0	3.0	2.0	1.7
3		6.0	4.0	3.0	2.0	1.7
4		6.0	4.0	3.0	2.0	1.7
5		6.0	4.0	3.0	2.0	1.7
6		6.0	4.0	3.0	2.0	1.7
7	No	6.0	3.0	3.0	2.0	1.7
8	Record	6.0	3.0	3.0	2.0	1.7
9		6.0	3.0	3.0	2.0	1.4
10		6.0	3.0	3.0	2.0	1.5
11		5.0	3.0	3.0	2.0	0.0
12		5.0	3.0	3.0	2.0	1.8
13		5.0	3.0	3.0	2.0	1.4
14		5.0	3.0	3.0	2.0	1.7
15	7.0	5.0	3.0	3.0	2.0	1.7
16	7.0	5.0	3.0	3.0	2.0	1.7
17	7.0	5.0	3.0	3.0	2.0	1.7
18	7.0	5.0	3.0	3.0	2.0	1.7
19	7.0	5.0	3.0	3.0	2.0	1.7
20	7.0	5.0	3.0	3.0	2.6	1.7
21	7.0	5.0	3.0	3.0	2.9	1.7
22	7.0	5.0	3.0	3.0	2.7	1.7
23	7.0	5.0	3.0	3.0	2.1	1.4
24	7.0	5.0	3.0	3.0	2.0	1.4
25	7.0	5.0	3.0	3.0	2.0	
26	7.0	5.0	3.0	2.0	1.9	
27	7.0	5.0	3.0	2.0	1.8	No
28	7.0	5.0	3.0	2.0	1.9	Record
29	7.0	5.0	3.0	2.0	1.8	
30	7.0	5.0	3.0	2.0	1.8	
31		5.0		2.0	1.5	
Total	*112	165	96.0	87.0	63.0	**37.8
Mean	* 7.00	5.32	3.20	2.81	2.03	** 1.58
Runoff in: Ac.Ft.	*222	327	190	172	125	**75

* 16 day period
** 24 day period

Total acre feet for period - 1,110

TABLE 10

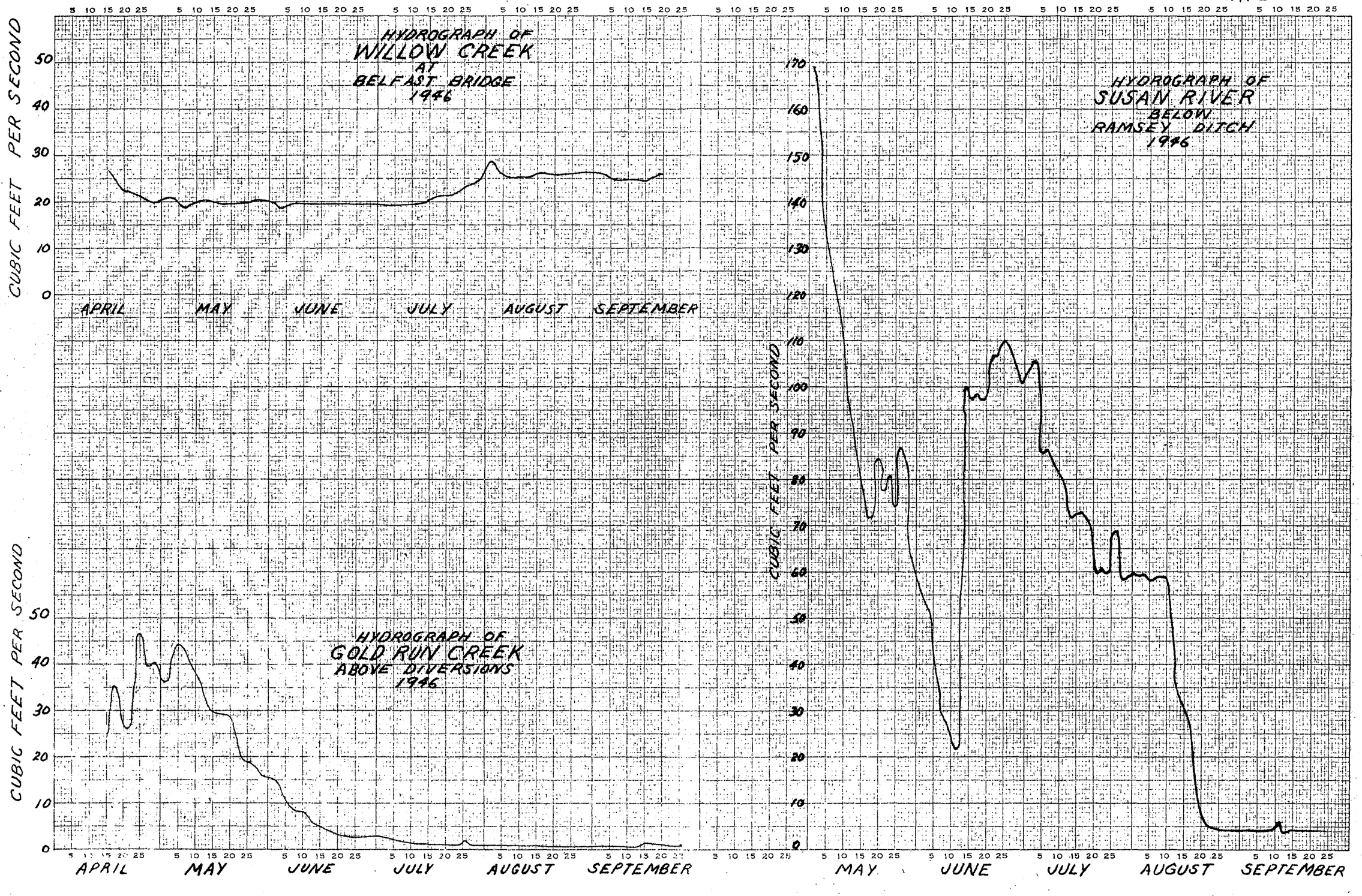
DAILY DISCHARGE IN CUBIC FEET PER SECOND
WATER RELEASED FROM MCCOY AND HOG FLAT RESERVOIRS
AND AVAILABLE FOR REDIVERSION AT SUSANVILLE
JUNE 12 to AUGUST 20, 1946

Day	June	July	August
1		87.9	50.8
2		89.5	49.8
3		91.1	50.9
4		79.2	48.8
5		71.7	50.0
6		73.1	50.1
7	No	70.9	49.0
8	Release	71.1	50.2
9		67.7	50.3
10		66.7	49.2
11		65.7	44.9
12	*	63.5	36.8
13	35.0	58.9	25.9
14	78.7	60.3	22.0
15	76.4	60.5	20.4
16	76.7	61.9	19.0
17	78.4	60.9	16.2
18	77.6	58.7	9.7
19	78.0	51.7	1.2
20	81.0	49.7	
21	85.5	47.7	
22	88.7	50.1	No
23	87.8	49.2	Release
24	91.0	49.4	
25	92.8	55.3	
26	93.1	59.1	
27	90.7	52.2	
28	88.3	48.0	
29	87.2	48.2	
30	84.8	49.5	
31		50.7	
Total	** 1471.7	1920.1	*** 695.2
Mean	** 81.8	61.9	*** 36.6
Storage in Ac. Ft.	** 2920	3810	*** 1380

* Storage water turned loose.
** 18 day period
*** 19 day period

Total acre feet for period - 8,110

PLATE 1



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