STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

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

1947 SEASON

By

W. R. Gianelli
Assistant Hydraulic Engineer

Sacramento, California

SUSAN RIVER WATERMASTER SERVICE AREA

ANNUAL REPORT OF WATERMASTER

The within contained report entitled "Report on Watermaster Service in Susan River Watermaster Service Area, Lassen County, California, 1947 Season", dated October, 1947, is hereby approved.

Dated this 25th day of November, 1947.

Principal Hydraulic Engineer,
Division of Water Resources

The within contained report entitled "Report on Watermaster Service in Susan River Watermaster Service Area, Lassen County, California, 1947 Season", dated October, 1947, is hereby approved and adopted as the annual report of the watermaster for said area and period.

Witness my hand and the seal of the Department of Public Works of the State of California, this 25th day of November, 1947.

State Engineer and Chief of
Division of Water Resources

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EDWARD HYATT, STATE ENGINEER
CHIEF OF DIVISION

EARL WARREN
GOVERNOR OF CALIFORNIA

C. H. PURCELL
DIRECTOR

STATE OF CALIFORNIA
Department of Public Works
SACRAMENTO

ADDRESS REPLY TO
DIVISION OF WATER RESOURCES
PUBLIC WORKS BUILDING
P. O. BOX 1079
SACRAMENTO 5

October 10, 1947.

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 1947 season.

The report presents a general description of water supply conditions in 1947 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

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, Lassen 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 1947 season on April 14 and terminated on September 30. W. R. Gianelli, appointed watermaster by the Department of Public Works for the Susan River Watermaster Service Area, was in charge of distribution during the season under the supervision of L. C. Jopson, Supervising Watermaster. Between March 25 and April 14, L. C. Jopson occasionally observed conditions over the area.

WATER SUPPLY

Precipitation

Table 1 contains data obtained from U. S. Weather Bureau records and from the weather observer at Susanville airport. Monthly precipitation and snowfall records are shown for the period October, 1946, to September, 1947, as well as the fifty-year means for each month.

The total seasonal precipitation for 1946-47 was 10.38 as compared with the fifty-year mean of 19.29 inches which indicates slightly over a fifty percent normal supply for the current season.

The results of the California Cooperative Snow Surveys published in April, 1947, show the water content of the snow in the general vicinity of the Susan River watershed as of April 1, 1947, to be only about forty-five percent 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 diversions 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 the Ramsey Ditch at its head; the values being compiled by interpolation of known discharges at various intervals. Table 3 gives the discharge of the Susan River above the Ramsey Ditch as compiled from a summation of Table 4 and Table 9. Table 2 gives the natural flow of Susan River above the Ramsey Ditch as determined by deducting the adjusted storage release of Hog Flat and McCoy reservoirs (Table 10) from the discharge of Susan River above the Ramsey Ditch (Table 3).

Sufficient records of runoff for the Susan River stream system are not available for the computation of satisfactory normals. However, by comparison with the natural flow at Haws since 1936, it appears that the 1947 runoff was only slightly greater than the minimum flow for the period which occurred in 1939. The pattern of runoff was similar to that of 1939

also, except for the brief increase in flow caused by rains about June 1st.

The following table offers a comparison of the natural flow available in Susan River above Haws since 1936.

NATURAL FLOW AVAILABLE IN SUSAN RIVER ABOVE HAWS -

ACRE-FEET

Year	April	May	June	July	Total
1936	11,000	6,310	2,810	606	20,730
1937	13,100	7,660	1,590	416	22,770
1938	(a) 33,900	82,800	21,500	2,940	141,140
1939	(b) 2,070	950	398	171	3,590
1940	(c) 7,250	11,700	1,560	706	21,210
1941	(d) 3,060	26,000	5,240	1,220	35,520
1942	(e) 10,300	18,600	9,160	1,570	40,630
1943	(f) 5,800	8,890	4,050	1,320	20,060
1944	(g) 7,390	9,240	3,460	1,180	21,270
1945	(h) 5,650	6,030	2,970	978	15,630
1946	(i) 6,880	6,200	1,710	880	15,670
1947	(j) 2,470	2,990	870	236	6,570

(a) 11-day period
(b) 27-day period
(c) 10-day period
(d) 7-day period
(e) 13-day period
(f) 11-day period
(g) 24-day period
(h) 18-day period
(i) 16-day period
(j) 17-day period

DISTRIBUTION OF WATER

The waters of Susan River and tributaries included in the watermaster service area were distributed during the 1947 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 includes Upper Willow Creek Valley, Lower Willow Creek, and a part of the requirements for the Susan River delta below the Colony Dam. Schedule 4 of the decree defines the rights to water from Gold Run Creek, Piute Creek, Hills 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)

By the time watermaster service was begun for the 1946 season, the flow in Upper and Lower Willow Creek had decreased to the flow of the springs above and below Willow Creek Valley. This amount of water would have been entirely inadequate to meet the irrigation needs had it not been for the rains occurring the last of May and the first of June. The rains provided the equivalent of one good irrigation by surface wetting, as well as increasing the flow in Willow Creek for a short period.

Some water was stored in the Walsh Reservoir prior to April 1st and was available during the irrigation season to supplement the spring flow. Release of the stored water was commenced on April 24th and continued until the 23rd of May, when the last flashboard was removed.

On June 5th all the water in Upper Willow Creek at the head of the Walsh ranch was turned into the District By-Pass Canal. This water

was turned back into Willow Creek at the head of the Streshley ranch and was used for irrigation by the lower users in Willow Creek Valley. When haying began on these lower ranches, about the first of July, the water in the District By-Pass Canal was allowed to continue down to Lower Willow Creek and Susan River users. The Walsh ranch began using water out of the canal again the latter part of July when the haying was over. In general, the late rains, combined with the flow from springs, provided adequate water for Willow Creek Valley during the entire season.

Except for a small amount of return flow from Susan River above Colony Dam, the Susan River delta area was entirely dependent upon flow from Willow Creek after about the first of June. (See discussion under Susan River.)

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

Lassen Creek

The flow of Lassen Creek was adequate to meet irrigation needs during the month of April, but after the first of May only sufficient water was available to meet the first priority needs of the Hulsman ranch, and toward the end of May, even this was not available. Lassen Creek dried up completely about the 10th of August and remained dry for the remainder of the season.

Gold Run Creek

The flow of Gold Run Creek was sufficient to meet all irrigation requirements until about the middle of May. After the first of June there was enough water available to meet only first priority requirements and a small percentage of second priority needs. After the middle of June, only stock water could be delivered.

Hills Creek

The flow of Hills Creek was inadequate to meet the first priority requirements at all times during the irrigation season. However, by careful

regulation and use, the flow was sufficient to meet the general needs of the users until about the first of June. Subsequent to June 1st the discharge dropped steadily, until on July 15th only 0.30 cubic foot per second remained above all diversions. There was insufficient flow in the creek to reach the Van Dyke ranch during the period of minimum flow in August.

Haulscraw Creek

Haulscraw Creek supplies water to 1.6 acres of the Hulsman upper meadow and to 22.3 acres of the Emerson ranch. However, at no time during the watermaster season was there sufficient water to reach the Emerson meadow, and consequently all the water available was used on the Hulsman pasture until the creek failed completely about the first of June.

Piute Creek

There was sufficient water in Piute Creek to meet all requirements during the month of April. By the middle of May there was only enough water to meet about fifty percent of the requirements. The last part of May and the first part of June the creek flow was increased by the late spring rains sufficiently to again fill all demands. Thereafter, the California Public Utilities Company maintained a flow in Piute Creek above Marmo's of 0.27 cubic foot per second during July, August, and the first part of September. In general the stream flow, together with the late spring rains, provided sufficient water for most of the needs of the water users until July 1st. Thereafter, some difficulty was experienced in fully satisfying all users.

Susan River (Schedules 5 and 6)

There was inadequate water in Susan River to fill the requirements under Schedule 6 at any time. However, due to certain provisions of the court decree, one-fourth of the water in Dill Slough was diverted into Hartson Slough until May 10th. Although this was normally Schedule 5

water, it was distributed in part to Hartson Slough users according to their Schedule 6 rights.

There was sufficient water in Susan River to meet between 90 percent and 100 percent of Schedule 5 requirements during the first part of April. By the first of June there was water available for about 50 percent of Schedule 5 allotments, and by the first of July there was only water enough for stock water use under the first priority.

The average flow of Susan River above the Ramsey Ditch and the percent of allotments delivered to the first and second priority rights under Schedule 5 are given by months in the following tabulation:

Month	Average Available Natural Flow of Susan River Above Ramsey Ditch cu. ft. sec.	Percent of Allotments Delivered 1st Priority * 4.90 c.f.s.	2nd Priority 67.55 c.f.s.
April	** 73.2	100%	100%
May	48.7	100%	65%
June	14.6	100%	14%
July	3.8	78%	0
August	3.1	63%	0
September	*** 4.4	90%	0

*Does not include 11.05 cubic feet per second allocated to lands upstream from gaging station.
**17-day period.
***29-day period.

Susan River Reservoirs 1947

The Lassen Irrigation Company owns and operates three reservoirs in the Susan River stream system. Lake Leavitt, the valley reservoir, was filled to capacity before the irrigation season. Most of the water collected in this reservoir was obtained from winter rains rather than early spring snow melt. McCoy and Hog Flat, the two mountain reservoirs, were only partially filled. The release of storage from these two mountain

was commenced on May 13th and both were completely drained by June 4th. The total amount of stored water passing Susanville and available for re-diversion at Johnstonville Dam was 2,250 acre-feet.

Prior to the release of stored water it was necessary to begin spilling water from the mountain reservoirs on April 24th in order to pass the natural flow through for prior irrigation rights below Susanville. This natural flow amounted to a maximum of 27 cubic feet per second from April 24th to 29th and tapered off to zero on May 24th.

Colony Dam, which is owned and operated by the Lassen Irrigation Company, was not used this season.

Eagle Lake

On April 27 a bench mark was established at Eagle Lake in order that variations in water surface throughout the summer months might be noted. This bench mark was located at the old concrete headgate structure in the entrance canal about one third of the distance from the lake to the tunnel portal. By tying in with old established elevations at the tunnel portal, W. E. Buell ascertained the elevation of this B.M. to be 98.06 feet.

During the summer months observations were made at Eagle Lake as follows:

Date	Dist. from B.M. to Water Surface	Elev. of Water Surface	Observed by
4/27/47	13.85	84.21	W.R.Gianelli and L.C.Jopson
5/16/47	14.08	83.98	W. E. Buell
8/16/47	15.17	82.89	W. E. Buell
9/11/47	15.75	82.31	W. R. Gianelli

SUMMARY

Due to the small snow-pack and the very dry winter, the outlook for a successful crop season was very poor at the beginning of the irrigation season. The flow in Susan River and its snow-fed tributaries was the lowest since the very dry year of 1939. This flow would have been entirely inadequate to meet the

majority of the irrigation needs. However, the late spring rains which occurred during the last of May and the first of June provided the equivalent of a complete irrigation to all farms in the valley. After a very dry April and early part of May, the rains came at just the right time to save the majority of the hay and grain crops. Crop failures occurred with a few of the early maturing crops that had already reached the permanent wilting point. The crops in the valley in general produced a normal yield and, in some cases, far exceeded the normal.

After haying, a limited amount of irrigation water was available in favored localities. Stock water was delivered with some difficulty later in the season.

CONTROVERSIES

The most important controversy in the service area took place between Delta Barham and Martin Wright over return flow from upstream irrigators. This difficulty, which was not within the jurisdiction of the State Watermaster or the Division of Water Resources, was taken to the Superior Court of Lassen County. A decision in the matter had not been reached by the court at the end of the watermaster season.

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

Change 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 statement for 1947. These changes shall be included in the statement of this service area for 1948.

WATER RIGHTS OWNERSHIP CHANGES FOR 1948

Tract Number	Name of Water Right Owner Appearing in 1947 Statement	Name of Water Right Owner to Appear in 1948 Statement	Amount of Water c.f.s.
12-61	Bantley, Antone, and Bantley, Nelia M.	Mallery, Raymond, and Mallery, Angela	.95
12-61	Bantley, Fred	Mallery, Raymond, and Mallery, Angela	.475
12-30	Brooks, Lawrence, and Brooks, Hazel	Garcia, Lloyd, and Garcia, Antonia	.04
12-47A	Bangham, F. H., and Carter, Margaret Louise	Carter, George W., and Carter, Margaret Louise	.135
12-31	Bradford, Harold E.	Dotson, J. S.; Rea, Sherman; and Barbee, W. B.	.18
12-65	Emerson, Estate of Tro, and Emerson, Clarissa	Williams, Irvin W.	.30
12-117	Walsh, Patrick H., and Walsh, Margarite	Barron, J. R.	17.00

TABLE I

PRECIPITATION AT SUSANVILLE, CALIFORNIA,
ELEVATION 4,238 FEET

Comparison Between Precipitation for Seasonal
Year 1946-47 and for Fifty-Year Period

	Monthly Mean 50 Years		Precipitation 1946-47		Snowfall in Inches	
	Inches	Percent of Total Mean	Inches	Percent of Total Mean	Normal	1946-47
October	1.02	5.3	.25	1.3	-	0
November	2.07	10.7	3.28	17.1	-	2.0
December	3.08	16.0	1.50	7.8	13.5	1.0
January	3.90	20.2	.25	1.3	25.0	6.0
February	2.90	15.0	1.28	6.6	12.9	0
March	2.63	13.6	1.37	7.1	8.9	T
April	1.13	5.9	.67	3.5	1.7	0.3
May	1.09	5.7	1.13	5.9	-	0
June	.54	2.8	.47	2.4	-	0
July	.19	1.0	0	0	-	0
August	.16	.8	.18	.9	-	0
September	.58	3.0	T	0	-	0
	19.29	100.0	10.38	53.9	62.0	9.3

TABLE 2

DAILY DISCHARGE IN CUBIC FEET PER SECOND
NATURAL FLOW OF SUSAN RIVER ABOVE RAMSEY DITCH
APRIL 14 TO SEPTEMBER 29, 1947

(Excluding Released Storage Water)

Day	April	May	June	July	August	September
1		73.8	17.2	5.6	2.9	4.1
2		77.1	15.2	5.3	2.9	3.6
3		74.9	13.2	4.3	3.0	3.4
4		70.5	11.0	4.2	2.5	3.5
5		66.1	8.8	4.6	2.7	3.5
6		62.1	8.5	4.7	2.6	3.2
7	No	59.1	10.0	4.7	2.6	3.4
8	Record	61.1	27.0	4.7	2.6	3.6
9		61.2	51.0	4.7	2.5	3.5
10		56.1	43.0	4.7	2.6	3.5
11		57.6	32.6	4.7	3.1	4.4
12		54.8	21.4	4.7	3.0	4.4
13		54.0	17.5	4.0	3.1	4.4
14	81.6	49.1	15.0	4.0	3.2	4.4
15	85.2	47.1	12.5	4.0	3.2	4.4
16	87.6	46.1	12.5	4.0	3.1	4.4
17	87.6	45.1	13.5	4.0	3.0	4.4
18	81.6	44.1	12.5	3.6	3.0	4.4
19	75.6	43.1	10.0	3.0	3.0	4.5
20	74.5	41.9	9.7	3.0	3.0	4.5
21	70.1	40.2	9.7	3.0	3.3	4.5
22	64.6	39.2	9.2	2.9	3.3	5.2
23	59.6	38.1	8.1	3.0	3.3	5.2
24	56.6	37.1	8.1	3.2	3.3	5.2
25	64.6	36.1	6.6	3.2	3.4	5.2
26	61.6	34.1	6.0	3.2	3.4	5.8
27	70.1	32.1	5.7	3.2	3.3	5.8
28	73.8	30.1	7.1	2.6	3.3	5.8
29	74.9	28.1	7.1	2.6	3.8	5.8
30	74.9	26.1	6.8	2.8	4.0	
31		24.3		2.8	4.0	
Total	*1244.5	1510.4	436.5	119.0	96.0	**128.0
Mean	73.2	48.7	14.6	3.8	3.1	** 4.4
Runoff in Ac. Ft.	*2468	2995	866	236	190	**254

*17 Day Period
**29 Day Period

Total Acre-Feet for Period - 7,010.

TABLE 3

DAILY DISCHARGE IN CUBIC FEET PER SECOND
SUSAN RIVER ABOVE RAMSEY DITCH INCLUDING WATER
RELEASED FROM STORAGE
APRIL 14 TO SEPTEMBER 29, 1947

Day	April	May	June	July	August	September
1		73.8	56.3	5.6	2.9	4.1
2		77.1	45.6	5.3	2.9	3.6
3		74.9	45.6	4.3	3.0	3.4
4		70.5	12.5	4.2	2.5	3.5
5	NO	66.1	8.8	4.6	2.7	3.5
6		62.1	8.5	4.7	2.6	3.2
7	RECORD	59.1	10.0	4.7	2.6	3.4
8		61.1	27.0	4.7	2.6	3.6
9		61.2	51.0	4.7	2.5	3.5
10		56.1	43.0	4.7	2.6	3.5
11		57.6	32.6	4.7	3.1	4.4
12		54.8	21.4	4.7	3.0	4.4
13		54.0	17.5	4.0	3.1	4.4
14	81.6	71.9	15.0	4.0	3.2	4.4
15	85.2	103.	12.5	4.0	3.2	4.4
16	87.6	103.	12.5	4.0	3.1	4.4
17	87.6	102.	13.5	4.0	3.0	4.4
18	81.6	101.	12.5	3.6	3.0	4.4
19	75.6	101.	10.0	3.0	3.0	4.5
20	74.5	129.	9.7	3.0	3.0	4.5
21	70.1	135.	9.7	3.0	3.3	4.5
22	64.6	135.	9.2	2.9	3.3	5.2
23	59.6	132.	8.1	3.0	3.3	5.2
24	56.6	125.	8.1	3.2	3.3	5.2
25	64.6	108.	6.6	3.2	3.4	5.2
26	61.6	83.1	6.0	3.2	3.4	5.8
27	70.1	77.1	5.7	3.2	3.3	5.8
28	73.8	66.1	7.1	2.6	3.3	5.8
29	74.9	54.5	7.1	2.6	3.8	5.8
30	74.9	48.1	6.8	2.8	4.0	
31		49.9		2.8	4.0	
Total	*1244.5	2553.1	539.9	119.0	96.0	**128.0
Mean	* 73.2	82.4	18.0	3.8	3.1	** 4.4
Runoff in Ac.Ft.	*2468	5063	1071	236	190	**254

*17-Day Period
**29-Day Period

Total Acre-Feet for period - 9,280

TABLE 4

DAILY DISCHARGE IN CUBIC FEET PER SECOND
SUSAN RIVER BELOW RAMSEY DITCH INCLUDING WATER
RELEASED FROM STORAGE
APRIL 14 TO SEPTEMBER 29, 1947

Day	April	May	June	July	August	September
1		67.7	50.0	3.6	2.2	2.7
2		71.0	44.4	3.3	2.2	2.6
3		68.8	38.0	3.0	2.3	2.4
4		64.4	11.5	2.9	2.0	2.5
5		60.0	7.8	2.8	2.2	2.5
6		56.0	7.5	2.8	2.1	2.5
7		53.0	9.0	2.6	2.1	2.7
8		55.0	26.0	2.6	2.1	2.9
9		55.0	50.0	2.6	2.0	2.8
10	NO	50.0	42.0	2.6	2.1	2.8
11		49.2	31.6	2.6	2.2	2.8
12	RECORD	48.4	20.4	2.6	2.1	2.8
13		47.6	16.5	2.6	2.2	2.8
14	77.0	65.5	14.0	2.6	2.3	2.8
15	80.6	96.0	11.5	2.6	2.3	2.8
16	83.0	96.0	11.5	2.6	2.2	2.8
17	83.0	94.7	12.5	2.6	2.1	2.8
18	77.0	93.4	11.5	2.2	2.1	2.8
19	71.0	93.4	9.0	2.2	2.1	2.9
20	69.9	122.	8.1	2.2	2.1	2.9
21	65.5	129.	8.1	2.2	2.4	2.9
22	60.0	129.	7.5	2.1	2.4	2.9
23	55.0	126.	6.9	2.2	2.5	3.6
24	52.0	119.	6.9	2.4	2.5	3.6
25	60.0	102.	5.4	2.4	2.4	3.6
26	57.0	77.0	4.8	2.4	2.5	3.9
27	65.5	71.0	4.5	2.4	2.4	3.9
28	67.7	60.0	4.2	2.0	2.4	3.9
29	68.8	48.4	4.2	2.0	2.6	3.9
30	68.8	42.0	3.9	2.1	2.7	
31		43.6		2.1	2.7	
***						
Total	*1161.8	2354.1	489.2	77.9	70.5	** 86.8
Mean	* 68.3	75.9	16.3	2.5	2.3	** 3.0
Runoff in Ac. Ft.	*2304	4668	970	154	140	**172

*17-Day Period
**29-Day Period
***Gage Heights from Automatic Water Stage Recorder

Total Acre-Feet for Period - 8,410.

TABLE 5

DAILY DISCHARGE IN CUBIC FEET PER SECOND
OLD CHANNEL SUSAN RIVER BELOW WOODSTOCK DAM
APRIL 14 TO SEPTEMBER 29, 1947

Day	April	May	June	July	August	September
1		16.4	6.9	2.9	1.8	3.8
2		16.6	6.8	2.8	1.8	3.8
3		16.6	8.5	2.6	1.7	2.6
4		16.2	8.5	2.6	1.7	2.8
5		16.1	9.3	2.5	1.6	2.2
6		16.1	9.3	2.4	1.5	2.4
7	NO	16.0	9.8	2.3	1.3	2.6
8		16.0	10.2	2.2	1.2	3.2
9	RECORD	16.0	10.5	2.2	1.6	3.0
10		16.0	10.2	2.2	1.5	2.8
11		15.8	9.8	2.1	1.6	2.2
12		15.8	8.6	2.3	1.4	2.5
13		15.8	7.3	2.3	1.5	2.0
14	17.0	15.2	6.4	2.3	2.6	2.3
15	16.7	15.1	5.6	2.2	3.4	2.2
16	16.6	15.2	4.9	2.4	2.6	2.6
17	16.8	15.3	4.1	1.9	2.8	3.0
18	16.5	14.5	3.5	1.9	2.9	4.0
19	16.3	13.0	3.0	1.7	2.6	4.4
20	16.2	12.0	3.0	1.9	2.8	4.4
21	16.2	10.2	4.5	1.8	2.9	3.8
22	16.3	10.4	4.3	1.9	3.3	4.0
23	16.5	10.1	4.6	2.0	3.4	4.2
24	16.3	9.8	4.2	2.5	3.6	3.4
25	16.5	9.5	4.0	2.7	3.7	3.8
26	16.9	9.4	3.9	2.7	3.7	3.8
27	16.9	9.2	3.6	1.8	3.8	4.4
28	17.0	8.6	3.6	2.1	3.2	4.8
29	16.8	8.0	3.2	2.0	3.1	4.6
30	16.7	7.5	3.1	2.0	3.8	
31		6.8		1.9	3.8	
***						
Total	*282.2	409.2	185.2	69.1	78.2	** 95.6
Mean	16.6	13.2	6.2	2.2	2.5	** 3.3
Runoff in Ac.Ft.	*560	811	367	137	155	**190

*17-Day Period
**29-Day Period
***Discharge Occasionally Affected by Backwater

Total Acre-Feet for Period - 2,220.

TABLE 6

DAILY DISCHARGE IN CUBIC FEET PER SECOND
SUSAN RIVER AT JOHNSTONVILLE
APRIL 14 TO SEPTEMBER 28, 1947

Day	April	May	June	July	August	September
1		27.9	10.6	1.4	0.5	0.6
2		34.3	10.4	1.4	0.5	0.6
3		36.0	10.0	1.4	0.5	0.6
4		32.5	8.2	1.4	0.5	0.6
5		26.5	6.3	1.4	0.5	0.6
6		21.0	6.1	1.4	0.5	0.6
7	NO	18.4	7.4	1.4	0.5	0.6
8		21.0	14.0	1.2	0.5	0.6
9	RECORD	22.3	21.0	1.0	0.5	0.6
10		18.4	19.7	0.8	0.5	0.6
11		16.0	12.0	0.7	0.5	0.6
12		16.0	10.0	0.6	0.6	0.6
13		16.7	8.0	0.5	0.6	0.6
14	13.0	14.0	6.6	0.5	0.6	0.6
15	23.7	12.4	6.3	0.5	1.4	0.6
16	25.1	12.0	5.8	0.5	1.2	0.6
17	27.9	12.6	5.8	0.5	0.7	0.7
18	26.5	12.6	5.2	0.5	0.7	0.7
19	29.4	12.8	4.8	0.5	0.7	0.7
20	36.0	12.0	4.2	0.6	0.7	0.6
21	37.8	9.6	4.0	0.6	0.7	0.6
22	37.8	9.3	2.6	0.6	0.7	0.6
23	30.9	9.1	2.2	0.6	0.7	0.6
24	29.4	8.8	2.0	0.6	0.7	0.6
25	25.1	8.2	2.0	0.6	0.7	0.6
26	21.0	8.2	1.8	0.6	0.7	0.6
27	23.7	9.5	1.8	0.6	0.7	0.6
28	29.4	9.5	1.6	0.6	0.7	0.7
29	26.5	9.6	1.6	0.6	0.7	NO
30	27.9	9.1	1.4	0.6	0.7	RECORD
31		9.3		0.6	0.7	
Total	*471.1	495.6	203.4	24.8	20.4	** 17.2
Mean	* 27.7	15.9	6.8	0.8	0.7	** 0.6
Runoff in Ac.Ft.	*934	983	403	49.2	40.5	** 34.1

*17-Day Period
**28-Day Period

Total Acre-Feet for Period - 2,440.

TABLE 7

DAILY DISCHARGE IN CUBIC FEET PER SECOND
WILLOW CREEK BELOW BELFAST BRIDGE OR OLD NETT RANCH
APRIL 15 TO SEPTEMBER 28, 1947

Day	April	May	June	July	August	September
1		15.1	15.6	13.2	14.4	14.1
2		15.1	14.4	12.9	14.7	14.1
3		15.1	14.1	13.0	14.4	14.1
4		15.4	13.5	12.9	14.4	14.1
5		15.4	13.2	12.9	14.7	14.1
6		15.4	13.5	12.9	14.4	14.1
7		15.4	14.4	12.9	14.4	14.1
8	NO	15.4	15.0	15.9	14.7	14.4
9		15.7	15.0	15.9	15.0	14.7
10	RECORD	16.0	15.3	14.7	15.3	15.9
11		15.4	15.6	13.8	15.4	15.9
12		15.4	15.6	13.2	15.3	16.8
13		15.5	15.3	13.2	15.3	16.2
14		15.4	15.0	13.2	15.3	15.9
15	19.5	15.4	14.9	12.9	16.5	16.8
16	15.1	15.4	14.7	14.7	15.3	16.2
17	15.7	15.4	14.3	15.3	15.0	16.5
18	16.6	14.6	14.4	13.2	14.7	15.9
19	16.9	14.3	14.1	13.5	14.4	15.6
20	16.3	14.6	13.8	15.6	13.8	15.6
21	15.7	14.6	13.8	15.9	13.5	15.6
22	16.6	13.7	13.8	16.5	13.5	15.8
23	16.9	13.2	13.5	16.8	13.8	15.6
24	16.9	13.4	13.5	16.8	13.8	15.6
25	17.5	14.6	13.5	15.9	13.8	15.6
26	17.2	14.6	12.9	15.3	14.1	15.4
27	17.2	20.1	12.9	15.0	13.8	15.3
28	17.2	19.0	13.2	14.7	13.8	15.3
29	16.7	21.6	12.9	14.4	14.1	NO
30	15.9	21.9	12.6	14.4	14.2	RECORD
31		20.7		14.4	14.1	
Total	267.9	492.8	424.3	445.9	449.9	**429.3
Mean	16.7	15.9	14.1	14.4	14.5	** 15.3
Runoff in Ac.Ft.	531	977	841	842	892	**851

*16-Day Period
**28-Day Period

Total Acre-Feet for Period - 4,930.

TABLE 8

DAILY DISCHARGE IN CUBIC FEET PER SECOND
GOLD RUN CREEK ABOVE DIVERSIONS
APRIL 14 TO SEPTEMBER 29, 1947

Day	April	May	June	July	August	September
1		31.5	6.5	.9	.3	.3
2		33.2	6.1	.8	.3	.2
3		33.2	5.3	.8	.3	.2
4		28.5	5.0	.8	.3	.2
5		25.5	5.0	.6	.3	.2
6		26.2	5.3	.6	.2	.2
7	NO	24.0	8.4	.6	.1	.3
8		20.6	11.6	.5	.1	.3
9	RECORD	19.3	9.5	.5	.1	.4
10		16.9	8.5	.5	.1	.3
11		15.7	7.3	.5	.1	.3
12		15.1	6.1	.5	.1	.2
13		13.9	4.7	.5	.1	.2
14	17.5	12.7	4.1	.5	.2	.2
15	24.0	11.6	3.2	.4	.3	.2
16	27.8	11.6	3.2	.4	.4	.2
17	25.5	11.6	3.8	.4	.3	.2
18	24.0	10.5	3.5	.4	.3	.2
19	21.9	10.5	3.8	.4	.2	.3
20	22.6	10.0	3.8	.4	.2	.3
21	21.9	9.5	3.3	.4	.3	.3
22	19.9	9.0	2.3	.3	.3	.3
23	18.7	7.7	1.7	.3	.3	.3
24	18.7	7.3	1.4	.3	.3	.3
25	19.9	7.0	1.3	.4	.3	.2
26	20.6	5.3	1.2	.4	.3	.2
27	20.6	8.1	1.1	.4	.3	.2
28	20.6	6.9	1.1	.4	.2	.2
29	24.0	5.3	1.0	.4	.3	.3
30	25.5	4.7	1.0	.3	.4	
31		6.1		.3	.3	
Total	*373.7	459.0	130.1	14.9	7.6	** 7.2
Mean	* 22.0	14.8	4.3	0.5	0.2	** 0.3
Runoff in Ac.Ft.	*741	910	258	29.5	15.1	** 14.3

*17-Day Period
**29-Day Period

Total Acre-Feet for Period - 1,970.

TABLE 9

DAILY DISCHARGE IN CUBIC FEET PER SECOND
RAMSEY DITCH AT HEAD
APRIL 16 TO SEPTEMBER 25, 1947

Day	April	May	June	July	August	September
1		6.1	6.3	2.3	.6	1.1
2		6.1	1.2	2.0	.6	1.0
3		6.1	1.1	1.3	.6	0.9
4		6.1	1.0	1.5	.5	.8
5		6.1	1.0	1.8	.6	.8
6		6.2	1.0	1.9	.6	.7
7	NO	6.2	1.0	1.8	.7	.8
8		6.2	1.0	1.7	.7	.9
9	RECORD	6.2	1.0	1.6	.8	1.1
10		7.0	1.0	1.6	.8	1.2
11		8.4	1.0	1.5	.9	1.4
12		6.4	1.0	1.5	.9	1.6
13		6.6	1.0	1.4	.9	1.7
14		6.8	1.0	1.4	.9	1.7
15		7.1	1.0	1.3	.9	1.8
16	4.6	7.0	1.0	1.2	.9	1.8
17	4.6	7.0	1.2	1.1	.9	1.8
18	4.7	7.0	1.5	0.9	.9	1.8
19	4.8	6.9	1.7	.8	.9	1.8
20	4.9	6.9	1.5	.8	.9	1.8
21	5.1	6.2	1.5	.8	.9	1.8
22	5.3	6.2	1.3	.8	1.0	1.8
23	5.5	6.1	1.2	.8	1.0	1.8
24	5.6	6.1	1.5	.8	1.1	1.9
25	5.7	6.1	1.8	.8	1.1	1.9
26	5.9	6.1	2.2	.8	1.2	
27	6.0	6.1	2.5	.7	1.2	NO
28	6.1	6.1	2.9	.6	1.3	
29	6.1	6.1	2.7	.7	1.4	RECORD
30	6.1	6.1	2.5	.6	1.3	
31		6.3		.6	1.2	
***						
Total	*81.0	199.9	47.6	37.4	28.2	**35.7
Mean	* 5.8	6.4	1.6	1.2	0.9	** 1.4
Runoff in Ac.Ft.	*161	396	94.3	74.2	55.9	**70.8

*15-Day Period
**25-Day Period
***Discharge Estimated from Occasional Gage Height Readings

Total Acre-Feet for Period - 852.

TABLE 10

DAILY DISCHARGE IN CUBIC FEET PER SECOND
WATER RELEASED FROM MCCOY AND HOG FLAT RESERVOIRS
AND AVAILABLE FOR RE-DIVERSION AT SUSANVILLE
MAY 14 TO JUNE 4, 1947

Day	April	May	June	July	August	September
1			34.0			
2			30.4			
3			26.0			
4			1.5			
5			0			
6						
7			RESERVOIRS			
8		NO	DRAINED			
9						
10		RELEASE				
11						
12						
13		0				
14		23.5				
15		56.0				
16		57.0				
17		56.7				
18		56.4				
19		57.4				
20		87.0				
21		95.0				
22		96.0				
23		94.0				
24		88.0				
25		72.0				
26		49.0				
27		45.0				
28		36.0				
29		26.4				
30		22.0				
31		25.6				
Total		*1043.0	**91.9			
Mean		* 57.9	**22.9			
Runoff in Ac.Ft.		*2068	**182			

*18-Day Period
** 4-Day Period

Total Acre-Feet for Period - 2,250.