

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WATER RESOURCES

-----0-----

GOODWIN J. KNIGHT, Governor

FRANK B. DURKEE, Director of Public Works

A. D. EDMONSTON, State Engineer

=====

REPORT ON  
WATERMASTER SERVICE  
IN  
SUSAN RIVER WATERMASTER SERVICE AREA  
LASSEN COUNTY, CALIFORNIA  
1954 SEASON

Sacramento, California  
December, 1954

TABLE OF CONTENTS

|   | <u>Page</u> |
|---|-------------|
| SUBMISSION TO, AND ADOPTION BY DEPARTMENT OF PUBLIC WORKS . . . . . | iii         |
| ORGANIZATION . . . . .  | iv          |
| INTRODUCTION . . . . .  | 1           |
| WATER SUPPLY . . . . .  | 1           |
| Precipitation . . . . .   | 1           |
| Snow Surveys . . . . .  | 2           |
| Stream Flow . . . . .   | 2           |
| DISTRIBUTION OF WATER . . . . .                                     | 3           |
| Willow Creek (Schedule 3) . . . . .                                 | 4           |
| Lassen, Gold Run, Hills, and Piute<br>Creeks (Schedule 4) . . . . . | 4           |
| Susan River (Schedule 5 and 6) . . . . .                            | 5           |
| Susan River Reservoirs . . . . .                                    | 6           |
| EAGLE LAKE . . . . .  | 7           |
| CHANGES IN OWNERSHIP OF LANDS AND WATER RIGHTS . . . . .            | 8           |

TABLES

|   |    |
|---|----|
| 1. Precipitation at Susanville Airport, Lassen County,<br>California, 1953-1954 . . . . . | 9  |
| 2. Daily Mean Discharge of Susan River at Susanville . . . . .                            | 10 |
| 3. Daily Mean Discharge of Susan River Natural Flow at<br>Susanville . . . . .            | 11 |
| 4. Daily Mean Discharge of Ramsey Ditch at Head . . . . .                                 | 12 |
| 5. Daily Mean Discharge of Gold Run Creek Above Diversions . . . . .                      | 13 |
| 6. Daily Mean Discharge of Piute Creek Above Marmc's . . . . .                            | 14 |
| 7. Daily Mean Discharge of A and B Canal of Head . . . . .                                | 15 |

TABLE OF CONTENTS (Continued)

|   | <u>Page</u> |
|---|-------------|
| 8. Daily Mean Discharge of Susan River at Johnstonville Bridge . . .                      | 16          |
| 9. Daily Mean Discharge of Old Channel of Susan River Below<br>Woodstock Dam . . . . .    | 17          |
| 10. Daily Mean Discharge of Willow Creek below Mapes Camp . . . . .                       | 18          |
| 11. Water Released From Storage and Available for Re-diversion<br>at Susanville . . . . . | 19          |

PLATE

|  |    |
|--|----|
| 1. Hydrograph of Susan River at Susanville, 1954 . . . . . | 20 |
|--|----|

SUBMISSION TO, AND ADOPTION BY  
DEPARTMENT OF PUBLIC WORKS

I, L. C. Jopson, Principal Hydraulic Engineer, Division of Water Resources, Department of Public Works of the State of California, submit this "Report on Watermaster Service in Susan River Watermaster Service Area, Lassen County, California, 1954 Season".

/s/ L. C. JOPSON  
Principal Hydraulic Engineer

I, Harvey O. Banks, Assistant State Engineer, Division of Water Resources, Department of Public Works of the State of California, approve this "Report on Watermaster Service in Susan River Watermaster Service Area, Lassen County, California, 1954 Season".

/s/ HARVEY O. BANKS  
Assistant State Engineer

I, A. D. Edmonston, State Engineer and Chief of the Division of Water Resources, Department of Public Works of the State of California, approve and adopt this "Report on Watermaster Service in Susan River Watermaster Service Area, Lassen County, California 1954 Season", as a report of the Department of Public Works.

WITNESS my hand and the seal of the Department of Public Works of the State of California, this 20th day of January, 1955.

DEPARTMENT OF PUBLIC WORKS  
STATE OF CALIFORNIA

By/s/ A. D. EDMONSTON  
A. D. Edmonston  
State Engineer

(SEAL)

ORGANIZATION

STATE DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WATER RESOURCES

Frank B. Durkee . . . . . Director of Public Works  
A. D. Edmonston . . . . . State Engineer  
Harvey C. Banks . . . . . Assistant State Engineer

---

The activity covered by this report is under the  
direction of

L. C. Jopson  
Principal Hydraulic Engineer

Assisted by

J. M. Page  
Senior Hydraulic Engineer

This report was prepared under the supervision of

C. L. Abbott  
Associate Hydraulic Engineer

By

C. C. Lanning  
Assistant Hydraulic Engineer  
and Watermaster

---

Henry Holsinger . . . . . Principal Attorney  
T. R. Merryweather . . . . . Administrative Officer

## INTRODUCTION

This is the thirteenth annual report on watermaster service in Susan River Watermaster Service Area and covers the period of water distribution in 1954 beginning April 1 and terminating September 30.

The Service area was created by order of the Department on November 10, 1941, to include with certain exceptions, all the water rights determined in the decree entered April 18, 1940, in the case of J. J. Flemming, et al., vs. J. R. Bennett, et al., No. 4573, Superior Court, Lassen County. Watermaster service has been provided during each irrigation season since the service area was created and annual reports prepared to show the work accomplished during each season.

The report is presented herein under five headings as follows: Introduction, Water Supply, Distribution of Water, Eagle Lake, and Changes in Ownership of Lands and Water Rights. Following the text are tables presenting precipitation data at Susanville and water supply records at various locations within the area and a plate showing a hydrograph of Susan River at Susanville.

## WATER SUPPLY

### Precipitation

Records of precipitation, as compiled from observations made by the United States Weather Bureau at Susanville Airport are shown in Table 1. The precipitation for the period October 1, 1953, to September 30, 1954, was 10.14 inches which is equivalent to about 88 percent of the ten-year mean.

## Snow Surveys

Data on water content of snow pack at three representative snow courses in the Susan River watershed as published in the bulletin "Water Conditions in California, April 1, 1954," are presented below:

| Snow course   | Elevation in feet | Water content of snow |      | Per cent of mean |
|---------------|-------------------|-----------------------|------|------------------|
|               |                   | 50-year computed mean | 1954 |                  |
| Silver Lake   | 6,500             | 30.7                  | 37.3 | 121              |
| Fredonia Pass | 6,400             | 9.9                   | 8.4  | 85               |
| Norvell Flat  | 5,700             | 16.5                  | 22.3 | 135              |

According to the bulletin water content of the snow on April 1, 1954, at the three stations was about 119 per cent of the combined normal for the stations.

Runoff of the Susan River and tributaries during April and May was mainly snow melt with very little precipitation. The above normal snow pack produced a surplus of water until May 15 when the Lassen Irrigation District started to store additional water in McCoy Reservoir. Near normal water supply conditions prevailed during the remainder of the season.

## Stream Flow

Records of discharge of Susan River at Susanville are collected by the United States Geological Survey and will be available in publications of that agency. However, for the purpose of distributing the available water supply during the season a preliminary record of discharge for the Susan River at Susanville, computed by applying gage heights obtained in the field to a preliminary rating curve for the station, was prepared and is included

in Table 2. Final discharge records when published by the United States Geological Survey may vary slightly from the table. Stream flow measuring stations equipped with automatic water stage recorders, were maintained by the Department for the period of watermaster service on the Old Channel of Susan River below Woodstock Dam, Susan River at Johnstonville Bridge, A and B Canal, and Gold Run Creek above diversions. Records of discharge at these stations are set forth in Tables 5, 7, 8, and 9.

The discharge of Ramsey ditch, obtained from intermittent observations of the flow through a 2-foot Parshall flume located near the head of the ditch, is shown in Table 4.

Table 3 sets forth the natural flow of Susan River at Susanville exclusive of stored water released from McCoy and Hog Flat Reservoirs. Natural flow during periods of reservoir release was computed from measurements and observations taken before and during releases of stored water.

Released storage water available for rediversion below Susanville was computed from measurements and observations taken before and during the release and is shown in Table 11.

A hydrograph of the Susan River at Susanville showing the daily mean discharge is shown on Plate 1.

#### DISTRIBUTION OF WATER

Water of Susan River and its tributaries was distributed during the 1954 season in accordance with water rights defined in the decree in the case of J. J. Fleming, et al., vs. J. R. Bennett, et al., No. 4573, Superior Court, Lassen County, California. The rights fall into three groups as follows: Schedule 3 of the decree which defines rights to the use of water from Willow Creek in Willow Creek Valley and Lower Willow Creek, and

Susan River Delta below Colony Dam; Schedule 4 of the decree which defines rights to the use of water from Gold Run Creek, Piute Creek, Hills Creek, Holtzclaw Creek, and Lassen Creek above their confluence with Susan River; and Schedules 5 and 6 of the decree which define rights to the use of water from Susan River exclusive of its tributaries.

A discussion of water distribution for the 1953 season in the three groups follows:

Willow Creek (Schedule 3)

Willow Creek Valley. There was ample water for all uses in Willow Creek until about May 1 when the stream approached its summer flow with water available only for first priority and about 47 per cent of second priority allotments.

Subnormal rainfall during April and May failed to supplement the available water supply creating a heavy demand on Walsh Reservoir. Almost all irrigation demands were supplied until June 28, at which time the water supply at the lower end of Willow Creek Valley became critical. To alleviate this condition water was diverted during and after haying season through Eagle Lake Canal.

Lower Willow Creek and Susan River Delta Below Colony Dam. The inflow from Susan River and Willow Creek was sufficient to satisfy nearly all first and second priorities in this section until June 15. After June 15 the diminishing water supply required constant control to satisfy allotted proportions. The supply of second priority water was sufficient to fill stock water requirements throughout the remainder of the season.

Lassen, Gold Run, Hill and Piute Creek (Schedule 4)

Lassen Creek. The flow of Lassen Creek was adequate to meet most irrigation requirements prior to haying season. After haying season the flow

had decreased to a point where only a portion of first priority water was available for irrigation. Stock water was available where needed along the creek during the entire season. Holtzclaw Creek, a tributary of Lassen Creek, supplied water to all priorities.

Gold Run Creek. The flow of Gold Run Creek was ample to meet all requirements until May 31. During June the flow in Gold Run Creek decreased from an over supply in all priorities to a point where only first priorities and required stock water were being supplied.

Hills Creek. The flow of Hills Creek was adequate to supply all irrigation requirements until about June 1, after which the supply rapidly decreased. During the low flow period after July 1, available flow was sufficient to supply stock water to all ranches.

Piute Creek. There was sufficient water in Piute Creek to satisfy all requirements until about May 15. Thereafter, water was available for only 40 per cent of allotments. From May 15 to the end of the season the entire flow was diverted by the California Pacific Utilities Company except for 0.27 cubic foot per second required for pro rata allotments of downstream users.

#### Susan River (Schedules 5 and 6)

Schedule 5. The natural flow of Susan River was adequate to meet all irrigation requirements until June 15. Prior to and including haying season the flow in Susan River dropped rapidly requiring daily adjustments along the stream system. During August and September water was available for all first priority rights, and some stock water was available under second priority rights.

The Woodstock, Bantley, Johnstonville, Ripley, Old Kelly, Johnston and Chappins, Dill, and Tanner Dams were used during the 1954 season. The Barham Dam was replaced during the fall of 1953.

Per cent of allotments delivered to first, second, and third priority rights under Schedule 5 are given by months in the following tabulation:

| Month     | Percentage of allotments available |                 |                |
|-----------|------------------------------------|-----------------|----------------|
|           | First priority                     | Second priority | Third priority |
| April     | 100                                | 100             | 100            |
| May       | 100                                | 100             | 83             |
| June      | 100                                | 42              | 0              |
| July      | 100                                | 10              | 0              |
| August    | 100                                | 10              | 0              |
| September | 100                                | 10              | 0              |

Schedule 6. There was sufficient water in Susan River to meet nearly all requirements under Schedule 6 until May 20. Thereafter, the entire water supply was used by earlier priorities set forth in Schedules 3 and 5. The diversion dam at the head of Hartson Slough was closed on June 20.

Susan River Reservoirs

1954

Lassen Irrigation Company owns and operates three reservoirs in the Susan River stream system. Lake Leavitt, from which water is released into the company distribution system, was filled to capacity with releases for irrigation beginning in May. McCoy Reservoir in the upper drainage area was filled to capacity in May. During the spring Susan River and Bridge Creek inflows into McCoy Reservoir were checked twice a week to maintain equivalent

outflow for downstream water rights. Release of water from McCoy and Hog Flat Reservoirs, for replenishment of storage in Lake Leavitt, began July 1 and was terminated August 16. Both McCoy and Hog Flat Reservoirs were drained during the season. Bridge Creek maintained a flow of one cubic foot per second through McCoy Reservoir for the remainder of the irrigation season.

Stored water released from McCoy Reservoir, measured at Susanville was 9,326 acre-feet. Lake Leavitt Reservoir was practically empty on September 30. 1954

#### EAGLE LAKE

In order to secure a record of changes in water surface elevation of Eagle Lake, the Department in 1947 began taking occasional measurements from an established bench mark to the water surface of the lake. The bench mark used as the point of measurement is tied in to a bench mark set by W. E. Buell during a survey of Eagle Lake tunnel; the datum for this line of levels is unknown. Elevations of the water surface at various times of observation prior to 1954 may be found in the 1950, 1951, 1952, and 1953 reports on watermaster service in the Susan River Watermaster Service Area. Observations of elevation of water surface during 1954 are shown in the following tabulation:

| Date     | Distance to water surface, in feet | Water surface elevation |
|----------|------------------------------------|-------------------------|
| 5/11/53  | 12.96                              | 85.10                   |
| 6/29/54  | 13.70                              | 84.36                   |
| 7/22/54  | 13.98                              | 84.08                   |
| 11/12/54 | 14.82                              | 83.24*                  |

\* Measurement by W. E. Buell

CHANGES IN OWNERSHIP OF LANDS AND WATER RIGHTS

Changes in ownership of lands and water rights which have occurred subsequent to filing "Statement for Susan River Watermaster Service Area, County of Lassen, State of California, for 1954", and which shall be included in the 1955 statement for the service area, are listed in the following tabulation:

| Tract no. | Name of water right owner appearing in 1954 statement  | Name of water right owner to appear in 1955 statement | Amount of water in cubic feet per second |
|-----------|--|---|--|
| 12-7      | Pugh, Louise M. and Pugh, Daly, Ruth                   | Gansberg, Lucille                                     | 0.01                                     |
| 12-31     | Dotson Estate of J. S. Rea, Sherman, and Barbee, W. B. | Rea, Sherman and Barbee W. B.                         | 0.18                                     |
| 12-43     | Sorenson, Stanley B. and Sorenson, Carole M.           | Cluck, Earnest R. and Cluck, Ida Ruth                 | 0.035                                    |
| 12-44     | Ducasse, Aruthur and Ducasse, Bess                     | Bantley, Antone and Bantley, Nella                    | 0.47                                     |
| 12-75     | Urionaguena, Victor and Urionaguena, Clara             | Dye, Homer J. and Dye, Billie M.                      | 3.33                                     |
| 12-114    | Independant Ice Cream and Creamery Company             | Cliff Catte Co.                                       | 7.50                                     |

TABLE 1

PRECIPITATION AT SUSANVILLE AIRPORT  
 LASSEN COUNTY, CALIFORNIA  
 1953-1954

In Inches

| Month     | Normal precipitation | Precipitation 1953-1954 |
|-----------|----------------------|-------------------------|
| October   | 1.09                 | 0.63                    |
| November  | 1.73                 | 1.47                    |
| December  | 1.76                 | 0.06                    |
| January   | 1.66                 | 2.59                    |
| February  | 1.31                 | 2.47                    |
| March     | 1.23                 | 1.69                    |
| April     | 0.69                 | 0.35 *                  |
| May       | 0.87                 | 0.03                    |
| June      | 0.51                 | 0.60                    |
| July      | 0.25                 | 0 *                     |
| August    | 0.07                 | 0 *                     |
| September | 0.32                 | 0.25                    |
| TOTALS    | 11.49                | 10.14                   |

\* Data obtained from observer at Susanville Airport.

TABLE 2

## DAILY MEAN DISCHARGE OF SUSAN RIVER AT SUSANVILLE

April 1 to September 30, 1954

In Cubic Feet per Second

| Day                     | April  | May   | June  | July  | August | September |
|-------------------------|--------|-------|-------|-------|--------|-----------|
| 1                       | 93     | 290   | 55    | 96    | 99     | 6         |
| 2                       | 100    | 268   | 52    | 118   | 96     | 5         |
| 3                       | 184    | 261   | 49    | 122   | 103    | 5         |
| 4                       | 308    | 248   | 48    | 122   | 111    | 4         |
| 5                       | 473    | 258   | 53    | 123   | 113    | 5         |
| 6                       | 373    | 294   | 50    | 123   | 113    | 5         |
| 7                       | 298    | 290   | 46    | 125   | 113    | 4         |
| 8                       | 258    | 287   | 50    | 123   | 112    | 5         |
| 9                       | 233    | 274   | 57    | 123   | 110    | 5         |
| 10                      | 227    | 258   | 52    | 122   | 110    | 4         |
| 11                      | 212    | 248   | 47    | 122   | 110    | 4         |
| 12                      | 242    | 233   | 44    | 120   | 109    | 4         |
| 13                      | 274    | 227   | 46    | 120   | 106    | 4         |
| 14                      | 301    | 181   | 40    | 118   | 99     | 5         |
| 15                      | 290    | 136   | 40    | 118   | 85     | 7         |
| 16                      | 319    | 100   | 42    | 115   | 42     | 5         |
| 17                      | 344    | 86    | 34    | 118   | 19     | 6         |
| 18                      | 344    | 82    | 30    | 120   | 14     | 5         |
| 19                      | 326    | 76    | 25    | 118   | 11     | 5         |
| 20                      | 315    | 89    | 22    | 118   | 9      | 5         |
| 21                      | 290    | 96    | 20    | 130   | 9      | 5         |
| 22                      | 277    | 100   | 19    | 130   | 8      | 5         |
| 23                      | 284    | 96    | 17    | 130   | 7      | 5         |
| 24                      | 281    | 88    | 17    | 123   | 7      | 5         |
| 25                      | 264    | 82    | 17    | 118   | 7      | 5         |
| 26                      | 242    | 81    | 15    | 115   | 7      | 5         |
| 27                      | 290    | 73    | 15    | 110   | 7      | 5         |
| 28                      | 274    | 66    | 15    | 106   | 7      | 5         |
| 29                      | 252    | 58    | 15    | 103   | 6      | 5         |
| 30                      | 264    | 55    | 14    | 103   | 6      | 5         |
| 31                      |        | 53    |       | 101   | 6      |           |
| Mean                    | 274    | 162   | 35    | 118   | 57     | 5         |
| Runoff, in<br>acre-feet | 16,299 | 9,967 | 2,071 | 7,233 | 3,485  | 293       |

Total for period - 39,278 acre-feet.

Note: This table subject to revision upon publication  
U. S. Geological Survey records.

TABLE 3

## DAILY MEAN DISCHARGE OF SUSAN RIVER NATURAL FLOW AT SUSANVILLE

April 1 to September 30, 1954

In Cubic Feet per Second

| Day                     | April  | May   | June  | July | August | September |
|-------------------------|--------|-------|-------|------|--------|-----------|
| 1                       | 93     | 290   | 55    | 16   | 9      | 6         |
| 2                       | 100    | 268   | 52    | 14   | 9      | 5         |
| 3                       | 184    | 261   | 49    | 14   | 8      | 5         |
| 4                       | 308    | 248   | 48    | 14   | 9      | 4         |
| 5                       | 473    | 258   | 53    | 15   | 7      | 5         |
| 6                       | 373    | 294   | 50    | 14   | 7      | 5         |
| 7                       | 298    | 290   | 46    | 15   | 7      | 4         |
| 8                       | 258    | 287   | 50    | 13   | 8      | 5         |
| 9                       | 233    | 274   | 57    | 13   | 8      | 5         |
| 10                      | 227    | 258   | 52    | 13   | 8      | 4         |
| 11                      | 212    | 248   | 47    | 13   | 8      | 4         |
| 12                      | 242    | 233   | 44    | 13   | 8      | 4         |
| 13                      | 274    | 227   | 46    | 13   | 8      | 4         |
| 14                      | 301    | 181   | 40    | 12   | 7      | 5         |
| 15                      | 290    | 136   | 40    | 12   | 9      | 7         |
| 16                      | 319    | 100   | 42    | 12   | 9      | 5         |
| 17                      | 344    | 86    | 34    | 15   | 9      | 6         |
| 18                      | 344    | 82    | 30    | 12   | 14     | 5         |
| 19                      | 326    | 76    | 25    | 10   | 7      | 5         |
| 20                      | 315    | 89    | 22    | 10   | 9      | 5         |
| 21                      | 290    | 96    | 20    | 10   | 9      | 5         |
| 22                      | 277    | 100   | 19    | 10   | 8      | 5         |
| 23                      | 284    | 96    | 17    | 10   | 7      | 5         |
| 24                      | 281    | 88    | 17    | 10   | 7      | 5         |
| 25                      | 264    | 82    | 17    | 7    | 7      | 5         |
| 26                      | 242    | 81    | 15    | 9    | 7      | 5         |
| 27                      | 290    | 73    | 15    | 9    | 7      | 5         |
| 28                      | 274    | 66    | 15    | 9    | 7      | 5         |
| 29                      | 252    | 58    | 15    | 9    | 6      | 5         |
| 30                      | 264    | 55    | 14    | 9    | 6      | 5         |
| 31                      |        | 53    |       | 7    | 6      |           |
| Mean                    | 274    | 162   | 35    | 12   | 8      | 5         |
| Runoff, in<br>acre-feet | 16,299 | 9,967 | 2,071 | 721  | 485    | 293       |

Total for period = 29,836 acre-feet.

Note: This table excludes released storage water.

TABLE 4

## DAILY MEAN DISCHARGE OF RAMSEY DITCH AT HEAD

June 1 to September 30, 1954

In Cubic Feet per Second

| Day                     | April | May | June | July | August | September |
|-------------------------|-------|-----|------|------|--------|-----------|
| 1                       |       |     | 2.7  | 2.7  | 2.3    | 2.5       |
| 2                       |       |     | 2.7  | 2.7  | 2.3    | 2.5       |
| 3                       |       |     | 2.7  | 2.7  | 2.3    | 2.5       |
| 4                       |       |     | 2.7  | 2.7  | 2.3    | 2.5       |
| 5                       |       |     | 2.7  | 2.7  | 2.3    | 2.5       |
| 6                       | N     | N   | 2.7  | 2.1  | 2.3    | 2.5       |
| 7                       | O     | O   | 2.7  | 2.1  | 2.3    | 2.5       |
| 8                       |       |     | 2.7  | 2.1  | 2.3    | 2.5       |
| 9                       |       |     | 2.7  | 2.1  | 2.3    | 2.5       |
| 10                      | R     | R   | 2.7  | 2.1  | 2.3    | 2.5       |
| 11                      | E     | E   | 2.7  | 2.7  | 2.3    | 2.5       |
| 12                      | C     | C   | 2.7  | 2.7  | 2.3    | 2.5       |
| 13                      | O     | O   | 2.7  | 2.7  | 2.3    | 2.5       |
| 14                      | R     | R   | 2.7  | 2.7  | 1.4    | 2.5       |
| 15                      | D     | D   | 2.7  | 2.7  | 2.0    | 2.5       |
| 16                      |       |     | 2.7  | 2.7  | 1.9    | 2.5       |
| 17                      |       |     | 2.7  | 2.7  | 1.8    | 2.5       |
| 18                      |       |     | 2.7  | 2.7  | 1.7    | 2.5       |
| 19                      |       |     | 2.7  | 2.7  | 1.5    | 2.5       |
| 20                      |       |     | 2.7  | 2.7  | 1.3    | 2.5       |
| 21                      |       |     | 2.7  | 2.4  | 1.3    | 2.5       |
| 22                      |       |     | 2.7  | 2.4  | 1.3    | 2.5       |
| 23                      |       |     | 2.7  | 2.4  | 1.3    | 2.5       |
| 24                      |       |     | 2.7  | 2.4  | 1.3    | 2.5       |
| 25                      |       |     | 2.7  | 2.4  | 1.3    | 2.5       |
| 26                      |       |     | 2.7  | 2.3  | 1.5    | 2.5       |
| 27                      |       |     | 2.7  | 2.3  | 1.8    | 2.5       |
| 28                      |       |     | 2.7  | 2.3  | 2.3    | 2.5       |
| 29                      |       |     | 2.7  | 2.3  | 2.3    | 2.5       |
| 30                      |       |     | 2.7  | 2.3  | 2.5    | 2.5       |
| 31                      |       |     |      | 2.3  | 2.5    |           |
| Mean                    |       |     | 2.7  | 2.5  | 1.9    | 2.5       |
| Runoff, in<br>acre-feet |       |     | 160  | 152  | 122    | 149       |

Total for period = 583 acre-feet.

TABLE 5

## DAILY MEAN DISCHARGE OF GOLD RUN CREEK ABOVE DIVERSIONS

April 13 to September 30, 1954

In Cubic Feet per Second

| Day                     | April | May   | June | July | August | September |
|-------------------------|-------|-------|------|------|--------|-----------|
| 1                       |       | 30    | 7.0  | 2.5  | 1.0    | 1.0       |
| 2                       |       | 30    | 7.0  | 2.5  | 1.0    | 1.0       |
| 3                       | N     | 21    | 7.0  | 2.0  | 1.0    | 1.0       |
| 4                       | O     | 25    | 7.0  | 2.0  | 1.0    | 1.0       |
| 5                       |       | 30    | 7.0  | 2.0  | 1.0    | 1.0       |
| 6                       | R     |       |      |      |        |           |
| 7                       | E     | 30    | 6.0  | 2.0  | 1.0    | 1.0       |
| 8                       | C     | 30    | 5.5  | 1.5  | 1.0    | 1.0       |
| 9                       | O     | 30    | 5.5  | 1.5  | 1.0    | 1.0       |
| 10                      | R     | 30    | 7.5  | 1.5  | 1.0    | 1.0       |
| 11                      | D     | 30    | 7.0  | 1.5  | 1.0    | 1.0       |
| 12                      |       | 30    | 6.0  | 1.5  | 1.0    | 1.0       |
| 13                      | 19.0  | 30    | 6.0  | 1.0  | 1.0    | 1.0       |
| 14                      | 21    | 30    | 5.5  | 1.0  | 1.0    | 1.0       |
| 15                      | 23    | 30    | 5.5  | 1.0  | 1.0    | 1.0       |
| 16                      | 29    | 30    | 5.5  | 1.0  | 1.0    | 1.0       |
| 17                      | 34    | 30    | 5.0  | 1.0  | 1.0    | 1.0       |
| 18                      | 34    | 30    | 4.5  | 1.0  | 1.0    | 1.0       |
| 19                      | 34    | 30    | 4.0  | 1.0  | 1.0    | 1.0       |
| 20                      | 34    | 25    | 4.0  | 1.0  | 1.0    | 1.0       |
| 21                      | 34    | 17.5  | 4.0  | 1.0  | 1.0    | 1.0       |
| 22                      | 34    | 14.5  | 4.0  | 1.0  | 1.0    | 1.0       |
| 23                      | 34    | 13.5  | 4.0  | 1.0  | 1.0    | 1.0       |
| 24                      | 34    | 11.0  | 3.5  | 1.0  | 1.0    | 1.0       |
| 25                      | 34    | 11.0  | 3.0  | 1.0  | 1.0    | 1.0       |
| 26                      | 34    | 10.0  | 3.0  | 1.0  | 1.0    | 1.0       |
| 27                      | 34    | 9.0   | 3.0  | 1.0  | 1.0    | 1.0       |
| 28                      | 34    | 8.5   | 3.0  | 1.0  | 1.0    | 1.0       |
| 29                      | 34    | 7.5   | 3.0  | 1.0  | 1.0    | 1.0       |
| 30                      | 34    | 7.5   | 3.0  | 1.0  | 1.0    | 1.0       |
| 31                      |       | 7.0   |      | 1.0  | 1.0    |           |
| Mean                    | 31.6  | 22.5  | 5.1  | 1.3  | 1.0    | 1.0       |
| Runoff, in<br>acre-feet | 1,125 | 1,382 | 300  | 80   | 61     | 59        |

Total for period - 3,007 acre-feet.

TABLE 6

## DAILY MEAN DISCHARGE OF PIUTE CREEK ABOVE MARMO'S

May 25 to September 21, 1954

In Cubic Feet per Second

| Day                     | April                        | May                          | June | July | August | September                  |
|-------------------------|------------------------------|------------------------------|------|------|--------|----------------------------|
| 1                       |                              |                              | 0.11 | 0.27 | 0.24   | 0.40                       |
| 2                       |                              |                              | .19  | .27  | .24    | .40                        |
| 3                       |                              |                              | .66  | .27  | .24    | .40                        |
| 4                       |                              |                              | .23  | .24  | .24    | .40                        |
| 5                       | N<br>O                       | N<br>O                       | .25  | .24  | .24    | .40                        |
| 6                       |                              |                              | .21  | .24  | .29    | .40                        |
| 7                       |                              |                              | .29  | .24  | .29    | .40                        |
| 8                       | R<br>E<br>C<br>O<br>R<br>D * | R<br>E<br>C<br>O<br>R<br>D * | .31  | .24  | .29    | .40                        |
| 9                       |                              |                              | .31  | .24  | .29    | .40                        |
| 10                      |                              |                              | .29  | .24  | .29    | .45                        |
| 11                      |                              |                              | .29  | .24  | .29    | .53                        |
| 12                      |                              |                              | .29  | .24  | .29    | .53                        |
| 13                      |                              |                              | .31  | .24  | .29    | .53                        |
| 14                      |                              |                              | .31  | .24  | .29    | .80                        |
| 15                      |                              |                              | .25  | .24  | .29    | .80                        |
| 16                      |                              |                              | .29  | .24  | .29    | .66                        |
| 17                      |                              |                              | .29  | .24  | .29    | .61                        |
| 18                      |                              |                              | .29  | .24  | .29    | .61                        |
| 19                      |                              |                              | .29  | .24  | .29    | .53                        |
| 20                      |                              |                              | .29  | .24  | .29    | .53                        |
| 21                      |                              |                              | .29  | .24  | .40    | .48                        |
| 22                      |                              |                              | .29  | .24  | .40    |                            |
| 23                      |                              |                              | .27  | .24  | .40    |                            |
| 24                      |                              |                              | .23  | .24  | .40    | N<br>O                     |
| 25                      |                              | 0.21                         | .23  | .24  | .40    |                            |
| 26                      |                              | .21                          | .23  | .24  | .40    | R<br>E<br>C<br>O<br>R<br>D |
| 27                      |                              | .21                          | .23  | .24  | .40    |                            |
| 28                      |                              | .17                          | .23  | .24  | .40    |                            |
| 29                      |                              | .11                          | .23  | .24  | .40    |                            |
| 30                      |                              | .11                          | .23  | .24  | .40    |                            |
| 31                      |                              |                              |      | .24  | .40    |                            |
| Mean                    |                              | 0.17                         | 0.27 | 0.24 | 0.29   | 0.51                       |
| Runoff, in<br>acre-feet |                              | 2.0                          | 16.3 | 14.9 | 17.7   | 21.1                       |

Total for period - 72 acre-feet.

\* Flow too high to measure over weir

TABLE 7

## DAILY MEAN DISCHARGE OF A AND B CANAL AT HEAD

April 14 to September 30, 1954

In Cubic Feet per Second

| Day                        | April  | May   | June | July  | August | September |
|----------------------------|--------|-------|------|-------|--------|-----------|
| 1                          |        | 92    | 32   | 80    | 90     | 1.0       |
| 2                          |        | 110   | 28   | 104   | 87     | 1.0       |
| 3                          | N      | 100   | 22   | 108   | 95     | 1.0       |
| 4                          | O      | 95    | 8.0  | 108   | 102    | 1.0       |
| 5                          |        | 95    | 8.0  | 108   | 106    | 1.0       |
| 6                          | R      | 100   | 8.0  | 109   | 106    | 1.0       |
| 7                          | E      | 120   | 8.0  | 110   | 106    | 1.0       |
| 8                          | C      | 130   | 8.0  | 110   | 104    | 1.0       |
| 9                          | O      | 120   | 8.0  | 110   | 102    | 1.0       |
| 10                         | R<br>D | 112   | 8.0  | 109   | 102    | 1.0       |
| 11                         |        | 112   | 8.0  | 109   | 102    | 1.0       |
| 12                         |        | 85    | 8.0  | 107   | 101    | 1.0       |
| 13                         |        | 100   | 9.0  | 107   | 98     | 1.0       |
| 14                         | 27     | 95    | 9.0  | 106   | 92     | 1.0       |
| 15                         | 25     | 85    | 9.0  | 106   | 76     | 1.0       |
| 16                         | 27     | 72    | 9.0  | 103   | 33     | 1.0       |
| 17                         | 34     | 67    | 9.0  | 103   | 10     | 1.0       |
| 18                         | 36     | 56    | 9.0  | 108   | 5.0    | 1.0       |
| 19                         | 39     | 56    | 9.0  | 108   | 4.0    | 1.0       |
| 20                         | 51     | 55    | 9.0  | 108   | 2.0    | 1.0       |
| 21                         | 53     | 55    | 9.0  | 120   | 2.0    | 1.0       |
| 22                         | 54     | 52    | 9.0  | 120   | 2.0    | 1.0       |
| 23                         | 55     | 52    | 8.0  | 120   | 2.0    | 1.0       |
| 24                         | 55     | 50    | 8.0  | 113   | 2.0    | 1.0       |
| 25                         | 56     | 47    | 8.0  | 109   | 2.0    | 1.0       |
| 26                         | 100    | 55    | 8.0  | 106   | 2.0    | 1.0       |
| 27                         | 77     | 58    | 8.0  | 101   | 2.0    | 1.0       |
| 28                         | 70     | 80    | 8.0  | 97    | 2.0    | 1.0       |
| 29                         | 72     | 73    | 8.0  | 94    | 2.0    | 1.0       |
| 30                         | 77     | 66    | 8.0  | 94    | 2.0    | 1.0       |
| 31                         |        | 56    |      | 94    | 1.0    |           |
| Mean                       | 53     | 81    | 10   | 106   | 50     | 1         |
| Discharge, in<br>acre-feet | 1,798  | 4,952 | 610  | 6,512 | 3,057  | 59        |

Total for period = 16,988 acre-feet

TABLE 8

## DAILY MEAN DISCHARGE OF SUSAN RIVER AT JOHNSTONVILLE BRIDGE

May 24 to September 30, 1954

In Cubic Feet per Second

| Day                     | April | May | June  | July | August | September |
|-------------------------|-------|-----|-------|------|--------|-----------|
| 1                       |       |     | 36    | 11.0 | 2.0    | 1.0       |
| 2                       |       |     | 40    | 10.0 | 2.0    | 1.0       |
| 3                       |       |     | 38    | 10.0 | 2.0    | 1.0       |
| 4                       | N     | N   | 36    | 10.0 | 2.0    | 1.0       |
| 5                       | O     | O   | 39    | 10.0 | 2.0    | 1.0       |
| 6                       |       |     | 44    | 10.0 | 2.0    | 1.0       |
| 7                       | R     | R   | 41    | 10.0 | 2.0    | 1.0       |
| 8                       | E     | E   | 39    | 9.0  | 2.0    | 1.0       |
| 9                       | C     | C   | 38    | 9.0  | 2.0    | 1.0       |
| 10                      | O     | O   | 36    | 9.0  | 2.0    | 1.0       |
| 11                      | R     | R   | 38    | 10.0 | 2.0    | 1.0       |
| 12                      |       |     | 36    | 9.0  | 2.0    | 1.0       |
| 13                      |       |     | 35    | 8.0  | 2.0    | 1.0       |
| 14                      |       |     | 34    | 8.0  | 2.0    | 1.0       |
| 15                      |       |     | 34    | 7.0  | 2.0    | 1.0       |
| 16                      |       |     | 8.0   | 5.0  | 2.0    | 1.0       |
| 17                      |       |     | 6.0   | 4.0  | 2.0    | 1.0       |
| 18                      |       |     | 14.0  | 3.0  | 2.0    | 1.0       |
| 19                      |       |     | 15.0  | 3.0  | 2.0    | 2.0       |
| 20                      |       |     | 15.0  | 3.0  | 2.0    | 3.0       |
| 21                      |       |     | 15.0  | 3.0  | 1.0    | 1.0       |
| 22                      |       |     | 15.0  | 3.0  | 1.0    | 1.0       |
| 23                      |       |     | 14.0  | 3.0  | 1.0    | 1.0       |
| 24                      |       | 38  | 13.0  | 3.0  | 1.0    | 1.0       |
| 25                      |       | 36  | 13.0  | 3.0  | 1.0    | 1.0       |
| 26                      |       | 38  | 13.0  | 2.0  | 1.0    | 1.0       |
| 27                      |       | 45  | 13.0  | 2.0  | 1.0    | 1.0       |
| 28                      |       | 47  | 12.0  | 2.0  | 1.0    | 1.0       |
| 29                      |       | 44  | 10.0  | 2.0  | 1.0    | 1.0       |
| 30                      |       | 39  | 10.0  | 2.0  | 1.0    | 1.0       |
| 31                      |       | 37  |       | 2.0  | 1.0    |           |
| Mean                    |       | 41  | 25    | 6    | 2      | 1         |
| Runoff, in<br>acre-feet |       | 642 | 1,485 | 366  | 101    | 65        |

Total for period - 2,659 acre-feet.

TABLE 9

## DAILY MEAN DISCHARGE OF OLD CHANNEL OF SUSAN RIVER BELOW WOODSTOCK DAM

April 12 to September 30, 1954

In Cubic Feet per Second

| Day                     | April | May | June | July | August | September |
|-------------------------|-------|-----|------|------|--------|-----------|
| 1                       |       | 15  | 15   | 10   | 9      | 6         |
| 2                       | N     | 15  | 15   | 10   | 9      | 5         |
| 3                       | O     | 15  | 15   | 10   | 9      | 5         |
| 4                       |       | 15  | 15   | 10   | 9      | 4         |
| 5                       |       | 15  | 15   | 9    | 8      | 5         |
| 6                       | R     | 15  | 15   | 9    | 9      | 5         |
| 7                       | E     | 15  | 15   | 10   | 7      | 4         |
| 8                       | C     | 15  | 15   | 9    | 7      | 4         |
| 9                       | O     | 15  | 15   | 8    | 7      | 4         |
| 10                      | R     | 15  | 15   | 9    | 8      | 5         |
| 11                      | D     | 15  | 15   | 9    | 7      | 5         |
| 12                      | 13    | 15  | 14   | 9    | 7      | 5         |
| 13                      | 14    | 15  | 13   | 9    | 7      | 5         |
| 14                      | 14    | 15  | 12   | 9    | 7      | 5         |
| 15                      | 14    | 14  | 12   | 9    | 7      | 5         |
| 16                      | 14    | 14  | 12   | 8    | 7      | 5         |
| 17                      | 14    | 13  | 12   | 8    | 8      | 5         |
| 18                      | 15    | 17  | 12   | 8    | 8      | 5         |
| 19                      | 15    | 16  | 11   | 7    | 7      | 5         |
| 20                      | 14    | 16  | 11   | 7    | 6      | 5         |
| 21                      | 14    | 17  | 10   | 6    | 6      | 5         |
| 22                      | 14    | 17  | 10   | 6    | 6      | 5         |
| 23                      | 15    | 17  | 10   | 6    | 6      | 5         |
| 24                      | 15    | 17  | 15   | 7    | 6      | 5         |
| 25                      | 14    | 17  | 16   | 7    | 6      | 5         |
| 26                      | 14    | 16  | 15   | 8    | 6      | 5         |
| 27                      | 16    | 16  | 15   | 8    | 6      | 5         |
| 28                      | 15    | 15  | 15   | 7    | 6      | 5         |
| 29                      | 15    | 15  | 15   | 8    | 6      | 5         |
| 30                      | 15    | 15  | 15   | 8    | 6      | 5         |
| 31                      |       | 15  |      | 8    | 6      |           |
| Mean                    | 14    | 15  | 14   | 8    | 7      | 5         |
| Runoff, in<br>acre-feet | 543   | 944 | 812  | 507  | 434    | 287       |

Total for period - 3,527 acre-feet.

TABLE 10

## DAILY MEAN DISCHARGE OF WILLOW CREEK BELOW MAPES CAMP

April 1 to September 30, 1954

In Cubic Feet per Second

| Day                     | April | May | June | July | August | September |
|-------------------------|-------|-----|------|------|--------|-----------|
| 1                       | 29    | 17  | 14   | 14   | 15     | 13        |
| 2                       | 27    | 17  | 14   | 14   | 15     | 13        |
| 3                       | 29    | 17  | 14   | 14   | 14     | 13        |
| 4                       | 28    | 17  | 14   | 14   | 14     | 13        |
| 5                       | 28    | 16  | 14   | 14   | 14     | 13        |
| 6                       | 27    | 15  | 14   | 14   | 14     | 13        |
| 7                       | 19    | 15  | 14   | 14   | 14     | 13        |
| 8                       | 16    | 15  | 14   | 14   | 14     | 13        |
| 9                       | 14    | 15  | 14   | 14   | 14     | 13        |
| 10                      | 13    | 15  | 14   | 15   | 14     | 13        |
| 11                      | 13    | 15  | 14   | 15   | 14     | 13        |
| 12                      | 14    | 15  | 14   | 15   | 13     | 13        |
| 13                      | 14    | 14  | 14   | 15   | 13     | 13        |
| 14                      | 15    | 14  | 14   | 15   | 13     | 13        |
| 15                      | 15    | 14  | 14   | 15   | 13     | 13        |
| 16                      | 14    | 14  | 14   | 15   | 13     | 13        |
| 17                      | 14    | 14  | 14   | 15   | 13     | 13        |
| 18                      | 14    | 14  | 14   | 15   | 13     | 13        |
| 19                      | 14    | 14  | 13   | 15   | 13     | 13        |
| 20                      | 14    | 14  | 13   | 15   | 13     | 13        |
| 21                      | 13    | 14  | 13   | 15   | 13     | 13        |
| 22                      | 12    | 14  | 13   | 15   | 13     | 13        |
| 23                      | 12    | 14  | 13   | 15   | 13     | 13        |
| 24                      | 13    | 14  | 13   | 15   | 13     | 13        |
| 25                      | 14    | 14  | 13   | 15   | 13     | 13        |
| 26                      | 14    | 14  | 13   | 15   | 13     | 13        |
| 27                      | 15    | 14  | 13   | 15   | 13     | 13        |
| 28                      | 16    | 14  | 13   | 15   | 13     | 13        |
| 29                      | 17    | 14  | 13   | 15   | 13     | 13        |
| 30                      | 17    | 14  | 13   | 15   | 13     | 13        |
| 31                      |       | 14  |      | 15   | 13     |           |
| Mean                    | 17    | 15  | 14   | 15   | 13     | 13        |
| Runoff, in<br>acre-feet | 1,018 | 901 | 808  | 903  | 824    | 772       |

Total for period - 5,226 acre-feet

TABLE 11

WATER RELEASED FROM STORAGE AND AVAILABLE FOR RE-DIVERSION AT SUSANVILLE

July 1 to August 19, 1954

In Cubic Feet per Second

| Day                       | April | May | June | July  | August | September |
|---------------------------|-------|-----|------|-------|--------|-----------|
| 1                         |       |     |      | 78    | 88     |           |
| 2                         |       |     |      | 102   | 85     |           |
| 3                         |       |     |      | 106   | 93     |           |
| 4                         |       |     |      | 106   | 100    |           |
| 5                         |       |     |      | 106   | 104    |           |
| 6                         | N     | N   | N    | 107   | 104    | N         |
| 7                         | O     | O   | O    | 108   | 104    | O         |
| 8                         |       |     |      | 108   | 102    |           |
| 9                         |       |     |      | 108   | 100    |           |
| 10                        | R     | R   | R    | 107   | 100    | R         |
| 11                        | E     | E   | E    | 107   | 100    | E         |
| 12                        | L     | L   | L    | 105   | 99     | L         |
| 13                        | E     | E   | E    | 105   | 96     | E         |
| 14                        | A     | A   | A    | 104   | 90     | A         |
| 15                        | S     | S   | S    | 104   | 74     | S         |
| 16                        | E     | E   | E    | 101   | 31     | E         |
| 17                        |       |     |      | 101   | 8      |           |
| 18                        |       |     |      | 106   | 3      |           |
| 19                        |       |     |      | 106   | 2      |           |
| 20                        |       |     |      | 106   |        |           |
| 21                        |       |     |      | 118   |        |           |
| 22                        |       |     |      | 118   | N      |           |
| 23                        |       |     |      | 118   | O      |           |
| 24                        |       |     |      | 111   |        |           |
| 25                        |       |     |      | 107   | R      |           |
| 26                        |       |     |      | 104   | E      |           |
| 27                        |       |     |      | 99    | L      |           |
| 28                        |       |     |      | 95    | E      |           |
| 29                        |       |     |      | 92    | A      |           |
| 30                        |       |     |      | 92    | S      |           |
| 31                        |       |     |      | 92    | E      |           |
| Mean                      |       |     |      | 104   | 73     |           |
| Releases, in<br>acre-feet |       |     |      | 6,389 | 2,936  |           |

Total for period = 9,325 acre-feet.

Note: Water released from McCoy and Hog Flat Reservoirs.

# PLATE I

