STATE OF CALIFORNIA
DEPARTMENT OF PUBLIC WORKS
DIVISION OF WATER RESOURCES

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EARL WARREN, Governor

C. H. PURCELL, Director of Public Works

EDWARD HYATT, State Engineer

# REPORT ON

# WATERMASTER SERVICE

IN

SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA
MODOC AND LASSEN COUNTIES, CALIFORNIA
1945 SEASON

By
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CHIEF OF DIVISION

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GOVERNOR OF CALIFORNIA

C. H. PURCELL
DIRECTOR

STATE OF CALIFORNIA

# Department of Public Works

SACRAMENTO (5)

DIVISION OF WATER RESOURCES
401 PUBLIC WORKS BUILDING

January 15, 1945

Mr. Gordon Zander
Supervising Hydraulic Engineer
Sacramento, California

Attention: Mr. Harrison Smitherum
Senior Hydraulic Engineer

Dear Sir:

Herewith is submitted the annual report covering watermaster service within the South Fork Pit River Watermaster Service Area, Modoc and Lassen Counties, California, during the 1945 season.

The report presents a general description of the work and a discussion of the results obtained. Records of precipitation, run-off and other pertinent data are included.

Respectfully submitted,

J. V. S.

J. Victor Scammon
Assistant Hydraulic Engineer

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REPORT ON
WATERMASTER SERVICE
IN
SOUTH FORK PIT RIVER WATERMASTER SERVICE AREA
MODOC AND LASSEN COUNTIES, CALIFORNIA
1945 SEASON

## INTRODUCTION

The South Fork Pit River Watermaster District, now termed Watermaster Service Area, Counties of Modoc and Lassen, California, was created by the order of the Division of Water Resources, entered December 31, 1934. As created the service area embraced the water rights determined by a decree entered October 30, 1934, by the Superior Court, Modoc County, in the case of W. E. Armstrong vs. Frank McArthur, et al, No. 3273, with the exception of certain rights defined in the paragraphs of said decree enumerated in said order. Subsequent thereto, orders changing said service area have been entered by the Division of Water Resources on December 31, 1936, whereby certain water rights on springs and spring channels near Likely, California, were excluded; on April 19, 1937, whereby the water rights of the South Fork Irrigation District were included in the watermaster service area; and on January 30, 1940, whereby the said service area was enlarged by incorporating therein the Pine Creek and Hot Springs Valley Watermaster Districts, theretofore created by the orders entered by the Division of Water Resources on January 12, 1935.

Watermaster service in the South Fork Pit River Watermaster Service Area for the 1945 season covered the regulation of diversions from the South Fork of Pit River and its tributaries, Pit River and Rattlesnake Creek in Hot Springs Valley, and Pine Creek near Alturas all included within

the scope of the service area as enlarged by said order of January 30, 1940. Watermaster service was carried on throughout the season in accordance with the "Distribution of Water" procedure contained in Sections 4000 to 4360, inclusive, of the Water Code. Such service extended over the period from April 1 to September 30. J. Victor Scammon, Deputy Watermaster, South Fork Pit River Watermaster Service Area, administered the distribution of water from the various streams within the district during the period April 1 to September 30. Harrison Smitherum was supervising watermaster.

## WATER SUPPLY

### Precipitation

The results of the annual snow surveys made on the four courses in the Upper Pit River watershed are shown in Table 1 of this report. The table is arranged to show the water content of the snow at the beginning of the run-off period, April 1 to July 31, inclusive, as compared with the average water content over years of actual measurements. This information is used to forecast the probable April - July flow of the South Fork of Pit River above Likely, and enables the watermaster to rough out a schedule of operation for the irrigation season. The forecast of the probable run-off is especially valuable in the operation of West Valley Reservoir.

Table 2 gives the monthly, seasonal and average amounts of precipitation for stations in the Upper Pit River Area. Each of the stations listed has a common 16 year record and comparisons are made using the 16 year averages. For precipitation data prior to 1940-41 reference is made to the watermaster report for the 1940 season.

### Stream Flow

South Fork Pit River: The record of the daily discharge of the South Fork of Pit River above Likely is given in Table 3. These data were

compiled from records of the United States Geological Survey. The station is below the junction of West Valley Creek and about four miles upstream from Likely. The data exclude any record of use in Jess Valley and storage in West Valley Reservoir, but do include the record of storage releases from that reservoir.

Table 4 is a record of the daily releases, in cubic feet per second, from West Valley Reservoir during the irrigation season.

The total net available water supply of the South Fork of Pit River for the irrigation season from April 1 to September 30 is shown in Table 5.

A comparison of the seasonal irrigation water supply to the South Fork Area over a 17 year period is given in Table 6.

The basic data for a comparison of the run-off in the South Fork of Pit River above Likely to the results of the annual snow surveys is given in Table 7. The Division of Water Resources issues an annual snow survey report as of April 10th, in which forecasts for the April - July Flow are made. The 1945 forecast of the South Fork of Pit River above Likely was 50,000 acre feet. The actual flow of that period was 56,660 acre feet. An inspection of Table 2 shows above normal precipitation occurred during the forecast period.

Plate I shows graphically the data presented in Tables 3 and 4. The solid line represents South Fork Flow and the dotted line the storage releases from West Valley Reservoir.

Fitzhugh Creek: Table 8 is a record of the available water supply of Fitzhugh Creek above the Clark Ranch. The daily discharge data were computed from current meter measurements and a continuous record of the water stage throughout the entire season. This creek flows in a westerly direction entering the South Fork Valley at a point about 10 miles south of Alturas.

Pine Creek Near Alturas: Table 9 is a record of the flow of Pine Creek near Alturas at the Power House. A continuous water stage recorder is

maintained by the Division of Water Resources at a point above all irrigation diversions. Plate II shows the daily hydrograph of flow prepared from the data in Table 9.

Table 10 gives the basic data for a comparison of the run-off in the Pine Creek Basin to the results of the annual snow surveys. No forecast is made for this creek in the annual snow survey bulletin issued by the Division of Water Resources.

Pit River and Rattlesnake Creek in Hot Springs Valley and Big Sage Reservoir: The principal sources of water for irrigation in the Hot Springs Valley are the North and South Forks of Pit River, Big Sage Reservoir, and Rattlesnake Creek. Water from the latter source enters Pit River about four miles west of Alturas and is principally in the form of water stored in Big Sage Reservoir which is released down Rattlesnake Creek to meet irrigation demands.

Prior to 1940, the flow entering at the head of Hot Springs Valley was measured at the Station on Pit River below the junction of the North and South Forks. Channel improvements made on the North Fork of Pit River in the winter of 1939 now causes the water from that source to by-pass the station so that measurements there are of no value. Furthermore, due to backwater conditions from river dams it has not been feasible to establish a new measuring station below the new junction of the North Fork and South Fork of Pit River. Therefore, no record of the flow entering Hot Springs from these sources is presented in this report.

Table 11 is a record of water released from storage in Big Sage Reservoir. Table 12 presents a comparison of the seasonal operations for the years 1935 to 1945, inclusive.

Below Rattlesnake Creek there are other small streams tributary

to Pit River in Hot Springs Valley which contribute to the water supply during the early part of each season. In 1945 the flow from these sources failed about June 10.

A stream flow measuring station is maintained by the U. S. Geological Survey on Pit River near Canby. This station is located at the outlet of Hot Springs Valley, and in the absence of other records, the flow at this station is indicative of water supply conditions in the Hot Springs Valley area. The record of this station, also, covers the measurement of return flow from irrigation in the area. Table 13 is a record of the flow of Pit River near Canby, as taken from records compiled by the U. S. Geological Survey.

A hydrograph prepared from the data in Table 12 is presented on Plate III. Superimposed thereon is a hydrograph of the flow released from Big Sage Reservoir.

## DISTRIBUTION OF WATER

### South Fork of Pit River

The regulation of diversions of the natural flow from the South Fork of Pit River, including Fitzhugh Creek and other upstream tributaries, was made in accordance with schedules 2 and 3 of the South Fork of Pit River Judgement and Decree No. 3273, which set forth the several rights and priorities. The natural flow of West Valley Creek, less the amounts of the allotments of the Van Loan West Valley Ranch, was permitted to pass through the West Valley Reservoir without charge as regulated storage release.

The regulation of West Valley Reservoir storage was performed in accordance with the by-laws adopted by the South Fork Irrigation District. Water released from the reservoir flows down the natural channels and comingles with the natural run-off, but is separated again by the watermaster at

the points of diversion of each member of the district requesting reservoir water. The amount of water to which each person was entitled was determined by multiplying the amount of the total storage at the beginning of the season by the percentage factor of each owner listed below:

| Name | Per Cent |
|---|---|
| W. E. Armstrong | 2.18 |
| V. F. Christenson | 20.46 |
| A. T. Coffman | 0.73 |
| J. D. Flournoy (Now Arthur Flournoy) | 3.98 |
| W. H. Flournoy | 2.51 |
| R. O. Gaustad (Now Jacob F. Derner) | 1.79 |
| R. J. Gaustad (Now Peter and John McGarva) | 1.95 |
| Jesse Hughes | 2.23 |
| Frank McArthur (Vaughn) | 45.62 |
| Douglas McGarva | 0.24 |
| John and Peter McGarva | 2.65 |
| K. Nelson | 2.74 |
| Ray Stepp (Now Arthur H. Burmister) | 1.07 |
| A. L. Stinson | 0.03 |
| D. E. Van Loan | 8.53 |
| Gary Williams | 2.51 |
| Roy Williams | 0.80 |
| | 100.0 |

During the 1945 season the lack of adequate farm labor due to war conditions delayed all farming operations, especially haying and in turn the fall irrigation of pasture lands. Care was exercised in releasing reservoir water to each user when he became ready for fall irrigation, to prevent wetting adjoining fields which were in process of being harvested. Weather conditions were good during the spring as the growing season was warm and during the summer and fall conditions were very good for harvesting crops as there was no storm of any consequence. The greatest release from West Valley Reservoir was at the rate of 152 cubic feet per second. The period of release was later than usual because of good growing weather for fall pasture.

Pine Creek near Alturas

Distribution of Pine Creek water was made in accordance with the

allotments set forth in Schedule 2 of the Pine Creek Agreement. The season's flow for 1945 was above average. It amounted to 16,500 acre feet as compared with the 27 year mean of 7,717 acre feet. For other comparisons see Table 10. The largest single diversion from Pine Creek goes to P. S. and G. B. Dorris, who are entitled to receive one-half of the total allotments shown in Schedule 2. On August 1 G. B. Dorris requested that the Dorris allotment be shut off during the haying operations. At that time there was no need for irrigation water by any of the other users and Pine Creek water was diverted into the Dorris Reservoir in accordance to Paragraph 7 of the Pine Creek agreement. The Dorris direct diversions remained closed until September 5 so that the water-master was able to furnish sizeable heads to the other Pine Creek users as needed. Good fall pastures were grown.

Hot Springs Valley

Distribution of Pit River water was madé in accordance with the allotments set forth in Schedules 2 and 3 of the Hot Springs Valley Agreement. The distribution of Big Sage water was made in accordance with the by-laws of the Hot Springs Valley Irrigation District. However, the major part of the water from both sources is used by the same parties through the same irrigation system and devices. The same method of distributing the water also applies to both stored water and natural flow.

General

Better than average crops were obtained by all and no controversies occurred.

## OWNERSHIP OF LANDS AND WATER RIGHTS

Change in Ownership

On September 30, 1945, a search was made through the official records of Modoc County for recent changes in ownership in lands and water rights

embraced in the South Fork Pit River Watermaster District. Further assistance came from various persons living within the area who furnished additional information concerning transfers of ownership.

The changes in ownerships of lands and water rights, which have occurred subsequent to filing "Statement for South Fork Pit River Watermaster District, Counties of Modoc and Lassen, California, for 1945," are listed in the following tabulation. The new names should appear in the 1946 Statement.

| Tract No. | Name of Water Right Owner Appearing in 1945 Statement | Name of Water Right Owner to Appear in 1946 Statement | Amount of Water c.f.s. |
|---|---|---|---|
| 7-12 | William P. Goulden | Frank L. and Frances E. Panter | 0.38 |
| 7-21 | A. L. and Mary E. Stinson | Arthur Flournoy | 0.08 |
| 7-25 | W. H. and Gladys W. Flournoy | Dolph E. and Eva Van Loan | 4.65 |
| 7-29 | Jesse A. and Willie W. Hughes | Masten and Roy R. Ramsey | 5.80 |
| 7-45 | William P. Goulden | Frank L. and Frances E. Panter | 2.86 |
| 7-48 | A. E. and Frances E. Sweeney and Lawrence Cantrall | E. H. Wall and Agnes Wall | 1.55 |
| 7-52 | R. T. Renner | G. A. Bell | 3.35 |
| 7-60 | Ada M. Wells | John O. and Irene W. Cummings | 3.61 |
| 7-77 | Katherine E. Hazelton and Theodore J. Ballard | Theodore J. Ballard and Alice Ballard | 1.91 |

TABLE 1
SNOW SURVEY DATA—UPPER PIT RIVER

| | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 | 1946 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Eagle Peak Course Elev. 7500 Ft. Date of Survey | 4/3 | 4/1 | 3/30 | 3/30 | 4/2 | 4/10 | 4/9 | 3/29 | 3/31 | 3/30 | 4/4 | 3/26 | 3/29 | 3/24 | 3/27 | 3/30 | |
| Depth of Snow—Inches | 24.3 | 13.3 | 43.8 | 38.1 | 9.9 | 66.1 | 50.5 | 47.3 | 71.3 | 27.2 | 38.4 | 35.1 | 38.6 | 56.7 | 35.5 | 63.5 | |
| Water Content—Inches | 11.0 | 5.2 | 18.7 | 14.3 | 3.3 | 22.6 | 22.1 | 17.5 | 23.6 | 10.4 | 15.6 | 13.8 | 14.7 | 23.7 | 13.5 | 22.2 | |
| Density—Percent | 45.3 | 39.1 | 42.6 | 37.5 | 33.3 | 34.2 | 43.7 | 37.1 | 33.1 | 38.2 | 40.6 | 39.3 | 38.1 | 41.8 | 38.0 | 35.0 | |
| Record Average—Inches | | | | | | | | 14.32 | 15.35 | 14.8 | 14.9 | 14.8 | 14.8 | 15.5 | 15.3 | 15.8 | |
| % of Record Aver. | 78.0 | 36.3 | 131.0 | 100.0 | 23.0 | 158.0 | 154.0 | 122.0 | 153.7 | 70.5 | 104.7 | 93.3 | 99.3 | 152.9 | 88.2 | 140.5 | |
| Cedar Pass Course Elev. 7200 Ft. Date of Survey | 3/31 | 3/30 | 3/26 | 3/28 | 3/31 | 3/27 | 4/5 | 4/10 | 3/26 | 3/28 | 3/22 | 3/24 | 3/27 | 3/22 | 3/25 | 3/29 | |
| Depth of Snow Inches | 29.3 | 22.1 | 49.2 | 43.9 | 2.2 | 56.4 | 68.2 | 54.4 | 79.1 | 28.2 | 35.9 | 40.8 | 47.4 | 62.3 | 33.4 | 67.5 | |
| Water Content Inches | 13.0 | 8.3 | 19.8 | 16.3 | 0.9 | 21.1 | 26.2 | 21.6 | 25.2 | 10.5 | 14.6 | 17.9 | 19.3 | 25.8 | 12.3 | 22.4 | |
| Density—Percent | 44.4 | 37.6 | 40.3 | 37.1 | 40.8 | 37.4 | 38.4 | 39.6 | 31.8 | 37.2 | 40.7 | 43.8 | 40.7 | 41.4 | 36.8 | 33.2 | |
| Record Average—Inches | | | | | | | | 15.9 | 16.9 | 16.3 | 16.1 | 16.3 | 16.0 | 17.2 | 16.9 | 17.2 | |
| % of Record Average | 82.0 | 50.4 | 118.0 | 102.5 | 5.7 | 133.0 | 165.0 | 136.0 | 149.1 | 64.4 | 90.7 | 109.0 | 120.6 | 150.0 | 72.8 | 130.2 | |

TABLE 1 (Continued)

| | 1930 | 1931 | 1932 | 1933 | 1934 | 1935 | 1936 | 1937 | 1938 | 1939 | 1940 | 1941 | 1942 | 1943 | 1944 | 1945 | 1946 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Blue Lake Ranch Course Elev. 7300 Ft. | | | New Course 1940 | | | | | | | | | | | | | | |
| Date of Survey | | | | | | | | | | | 4/11 | 3/28 | 3/31 | 3/26 | 3/31 | 4/3 | |
| Depth of Snow-Inches | | | | | | | | | | | 16.3 | 18.8 | 28.9 | 34.9 | 23.0 | 44.0 | |
| Water Content-Inches | | | | | | | | | | | 6.4 | 8.5 | 11.7 | 15.3 | 8.5 | 15.8 | |
| Density—Percent | | | | | | | | | | | 39.2 | 45.2 | 40.5 | 43.8 | 37.0 | 35.9 | |
| Record Average-Inches | | | | | | | | | | | | | | | | | |
| % of Record Average | | | | | | | | | | | | | | | | | |
| Adin Mountain Course— Elev. 6500 Ft. | | | | | | | | | | | | | | | | | |
| Date of Survey | 3/27 | 3/27 | 3/24 | 3/27 | 4/1 | 4/17 | 3/26 | 4/7 | 4/8 | 3/31 | 4/7 | 3/31 | 4/2 | 3/31 | 3/30 | 4/3 | |
| Depth of Snow-In. | 13.3 | 6.1 | 30.0 | 37.6 | 0 | 45.9 | 47.2 | 37.4 | 61.4 | 17.5 | 10.8 | 24.6 | 32.1 | 30.4 | 24.9 | 41.2 | |
| Water Content-In. | 6.1 | 2.9 | 13.3 | 14.1 | 0 | 18.8 | 20.0 | 16.7 | 28.1 | 8.1 | 4.3 | 11.3 | 13.9 | 13.2 | 9.4 | 15.8 | |
| Density—Percent | 45.6 | 47.3 | 44.3 | 37.5 | 0 | 40.9 | 42.4 | 44.8 | 45.8 | 46.2 | 39.8 | 45.9 | 43.3 | 43.4 | 37.8 | 38.4 | |
| Record Average-In. | | | | | | | | 11.5 | 13.3 | 12.8 | 12.0 | 12.0 | 12.1 | 12.2 | 12.0 | 12.2 | |
| % of Record Aver. | 53.0 | 25.2 | 115.6 | 122.5 | 0 | 163.7 | 174.0 | 145.2 | 211.3 | 63.3 | 35.8 | 94.1 | 114.9 | 108.2 | 78.3 | 129.5 | |

TABLE 2

PRECIPITATION-UPPER PIT RIVER STATIONS-1929 to 1945
MONTHLY, SEASONAL AND AVERAGE AMOUNTS IN INCHES

| | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Season |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Jess Valley, Modoc County, California, Elev. 5,400 ft. | | | | | | | | | | | | | |
| 1940-1941 | 1.95 | 2.31 | 1.62 | 1.28 | 3.02 | 0.48 | 0.77 | 2.89 | 2.39 | 0.20 | 1.90 | 1.13 | 19.94 |
| 1941-1942 | 1.48 | 1.71 | 3.10 | 1.66 | 1.57 | 0.94 | 2.34 | 3.44 | 1.02 | 0 | 0.24 | 0.15 | 17.65 |
| 1942-1943 | 0.33 | 2.60 | 3.25 | 3.00 | 2.69 | 1.76 | 2.68 | 1.31 | 1.76 | 0.71 | 0 | 0 | 20.09 |
| 1943-1944 | 2.25 | 0.60 | 0.62 | 2.32 | 2.46 | 1.12 | 2.27 | 0.61 | 4.74 | 0.25 | 0 | 0.71 | 17.95 |
| 1944-1945 | 1.54 | 3.00 | .55 | 1.73 | 3.80 | 2.70 | .99 | 4.28 | 2.67 | .05 | .04 | .59 | 21.94 |
| 16 Yr. Total | 19.36 | 23.59 | 28.62 | 33.22 | 34.48 | 28.53 | 29.42 | 27.47 | 21.49 | 6.00 | 3.22 | 11.22 | 266.62 |
| 16 Yr. Rec. Mean | 1.21 | 1.47 | 1.79 | 2.07 | 2.16 | 1.78 | 1.83 | 1.72 | 1.34 | 0.38 | 0.20 | 0.70 | 16.66 |
| Alturas, Modoc County, California, Elev. 4,460 ft. | | | | | | | | | | | | | |
| 1940-1941 | 2.00 | 1.05 | 2.73 | 1.35 | 2.13 | 0.68 | 0.51 | 1.59 | 0.86 | 0.02 | 1.16 | 0.50 | 14.58 |
| 1941-1942 | 1.40 | 1.83 | 2.98 | 2.16 | 1.84 | 0.59 | 1.37 | 1.71 | 0.94 | 0 | 0.56 | 0.20 | 15.58 |
| 1942-1943 | 0.35 | 2.51 | 1.97 | 3.68 | 1.81 | 1.39 | 1.72 | 0.70 | 0.29 | 0.27 | 0 | 0.03 | 14.72 |
| 1943-1944 | 1.30 | 0.58 | 0.51 | 0.96 | 0.80 | 0.75 | 1.99 | 0.06 | 2.74 | 0.30 | 0 | 0.29 | 10.28 |
| 1944-1945 | 0.57 | 2.59 | 0.41 | 0.54 | 2.26 | 1.39 | 0.49 | 4.03 | 1.69 | 0.35 | 0.05 | 0.17 | 14.54 |
| 16 Yr. Total | 16.16 | 19.39 | 26.61 | 30.19 | 25.30 | 19.60 | 17.17 | 16.69 | 11.84 | 3.47 | 2.94 | 5.79 | 195.15 |
| 16 Yr. Rec. Mean | 1.01 | 1.21 | 1.66 | 1.89 | 1.58 | 1.22 | 1.07 | 1.04 | 0.74 | 0.22 | 0.18 | 0.36 | 12.20 |
| Lakeview, Lake County, Oregon, Elev. 4,759 ft. | | | | | | | | | | | | | |
| 1940-1941 | 2.11 | 2.18 | 1.62 | 2.40 | 2.91 | 0.86 | 1.45 | 2.62 | 2.14 | T | 1.82 | 0.83 | 20.94 |
| 1941-1942 | 1.60 | 1.33 | 3.34 | 2.40 | 2.59 | 0.46 | 1.76 | 2.46 | 0.65 | T | 0.18 | 0.63 | 17.40 |
| 1942-1943 | 0.79 | 2.70 | 3.56 | 3.39 | 1.37 | 1.38 | 2.16 | 1.42 | 1.29 | 0.13 | 0 | 0 | 18.19 |
| 1943-1944 | 2.34 | 0.61 | 1.01 | 1.07 | 1.70 | 1.35 | 1.46 | 0.82 | 5.47 | 0.38 | 0.03 | 0.89 | 17.13 |
| 1944-1945 | 0.45 | 3.32 | 0.84 | 1.03 | 2.35 | 1.19 | 0.39 | 4.30 | 1.18 | 0.02 | 0.05 | 0.21 | 15.33 |
| 16 Yr. Total | 17.92 | 20.61 | 29.07 | 27.81 | 29.56 | 22.50 | 20.63 | 21.68 | 18.19 | 2.42 | 2.95 | 8.45 | 221.79 |
| 16 Yr. Rec. Mean | 1.12 | 1.29 | 1.82 | 1.74 | 1.85 | 1.41 | 1.29 | 1.36 | 1.14 | 0.15 | 0.18 | 0.53 | 13.86 |
| Bieber, Lassen County, California, Elev. 4,200 ft. | | | | | | | | | | | | | |
| 1940-41 | 3.15 | 2.66 | 3.45 | 1.90 | 4.52 | 0.44 | 0.57 | 2.33 | 1.25 | 0.18 | 0.30 | 0.41 | 21.16 |
| 1941-1942 | 0.60 | 1.75 | 4.28 | 2.35 | 3.79 | 1.13 | 2.75 | 1.87 | 0.97 | 0 | 0.35 | 0.08 | 19.92 |
| 1942-1943 | 0.73 | 3.39 | 3.19 | 5.44 | 2.28 | 2.07 | 2.22 | 0.63 | 1.97 | 0.09 | 0 | T | 22.01 |
| 1943-1944 | 1.71 | 0.73 | 1.07 | 1.83 | 1.65 | 1.02 | 2.45 | 0.32 | 1.86 | 0.41 | T | 0.35 | 13.40 |
| 1944-1945 | 0.72 | 4.43 | 1.77 | 0.86 | 2.71 | 2.50 | .67 | 3.13 | 1.21 | 0 | 0 | 0 | 18.00 |
| 16 Yr. Total | 21.63 | 25.65 | 41.95 | 40.52 | 43.24 | 31.50 | 22.85 | 21.40 | 11.13 | 2.71 | 0.99 | 6.66 | 270.23 |
| 16 Yr. Record Mean | 1.35 | 1.60 | 2.62 | 2.53 | 2.70 | 1.97 | 1.43 | 1.34 | 0.70 | 0.17 | 0.06 | 0.42 | 16.89 |

For records prior to 1940-1941, see 1940 Report.

TABLE 3
DAILY DISCHARGE IN CUBIC FEET PER SECOND
SOUTH FORK PIT RIVER ABOVE LIKELY
For Year Ending September 30, 1945

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 23 | 33 | 36 | 24 | 61 | 25 | 32 | 353 | 276 | 96 | 55 | 187 |
| 2 | 22 | 35 | 35 | 22 | 83 | 25 | 30 | 379 | 276 | 90 | 56 | 115 |
| 3 | 21 | 44 | 29 | 20 | 53 | 24 | 25 | 392 | 385 | 76 | 58 | 59 |
| 4 | 18 | 43 | 35 | 18 | 41 | 23 | 20 | 432 | 392 | 75 | 60 | 58 |
| 5 | 18 | 37 | 32 | 29 | 37 | 22 | 21 | 491 | 401 | 69 | 93 | 60 |
| 6 | 16 | 36 | 32 | 33 | 35 | 23 | 22 | 488 | 498 | 63 | 129 | 62 |
| 7 | 16 | 41 | 30 | 52 | 37 | 23 | 23 | 488 | 509 | 59 | 140 | 61 |
| 8 | 17 | 35 | 30 | 42 | 69 | 23 | 23 | 466 | 422 | 58 | 154 | 60 |
| 9 | 21 | 35 | 29 | 38 | 61 | 29 | 25 | 446 | 366 | 63 | 152 | 59 |
| 10 | 19 | 40 | 28 | 46 | 42 | 39 | 29 | 439 | 328 | 70 | 140 | 59 |
| 11 | 22 | 38 | 27 | 39 | 44 | 41 | 39 | 415 | 301 | 65 | 118 | 69 |
| 12 | 23 | 38 | 26 | 37 | 43 | 50 | 31 | 356 | 296 | 62 | 117 | 88 |
| 13 | 23 | 38 | 25 | 39 | 130 | 50 | 23 | 325 | 273 | 56 | 118 | 90 |
| 14 | 33 | 31 | 25 | 40 | 172 | 48 | 22 | 331 | 245 | 52 | 117 | 79 |
| 15 | 29 | 30 | 25 | 34 | 85 | 43 | 23 | 307 | 224 | 51 | 108 | 70 |
| 16 | 27 | 30 | 25 | 32 | 63 | 41 | 35 | 304 | 204 | 51 | 109 | 70 |
| 17 | 25 | 28 | 25 | 28 | 64 | 36 | 48 | 369 | 189 | 58 | 106 | 71 |
| 18 | 23 | 26 | 28 | 24 | 56 | 33 | 65 | 350 | 178 | 58 | 106 | 69 |
| 19 | 22 | 26 | 30 | 22 | 48 | 25 | 90 | 337 | 172 | 49 | 106 | 64 |
| 20 | 22 | 26 | 34 | 20 | 40 | 25 | 118 | 307 | 168 | 43 | 101 | 67 |
| 21 | 24 | 26 | 32 | 16 | 38 | 25 | 152 | 287 | 158 | 45 | 93 | 74 |
| 22 | 29 | 26 | 33 | 14 | 36 | 29 | 164 | 282 | 172 | 43 | 104 | 76 |
| 23 | 25 | 28 | 33 | 14 | 35 | 32 | 150 | 255 | 193 | 45 | 140 | 76 |
| 24 | 23 | 29 | 31 | 14 | 34 | 39 | 174 | 250 | 193 | 46 | 193 | 75 |
| 25 | 24 | 30 | 25 | 15 | 33 | 43 | 166 | 238 | 219 | 45 | 191 | 46 |
| 26 | 25 | 33 | 22 | 15 | 32 | 38 | 144 | 228 | 191 | 45 | 191 | 21 |
| 27 | 25 | 35 | 29 | 18 | 32 | 53 | 150 | 224 | 140 | 44 | 193 | 21 |
| 28 | 25 | 33 | 29 | 22 | 28 | 61 | 182 | 221 | 127 | 43 | 193 | 21 |
| 29 | 25 | 35 | 27 | 26 | | 40 | 240 | 221 | 117 | 42 | 191 | 20 |
| 30 | 25 | 33 | 26 | 33 | | 33 | 310 | 221 | 106 | 46 | 191 | 26 |
| 31 | 27 | | 25 | 34 | | 33 | | 322 | | 54 | 189 | |
| Total | 717 | * 998 | *898 | *860 | 1532 | *1074 | 2576 | 10524 | 7719 | 1762 | 4017 | *1973 |
| Mean | 23.1 | 33.3 | 29.0 | 27.7 | 54.7 | 34.6 | 85.9 | 339 | 257 | 56.8 | 130 | 65.8 |
| Acre-Feet | 1420 | 1980 | 1780 | 1710 | 3040 | 2130 | 5110 | 20870 | 15310 | 3490 | 7970 | 3910 |

Mean - 94.9
Acre-Feet - 68,720

TABLE 4

MEAN DAILY RELEASE IN CUBIC FEET PER SECOND
WEST VALLEY RESERVOIR
For Season Ending September 30, 1945

| Day | May | June | July | August | September |
|---|---|---|---|---|---|
| 1 | | | | 12.0 | 152.0 |
| 2 | | | | 12.0 | 33.0 |
| 3 | | | | 13.5 | |
| 4 | | | | 13.5 | |
| 5 | | | | 80.5 | |
| 6 | | | | 80.5 | |
| 7 | | NO FLOW | | 105.5 | |
| 8 | | | | 105.5 | |
| 9 | | | | 105.5 | |
| 10 | | | | 70.0 | |
| 11 | | | | | 32.0 |
| 12 | | | | | 76.0 |
| 13 | NO FLOW | | | | 76.0 |
| 14 | | | Spilling | | 76.0 |
| 15 | | | | | 50.0 |
| 16 | | | | | |
| 17 | | | | | |
| 18 | | | | | |
| 19 | | | | | |
| 20 | | | | | |
| 21 | NO FLOW | | | 70.0 | |
| 22 | | *30.0 | | 78.0 | |
| 23 | | 30.0 | | 117.0 | |
| 24 | | 30.0 | | 152.0 | |
| 25 | | 30.0 | | | *50.0 |
| 26 | | 30.0 | | | |
| 27 | | | No | | |
| 28 | | Spilling | Flow | | |
| 29 | | | | | |
| 30 | | | 12.0 | | |
| 31 | | | 12.0 | 152.0 | |
| Total | | 150 | 24 | 2780 | 1260 |
| Total Acre-Ft. | | 298 | 48 | 5514 | 2500 |

Total acre-feet for season - 8,360
* Reservoir first opened - Storage 17,400 acre-feet
** Reservoir last closed - Storage 7,980 acre-feet

TABLE 4A
WEST VALLEY RESERVOIR
SEASONAL OPERATION RECORD 1936 to 1945

| | STORAGE ON HAND AS OF | | | | | | Irrigation Release | Total ** Storage Differential |
|---|---|---|---|---|---|---|---|---|
| | Date First Obs. | Acre-Feet | Date Opened | Acre-Feet | Date Closed | Acre-Feet | Acre-Feet | Open and Close |
| 1935 | Work was started on construction of dam in August 1935 and was completed late in 1936. | | | | | | | |
| 1936 | | | | | | | | |
| 1937 | May | 8,000 | | | | 0 | 7,000 | |
| 1938 | Spilling | | Aug. 3 | | Sept. 9 | | 7,950 | |
| 1939 | | | May 7 | | Aug. 22 | | 11,680 | |
| 1940 | May 30 | 16,620 | May 30 | 16,620 | Sept. 18 | 3,820 | 11,780 | 12,800 |
| 1941 | April 13 | 17,840 | July 11 | 17,490 | Sept. 10 | 10,700 | 7,050 | 6,790 |
| 1942 | April 11 | 17,950 | June 24 | 17,700 | Sept. 18 | 8,050 | 9,490 | 9,650 |
| 1943 | April 15 | 18,230 | July 17 | 17,400 | *Nov. 23 | 7,510 | 9,500 | 9,890 |
| 1944 | April 6 | 12,640 | May 27 | 14,800 | Sept. 29 | 6,700 | 10,200 | 8,100 |
| 1945 | March 31 | 13,205 | June 22 | 17,400 | Sept. 25 | 7,980 | 8,360 | 9,420 |

* Last observation of season. Closed October 20th.

** Includes all losses and accretions.

TABLE 5

TOTAL SEASONAL IRRIGATION WATER SUPPLY OF THE
SOUTH FORK OF PIT RIVER ABOVE LIKELY
APRIL 1 to SEPTEMBER 30, 1945

| | April | May | June | July | Aug. | Sept. | Total |
|---|---|---|---|---|---|---|---|
| U.S.G.S. Record #693 | 5,110 | 20,870 | 15,310 | 3,490 | 7,970 | 3,910 | 56,660 |
| Operation--West Valley Reservoir | +3,000 | +1,200 | -300 | -50 | -5,510 | -2,500 | -4,160 |
| Consumption in Jess Valley | 0 | 900 | 1,800 | 1,200 | 500 | 500 | 4,900 |
| Full Natural Flow | 8,110 | 22,070 | 16,810 | 4,640 | 2,960 | 1,910 | 57,400 |

51,630 Acre-Feet

WEST VALLEY RESERVOIR

Reservoir started spilling on June 26 and stopped spilling July 28th The largest flow to pass over the spillway was approx. 18 c.f.s.

Diversion through intake ditch from South Fork of Pit River into reservoir in 1945 commenced about Jan. 20, and was turned off on May 3. The average diversion was approx. 15 c.f.s.

No consideration is given to consumptive use above West Valley dam or diversion from Cedar Creek into Tule Lake Reservoir in the above table.

TABLE 6
COMPARISON OF RUNOFF IN ACRE-FEET DURING IRRIGATION SEASON
SOUTH FORK OF PIT RIVER ABOVE LIKELY
From 1929 to 1945

| Year | April | May | June | July | Aug. | Sept. | Seasonal Total |
|---|---|---|---|---|---|---|---|
| | | | Acre | Feet | | | |
| 1929* | 3,930 | 7,480 | 4,180 | 1,160 | 664 | 714 | 18,128 |
| 1930* | 6,410 | 7,750 | 2,950 | 956 | 830 | 1,160 | 20,056 |
| 1931* | 2,200 | 1,580 | 721 | 474 | 638 | 626 | 6,239 |
| 1932* | 7,440 | 19,600 | 9,160 | 2,370 | 1,390 | 1,040 | 41,000 |
| 1933 | 3,370 | 5,260 | 4,290 | 898 | 910 | 857 | 15,585 |
| 1934 | 3,250 | 2,020 | 2,210 | 658 | 613 | 649 | 9,400 |
| 1935 | 8,020 | 17,920 | 9,790 | 2,050 | 1,470 | 966 | 40,216 |
| 1936 | 11,700 | 12,640 | 6,360 | 1,640 | 1,360 | 1,280 | 34,980 |
| 1937** | 2,840 | 8,380 | 4,500 | 3,000 | 5,830 | 920 | 25,470 |
| 1938 | 10,960 | 29,700 | 11,840 | 3,020 | 7,950 | 3,100 | 66,570 |
| 1939** | 5,600 | 5,790 | 4,630 | 3,410 | 5,570 | 855 | 25,855 |
| 1940** | 3,260 | 8,610 | 5,000 | 4,150 | 6,540 | 1,680 | 31,240 |
| 1941** | 4,100 | 13,630 | 6,220 | 3,520 | 6,990 | 1,660 | 36,140 |
| 1942** | 9,400 | 17,640 | 12,400 | 3,410 | 8,490 | 2,320 | 53,660 |
| 1943** | 16,210 | 16,400 | 11,960 | 4,650 | 9,400 | 3,110 | 61,730 |
| 1944** | 3,470 | 9,110 | 9,210 | 3,570 | 6,500 | 4,550 | 36,410 |
| 1945** | 5,110 | 20,870 | 15,310 | 3,490 | 7,970 | 3,910 | 56,660 |

Above data taken from the U.S.G.S. records of flow of the South Fork Pit River above Likely, California.

* Irrigation diversions above station were not regulated by watermaster.

** Includes storage release from West Valley Reservoir.

TABLE 7

SNOW SURVEY DEDUCTIONS

COMPARING FULL NATURAL RUNOFF, APRIL 1 to JULY 31
SOUTH FORK OF PIT RIVER ABOVE LIKELY, TO PINE CREEK NEAR ALTURAS
IN RELATION TO SNOW WATER CONTENT, ON EAGLE PEAK APRIL 1

| Year | Natural Flow Pine Creek Acre-Feet | Natural Flow So.Fk. Pit River Acre-Feet | Water Content Eagle Peak Inches |
|---|---|---|---|
| 1919 | 5,953 | | |
| 1920 | 6,675 | | |
| 1921 | 10,260 | | |
| 1922 | 7,780 | | |
| 1923 | 5,110 | | |
| 1924 | 5,110 | | |
| 1925 | 7,920 | | |
| 1926 | 6,199 | | |
| 1927 | 10,080 | | |
| 1928 | 7,640 | | |
| 1929 | 5,495 | | |
| 1930 | 5,894 | 24,000 | 11.0 |
| 1931 | 2,615 | 11,000 | 5.2 |
| 1932 | 10,300 | 44,500 | 18.7 |
| 1933 | 5,665 | 19,800 | 14.3 |
| 1934 | 3,453 | 13,400 | 3.3 |
| 1935 | 9,293 | 45,300 | 22.6 |
| 1936 | 9,300 | 38,300 | 22.1 |
| 1937 | 5,510 | 25,800 | 17.5 |
| 1938 | 12,890 | 64,800 | 23.6 |
| 1939 | 4,604 | 19,320 | 10.4 |
| 1940 | 6,796 | 23,500 | 15.6 |
| 1941 | 7,180 | 31,480 | 13.8 |
| 1942 | 9,880 | 45,780 | 14.7 |
| 1943 | 13,700 | 52,580 | 23.7 |
| 1944 | 10,120 | 31,610 | 13.5 |
| 1945 | 14,800 | 56,660 | 22.2 |
| Total 16 Yr. | 130,150 | 547,830 | 252.2 |
| Total 27 Yr. | 208,362 | | |
| 16 Year Mean | 8,134 | 34,240 | 15.8 |
| 27 Year Mean | 7,717 | 33,000* | 15.2* |

* Computed

TABLE 8

DAILY DISCHARGE IN CUBIC FEET PER SECOND
FITZHUGH CREEK ABOVE CLARK RANCH
APRIL TO SEPTEMBER 30, 1945

| Day | April | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|
| 1 | 4.8 | 53.0 | 60.0 | 20.0 | 8.0 | 5.0 |
| 2 | 2.8 | 47.0 | 70.0 | 15.0 | 5.4 | 4.0 |
| 3 | 2.0 | 45.0 | 80.0 | 13.0 | 4.2 | 4.0 |
| 4 | 1.1 | 40.0 | 90.0 | 16.5 | 3.5 | 4.0 |
| 5 | 1.3 | 30.0 | 140.0 | 18.0 | 3.5 | 4.0 |
| 6 | 1.1 | 35.0 | 160.0 | 17.8 | 3.2 | 3.5 |
| 7 | 1.1 | 26.0 | 150.0 | 19.0 | 3.0 | 3.5 |
| 8 | 0.9 | 19.5 | 122.0 | 25.0 | 3.2 | 3.5 |
| 9 | 1.2 | 19.7 | 97.0 | 25.5 | 3.6 | 3.5 |
| 10 | 1.0 | 18.2 | 93.0 | 31.2 | 4.0 | 3.5 |
| 11 | 2.1 | 18.0 | 57.5 | 30.0 | 5.0 | 3.0 |
| 12 | 3.8 | 10.2 | 46.0 | 30.0 | 5.0 | 3.0 |
| 13 | 2.0 | 10.2 | 39.0 | 30.0 | 5.0 | 2.5 |
| 14 | 4.0 | 13.2 | 34.0 | 29.5 | 5.0 | 2.5 |
| 15 | 7.0 | 15.0 | 31.0 | 29.0 | 5.0 | 2.5 |
| 16 | 40.0 | 11.2 | 25.5 | 29.0 | 5.0 | 2.5 |
| 17 | 56.0 | 48.5 | 22.5 | 29.0 | 5.0 | 2.5 |
| 18 | 80.0 | 49.0 | 18.0 | 29.0 | 5.0 | 2.5 |
| 19 | 90.0 | 49.0 | 15.5 | 27.5 | 5.0 | 2.5 |
| 20 | 140.0 | 50.0 | 12.6 | 27.0 | 4.5 | 2.5 |
| 21 | 160.0 | 48.0 | 13.2 | 26.0 | 5.0 | 2.5 |
| 22 | 160.0 | 48.0 | 14.0 | 25.0 | 5.0 | 2.5 |
| 23 | 158.0 | 46.0 | 17.8 | 24.0 | 5.0 | 2.5 |
| 24 | 150.0 | 46.0 | 21.0 | 23.0 | 5.0 | 2.5 |
| 25 | 150.0 | 45.0 | 32.5 | 22.0 | 5.0 | 2.5 |
| 26 | 100.0 | 45.0 | 30.0 | 19.0 | 5.0 | 2.5 |
| 27 | 41.0 | 47.0 | 25.0 | 18.0 | 5.0 | 2.5 |
| 28 | 48.0 | 48.0 | 24.5 | 16.0 | 5.0 | 2.5 |
| 29 | 53.0 | 48.0 | 23.0 | 14.0 | 5.0 | 2.5 |
| 30 | 58.0 | 48.0 | 21.2 | 12.0 | 5.0 | 2.5 |
| 31 | | 50.0 | | 9.0 | 5.0 | |
| Total | 1844.0 | 1127.0 | 1586.0 | 699.0 | 146.0 | 89.5 |
| Mean | 61.4 | 36.3 | 52.9 | 22.5 | 4.7 | 3.0 |
| Runoff in A.F. | 3660.0 | 2240.0 | 3150.0 | 1390.0 | 290.0 | 177.0 |

TABLE 9

DAILY DISCHARGE IN CUBIC FEET PER SECOND
PINE CREEK NEAR ALTURAS AT POWER HOUSE
APRIL 1 to SEPTEMBER 30, 1945

| Day | April | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|
| 1 | 10.6 | 65.0 | 71.5 | 50.5 | 20.5 | 11.8 |
| 2 | 10.6 | 70.0 | 82.5 | 50.5 | 20.5 | 11.8 |
| 3 | 10.6 | 73.0 | 97.5 | 51.0 | 17.6 | 12.4 |
| 4 | 10.6 | 89.0 | 90.0 | 48.0 | 17.3 | 13.0 |
| 5 | 10.6 | 107.0 | 170.0 | 46.0 | 18.0 | 12.4 |
| 6 | 10.6 | 125.0 | 180.0 | 45.0 | 19.0 | 12.4 |
| 7 | 11.2 | 131.0 | 135.0 | 43.0 | 19.0 | 12.4 |
| 8 | 11.2 | 133.0 | 135.0 | 42.0 | 18.0 | 13.1 |
| 9 | 11.2 | 135.0 | 105.0 | 42.0 | 18.0 | 13.1 |
| 10 | 15.0 | 143.0 | 88.0 | 41.0 | 17.3 | 13.1 |
| 11 | 20.0 | 140.0 | 82.0 | 40.0 | 17.3 | 12.4 |
| 12 | 18.5 | 130.0 | 76.0 | 38.0 | 15.0 | 12.4 |
| 13 | 9.6 | 127.0 | 80.0 | 37.0 | 15.0 | 12.0 |
| 14 | 9.6 | 92.0 | 85.0 | 37.0 | 14.0 | 12.0 |
| 15 | 12.6 | 85.0 | 86.0 | 35.0 | 15.0 | 11.5 |
| 16 | 15.0 | 103.0 | 85.0 | 33.0 | 15.5 | 12.4 |
| 17 | 18.5 | 125.0 | 80.0 | 32.5 | 14.5 | 12.4 |
| 18 | 23.0 | 120.0 | 74.5 | 31.5 | 12.0 | 12.4 |
| 19 | 28.0 | 112.0 | 74.5 | 31.0 | 9.0 | 12.4 |
| 20 | 34.5 | 103.0 | 73.0 | 31.0 | 13.8 | 12.4 |
| 21 | 35.0 | 102.0 | 73.0 | 31.0 | 13.2 | 12.4 |
| 22 | 36.0 | 90.0 | 76.5 | 31.5 | 13.0 | 12.4 |
| 23 | 37.0 | 80.0 | 76.5 | 27.5 | 13.0 | 12.4 |
| 24 | 46.0 | 7010 | 76.0 | 26.0 | 15.0 | 12.4 |
| 25 | 40.2 | 65.0 | 71.0 | 25.0 | 17.0 | 12.4 |
| 26 | 38.0 | 62.5 | 69.0 | 23.5 | 15.0 | 13.0 |
| 27 | 41.0 | 57.5 | 65.5 | 23.5 | 14.5 | 13.0 |
| 28 | 48.0 | 63.0 | 63.5 | 22.5 | 13.2 | 13.0 |
| 29 | 54.5 | 62.5 | 59.5 | 21.0 | 13.2 | 13.0 |
| 30 | 62.5 | 71.0 | 54.5 | 20.0 | 13.2 | 13.0 |
| 31 | | 92.0 | | 20.0 | 16.0 | |
| Total | 740. | 3024. | 2636. | 1057. | 483. | 375. |
| Mean | 24.7 | 97.5 | 87.8 | 35.2 | 15.6 | 12.5 |
| Runoff in A.F. | 1470. | 6000. | 5230. | 2100 | 958. | 744. |

Total - 16,502 Acre-Feet - 183 day period
" - 14,800 " " - April 1 to July 31

TABLE 10
COMPARISON OF AVERAGE SNOW WATER CONTENT ON
CEDAR PASS AND EAGLE PEAK, WITH APRIL 1 to
JULY 31 PINE CREEK RUNOFF

| Year | Runoff Acre-Feet | Average Water Content - Inches | | |
|---|---|---|---|---|
| | | Cedar Pass | Eagle Peak | Average |
| 1919 | 5953 | | | |
| 1920 | 6675 | | | |
| 1921 | 10260 | | | |
| 1922 | 7780 | | | |
| 1923 | 5110 | | | |
| 1924 | 5100 | | | |
| 1925 | 7920 | | | |
| 1926 | 6199 | | | |
| 1927 | 10080 | | | |
| 1928 | 7640 | | | |
| 1929 | 5495 | | | |
| 1930 | 5894 | 13.0 | 11.0 | 12.0 |
| 1931 | 2615 | 8.0 | 5.2 | 6.6 |
| 1932 | 10300 | 19.8 | 18.7 | 19.2 |
| 1933 | 5665 | 16.3 | 14.3 | 15.3 |
| 1934 | 3453 | 0.9 | 3.3 | 2.1 |
| 1935 | 9293 | 21.1 | 22.6 | 21.8 |
| 1936 | 9300 | 26.2 | 22.1 | 24.1 |
| 1937 | 5510 | 21.6 | 17.5 | 19.6 |
| 1938 | 12890 | 25.2 | 23.6 | 24.4 |
| 1939 | 4604 | 10.5 | 10.4 | 10.4 |
| 1940 | 6796 | 14.6 | 15.6 | 15.1 |
| 1941 | 7180 | 17.9 | 13.8 | 15.8 |
| 1942 | 9450 | 19.3 | 14.7 | 17.0 |
| 1943 | 13700 | 25.8 | 23.7 | 24.7 |
| 1944 | 8700 | 12.3 | 13.5 | 12.9 |
| 1945 | 14800 | 22.4 | 22.2 | 22.3 |
| 16 Yr. Total | 130,150 | 274.9 | 252.2 | 263.3 |
| 27 Yr. Total | 208,362 | | | |
| 16 Yr. Mean | 8,134 | 17.2 | 15.8 | 16.5 |
| 27 Yr. Mean | 7,717 | 16.3* | 15.0* | 15.7* |

* Computed

TABLE 11
DAILY RELEASE IN CUBIC FEET PER SECOND
BIG SAGE RESERVOIR
MAY 1 to SEPTEMBER 11, 1945

| Day | May | June | July | August | September |
|---|---|---|---|---|---|
| 1 | 6* | 17 | 17 | 17 | 86.0 |
| 2 | 6 | 17 | 17 | 17 | 84.0 |
| 3 | 6 | 17 | 17 | 17 | 84.0 |
| 4 | 6 | 17 | 17 | 17 | 84.0 |
| 5 | 8 | 17 | 17 | 17 | 84.0 |
| 6 | 17 | 17 | 17 | 17 | 82.0 |
| 7 | 17 | 17 | 17 | 17 | 82.0 |
| 8 | 17 | 17 | 17 | 17 | 82.0 |
| 9 | 17 | 17 | 17 | 70 | 82.0 |
| 10 | 17 | 17 | 17 | 86 | 82.0 |
| 11 | 17 | 17 | 17 | 86 | **60.0 |
| 12 | 17 | 17 | 17 | 86 | |
| 13 | 17 | 17 | 17 | 86 | |
| 14 | 17 | 17 | 17 | 86 | |
| 15 | 17 | 17 | 17 | 86 | |
| 16 | 17 | 17 | 17 | 86 | |
| 17 | 17 | 17 | 17 | 86 | |
| 18 | 17 | 17 | 17 | 86 | |
| 19 | 17 | 17 | 17 | 86 | |
| 20 | 17 | 17 | 17 | 86 | |
| 21 | 17 | 17 | 17 | 86 | |
| 22 | 17 | 17 | 17 | 86 | |
| 23 | 17 | 17 | 17 | 86 | |
| 24 | 17 | 17 | 17 | 86 | |
| 25 | 17 | 17 | 17 | 86 | |
| 26 | 17 | 17 | 17 | 86 | |
| 27 | 17 | 17 | 17 | 86 | |
| 28 | 17 | 17 | 17 | 86 | |
| 29 | 17 | 17 | 17 | 86 | |
| 30 | 17 | 17 | 17 | 86 | |
| 31 | 17 | | 17 | 86 | |
| Total | 474 | 510 | 527 | 2198 | 892 |
| Mean | 15.2 | 17 | 17 | 70.9 | 81.1 |
| Total Ac.Ft. | 940 | 1010 | 1045 | 4360 | 1770 |

* Reservoir Opened
** Reservoir Closed

Total for Season - 9,125 acre-feet

TABLE 12
BIG SAGE RESERVOIR
SEASONAL OPERATION RECORD - 1935-1945

| Year | Storage on Hand As Of | | | | Total Decrease Ac.-Ft. | Irrigation Release Ac.-Ft. | Net Losses Ac.-Ft. |
|---|---|---|---|---|---|---|---|
| | Date | Ac.Ft. | Date | Ac.Ft. | | | |
| 1934 | Apr. 24 | 6,400 | July 7 | [illegible]500 | 5,900 | 4,325 | 1,025 |
| 1935 | May 12 | 15,400 | Sept. 15 | 6,300 | 9,100 | 3,750 | 5,350 |
| 1936 | May 8 | 25,200 | Sept. 6 | 12,900 | 12,300 | 6,850 | 5,450 |
| 1937 | May 24 | 23,300 | Sept. 6 | 9,600 | 13,900 | 8,270 | 5,630 |
| 1938 | May 31 | 58,000 | Sept. 30 | 43,000 | 15,000 | 6,860 | 8,140 |
| 1939 | Apr. 2 | 53,000 | Sept. 12 | 31,750 | 21,250 | 13,100 | 8,150 |
| *1940 | May 9 | 51,700 | Sept. 22 | 32,600 | 19,100 | 10,700 | 8,400 |
| *1941 | Apr. 14 | 51,000 | Sept. 7 | 39,000 | 12,000 | 7,270 | 4,730 |
| *1942 | Apr. 20 | 64,500 | Sept. 5 | 51,000 | 13,500 | 6,190 | 7,310 |
| *1943 | May 23 | 77,000 | Sept. 30 | 58,600 | 18,400 | 8,900 | 9,500 |
| 1944 | May 11 | 61,200 | Sept. 30 | 45,400 | 15,800 | 7,410 | 8,390 |
| 1945 | Apr. 1 | 57,800 | Sept. 30 | 47,200 | 10,600 | 9,120 | 1,480 |

* Includes sale of water to Big Valley users.

| | |
|---|---|
| 1940 | 1100 Ac. Ft. |
| 1941 | 800 Ac. Ft. |
| 1942 | 300 Ac. Ft. |
| 1943 | 300 Ac. Ft. |
| 1944 | 400 Ac. Ft. |
| 1945 | 500 Ac. Ft. |

TABLE 13
DAILY DISCHARGE IN CUBIC FEET PER SECOND
PIT RIVER NEAR CANBY
For Year Ending September 30, 1945

| Day | Oct. | Nov. | Dec. | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 47 | 60 | 168 | 65 | 122 | 139 | 278 | 440 | 772 | 269 | 37 | 26 |
| 2 | 45 | 60 | 190 | 70 | 234 | 132 | 256 | 461 | 826 | 190 | 12 | 24 |
| 3 | 79 | 74 | 214 | 70 | 368 | 128 | 234 | 287 | 946 | 90 | 30 | 18 |
| 4 | 60 | 98 | 194 | 75 | 498 | 132 | 210 | 493 | 952 | 51 | 32 | 33 |
| 5 | 47 | 92 | 146 | 87 | 552 | 139 | 183 | 487 | 904 | 74 | 33 | 82 |
| 6 | 49 | 90 | 128 | 98 | 440 | 132 | 168 | 482 | 1000 | 74 | 38 | 113 |
| 7 | 47 | 104 | 122 | 116 | 314 | 146 | 164 | 466 | 1070 | 128 | 37 | 226 |
| 8 | 47 | 122 | 116 | 139 | 323 | 150 | 179 | 440 | 1280 | 125 | 37 | 187 |
| 9 | 45 | 119 | 107 | 153 | 343 | 146 | 190 | 487 | 1610 | 58 | 24 | 150 |
| 10 | 47 | 160 | 92 | 168 | 388 | 146 | 202 | 477 | 1670 | 20 | 16 | 139 |
| 11 | 45 | 179 | 85 | 164 | 373 | 171 | 198 | 514 | 1570 | 38 | 5.2 | 153 |
| 12 | 47 | 194 | 80 | 190 | 251 | 202 | 206 | 546 | 1460 | 47 | 13 | 142 |
| 13 | 54 | 202 | 75 | 190 | 238 | 210 | 222 | 568 | 1330 | 54 | 27 | 119 |
| 14 | 49 | 175 | 75 | 168 | 420 | 214 | 206 | 606 | 1190 | 116 | 38 | 85 |
| 15 | 51 | 146 | 75 | 171 | 689 | 226 | 183 | 579 | 1050 | 175 | 32 | 51 |
| 16 | 69 | 128 | 75 | 179 | 958 | 238 | 168 | 590 | 910 | 125 | 17 | 40 |
| 17 | 60 | 104 | 75 | 156 | 958 | 264 | 175 | 700 | 784 | 90 | 29 | 33 |
| 18 | 60 | 95 | 80 | 132 | 814 | 273 | 218 | 736 | 662 | 79 | 37 | 33 |
| 19 | 58 | 90 | 87 | 119 | 579 | 242 | 251 | 820 | 546 | 62 | 49 | 44 |
| 20 | 58 | 80 | 107 | 95 | 404 | 218 | 319 | 1120 | 440 | 69 | 40 | 49 |
| 21 | 37 | 75 | 125 | 80 | 296 | 206 | 399 | 1310 | 319 | 69 | 44 | 47 |
| 22 | 47 | 75 | 156 | 70 | 242 | 210 | 456 | 1340 | 234 | 65 | 49 | 54 |
| 23 | 51 | 85 | 168 | 75 | 214 | 226 | 514 | 1230 | 150 | 58 | 79 | 79 |
| 24 | 51 | 90 | 164 | 75 | 206 | 319 | 530 | 1180 | 142 | 54 | 98 | 69 |
| 25 | 54 | 90 | 150 | 80 | 187 | 358 | 535 | 1110 | 150 | 49 | 136 | 67 |
| 26 | 56 | 95 | 128 | 80 | 164 | 273 | 530 | 1020 | 183 | 51 | 122 | 77 |
| 27 | 58 | 85 | 110 | 85 | 150 | 291 | 519 | 952 | 218 | 51 | 132 | 82 |
| 28 | 62 | 92 | 95 | 85 | 142 | 363 | 503 | 892 | 247 | 45 | 113 | 92 |
| 29 | 56 | 136 | 85 | 85 | | 378 | 466 | 826 | 296 | 42 | 60 | 90 |
| 30 | 58 | 132 | 70 | 95 | | 363 | 451 | 772 | 319 | 40 | 40 | 72 |
| 31 | 65 | | 65 | 101 | | 323 | | 772 | | 38 | 30 | |
| Total | 1659 | 3327 | 3607 | 3516 | 10869 | 6958 | 9113 | 22903 | 23230 | 2496 | 1486.2 | 2476 |
| Mean | 53.5 | 111 | 116 | 113 | 388 | 224 | 304 | 739 | 774 | 80.5 | 47.9 | 82.5 |
| Acre-Feet | 3290 | 6600 | 7150 | 6970 | 21550 | 13800 | 18080 | 45430 | 46080 | 4950 | 2950 | 4910 |

Year Mean - 251 Acre-Feet-181,800

PLATE 2

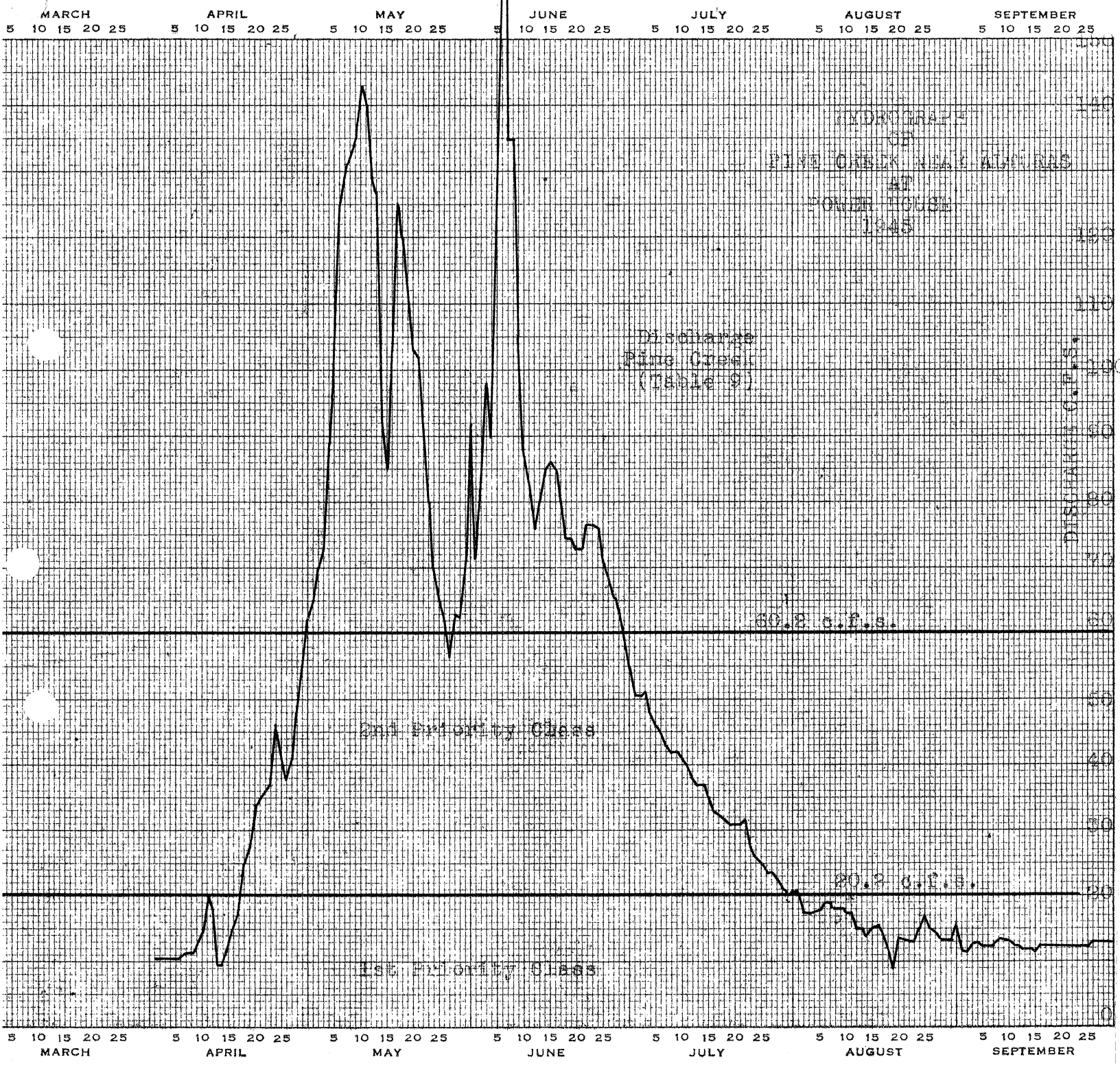
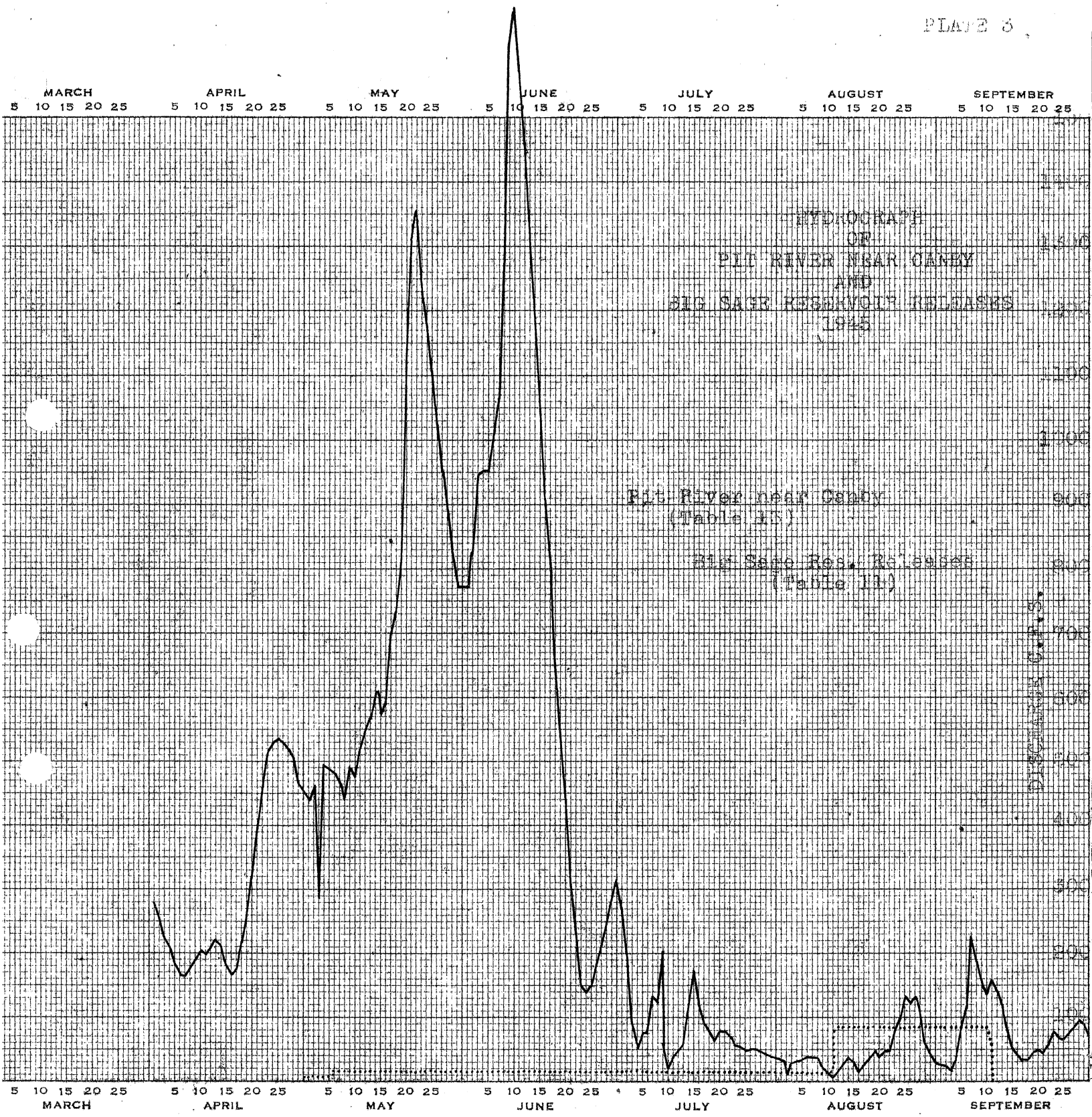

HYDROGRAPH
OF
PINE CREEK NEAR AUBURN
AT
POWER HOUSE
1945
Discharge
Pine Creek
(Table 9)
60.2 c.f.s.
20.2 c.f.s.
2nd Priority Class
1st Priority Class
DISCHARGE C.F.S.
140
130
120
110
100
90
80
70
60
50
40
30
20
10
0
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
5 10 15 20 25

PLATE 3


HYDROGRAPH
OF
PIT RIVER NEAR CANBY
AND
BIG SAGE RESERVOIR RELEASES
1945
Pit River near Canby
(Table 15)
Big Sage Res. Releases
(Table 13)
DISCHARGE C.F.S.
MARCH
APRIL
MAY
JUNE
JULY
AUGUST
SEPTEMBER
5 10 15 20 25