

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WATER RIGHTS

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REPORT

on

WATER SUPPLY AND USE OF WATER

from

OAK RUN CREEK AND TRIBUTARIES

SHASTA COUNTY, CALIFORNIA

Submitted to Accompany the Referee's Report  
in the Case of F. A. Colby, et al, vs. L. O. Strayer, et al.

April 30, 1925

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Submitted by GORDON ZANDER, Hydraulic Engineer

Approved May 2, 1925

Chief of Division of Water Rights

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TABLE OF CONTENTS

	<u>Page</u>
<u>LETTER OF TRANSMITTAL</u>	
Hydraulic Engineer to Chief of Division of Water Rights	
<u>INTRODUCTION</u> - - - - -	1
<u>GENERAL DESCRIPTION OF WATERSHED</u> - - - - -	2
<u>CLIMATE</u> - - - - -	3
<u>SOILS</u> - - - - -	3
<u>CROPS</u> - - - - -	3
<u>RUN-OFF RECORDS</u> - - - - -	4
RECORDS OF UNITED STATES GEOLOGICAL SURVEY - - - - -	4
RECORDS OBTAINED BY DIVISION OF WATER RIGHTS - - - - -	4
Oak Run Creek - - - - -	4
Murphy-Estep Branch - - - - -	6
<u>USE OF WATER AND DIVERSION MEASUREMENTS</u> - - - - -	6
<u>DESCRIPTION OF DIVERSION SYSTEMS</u> - - - - -	8
Diversion 1 - - - - -	8
Diversions 2 and 3 - - - - -	8
Diversions 4 and 6 - - - - -	9
Diversion 5 - - - - -	10
Diversion 7 - - - - -	12
Diversion 8 - - - - -	12
Diversion 9 - - - - -	12
Diversion 10 - - - - -	16
Diversion 11 - - - - -	16
Diversion 12 - - - - -	17
Diversion 13 - - - - -	17
Diversion 14 - - - - -	17
Diversion 15 - - - - -	18
Diversion 16 - - - - -	19
Diversions 17 and 18 - - - - -	19
Diversion 19 - - - - -	20
Diversion 20 - - - - -	21
Diversion 21 - - - - -	21
Diversion 22 - - - - -	22
Diversion 23 - - - - -	22

TABLE OF CONTENTS

	<u>Page</u>
<u>METHODS OF IRRIGATION</u> - - - - -	22
<u>DUTY OF WATER</u> - - - - -	23
Welch and Strayer Ditch - - - - -	23
Henry Smith System - - - - -	24
Predmore Ditch System - - - - -	25
 <u>SKETCH OF WELCH AND STRAYER DITCH DIVISION BOXES</u>	

TABLES:

- 1      Estimate of Run-off of Oak Run Creek at Smith's Bridge.
- 2      Estimate of Run-off of Oak Run Creek below all diversions.
- 3      Description of lands irrigated from Oak Run Creek and Tributaries.
- 4      Estimate of Welch and Strayer Ditch Diversion from Oak Run Creek.
- 5      Estimate of water brought to Oak Run Creek watershed by Welch and Naylor Ditch.
- 6      Estimate of Predmore Ditch Diversion from Oak Run Creek.
- 7      Summary of Diversion Systems diverting from Oak Run Creek and its Tributaries.

STATE OF CALIFORNIA  
DEPARTMENT OF PUBLIC WORKS  
DIVISION OF WATER RIGHTS

Sacramento, California.

April 30, 1925.

Chief of Division of Water Rights,  
Department of Public Works,  
State of California.

Dear Sir:

The accompanying report on the Water Supply and Use of Water from Oak Run Creek and its Tributaries, in Shasta County, is respectfully submitted for your approval.

This report was prepared pursuant to the order of the Superior Court of the State of California, in and for the County of Shasta, entered April 25, 1923, transferring the case of F. A. Colby, et al, vs. L. O. Strayer, et al, to the Division of Water Rights of the Department of Public Works of the State of California, for investigation, as referee, under the provisions of Section 24 of the Water Commission Act. The purpose of the report is to present necessary data upon which to base the findings of the referee, which data were obtained from a field investigation covering the period from June 4th to October 15th, inclusive, 1923.

The field investigation was conducted simultaneously with a similar investigation covering North Cow Creek and its tributaries, by Mr. F. F. Burrows, an assistant hydraulic engineer of the Division of Water Rights, and included a study of the water supply and diversions from these stream systems, and also a transit and stadia survey of all ditches and irrigated lands.

A set of maps has been prepared from the data collected, consisting of seven detail sheets on a scale of one inch to three hundred feet and of a general map covering the watersheds of both Oak Run Creek and North Cow Creek on a scale of two inches to one mile, and the same is herewith submitted as a part of this report.

Respectfully submitted

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Hydraulic Engineer

REPORT

on

WATER SUPPLY AND USE OF WATER

from

OAK RUN CREEK AND TRIBUTARIES

SHASTA COUNTY, CALIFORNIA

INTRODUCTION

The matter of the determination of the relative rights of the various water users from Oak Run Creek and its tributaries was brought before the Division of Water Rights of the Department of Public Works of the State of California by an order of the Superior Court of the State of California, in and for the County of Shasta, dated April 25, 1923, transferring the Case of F. A. Colby, et al, vs. L. O. Strayer, et al, to said Division for investigation as referee, under authority contained in Section 24 of the Water Commission Act.

The above mentioned suit was initiated in 1920, and is somewhat involved with the case of Charles L. Lemm, et al, vs. John Rutherford, et al, which latter suit was brought in the same year for the purpose of determining the water rights on the North Cow Creek stream system, a portion of the waters of which are diverted to Oak Run Creek and comingled with the natural flow thereof. Action on the two suits has been carried on simultaneously, and reference is here made to the "Report on Water Supply and Use of Water from North Cow Creek and Tributaries, Shasta County, California", prepared by the Division of Water Rights under date of April 30, 1925, and on file in the North Cow Creek Court Reference proceedings.

The five plaintiffs in the case of F. A. Colby, et al, vs. L. O. Strayer, et al, are all lower users on Oak Run Creek, seeking to quiet title to their water rights, and nine of the upper users from the stream were named as defendants in the original complaint. The Division of Water Rights has recommended to the Court that seven additional water users be made parties to the suit, in order that the proceedings will result in a complete adjudication of all the water rights from Oak Run Creek and its tributaries.

#### GENERAL DESCRIPTION OF WATERSHED

Oak Run Creek is a small creek draining about forty square miles of brushy canyon watershed. The stream is situated in the south central part of Shasta County, being the first stream south of North Cow Creek.

Oak Run Creek empties into Old Cow Creek about a mile east of the confluence of North and Old Cow Creeks.

There are no tributaries of importance to this creek which derives most of its water from springs and seepage water rising in the canyon above Henry Smith's Ranch. The flow of Oak Run Creek at Smith Bridge as discussed in another chapter probably would not exceed two cubic feet per second in the late summer were it not for the water brought into this watershed by the Welch and Strayer and Excelsior Ditches from Mill Creek, a North Cow Creek tributary.

The elevation of the valley varies from about 700 feet at the lower end to about 3000 feet at the headwaters. Since Oak Run Creek below the E. English ranch carries little water during the irrigation season, none of

the lands below this point are irrigated, what water there is available, being used for stock watering only.

#### CLIMATE

Warm summer weather and mild winter weather describes the climate in the Oak Run Creek watershed.

The following forty-nine year record showing the distribution by months of the mean annual rainfall at Redding, the nearest rainfall station, is an indication of the rainfall in this watershed:

<u>Month</u>	<u>Mean Precipitation in Inches</u>
January	7.59
February	5.73
March	5.06
April	2.89
May	2.01
June	0.81
July	0.12
August	0.06
September	0.87
October	2.22
November	3.99
December	6.39
Total	<u>37.72</u>

#### SOILS

The soil of this valley varies from a sandy loam to a sandy clay.

#### CROPS

The principal crops are alfalfa, meadow hay, fruits, and vegetables.

RUN-OFF RECORDSRECORDS OBTAINED BY U. S. G. S.

In 1916 measurements on Oak Run Creek were made as follows:

<u>Date</u>	<u>Place</u>	<u>Discharge, cubic feet per second</u>
Aug. 18	(SW $\frac{1}{4}$ Section 3, T 31 N, R 3 W. This point )	2.4
Sept. 19	(is about 12 miles below the lowest diversion)	1.8

RECORDS OBTAINED BY THE DIVISION OF WATER RIGHTS

Measurements were made of the flow of Oak Run Creek and of its one tributary, here called Murphy-Estep Branch, by a representative of the Division of Water Rights during the season June 5th-October 15th, 1923. The records follow:

Oak Run Creek

A staff gage was installed on Oak Run Creek at Smith Bridge, a point which was below the Welch and Strayer Ditch input and below the springs and springy ground contributing to the headwaters of this creek. It is above all diversions except the domestic diversion by O. L. Rose, the Mill Ditch diversion, and small spring diversion by Jennie and J. W. Maxwell, and the two spring diversions by Henry Smith, practically all of the water from these diversions finding its way back to the creek above the gage. Three current meter measurements formed the basis for a rating curve, which, together with numerous gage readings by Mr. Henry Smith and by the Field Engineer, form the basis of the run-off estimate submitted at the end of this report as Table 1.

On June 8th a measurement made of the water in the Maxwell Mill Ditch which was diverting the entire flow of Oak Run Creek at the time showed

4.17 cubic feet per second. At Smith Bridge, about one mile below, the flow of Oak Run Creek on June 20th was 7.49 cubic feet per second which may have been less than the flow on June 8th but probably not more. The water tributary to Oak Run Creek between these points is return water from the Maxwell and Smith places and seepage water from the Smith sub-irrigated meadow. The total amount of water in the Smith Ditches as measured June 9th, was 1.15 cubic feet per second, and the amount of return water from the Maxwell place was small so that even assuming that all of the water of the Smith Ditches reached the creek as return water, there would still be more than two cubic feet per second of the flow at the Smith Bridge unaccounted for. This water is probably seepage water from the Smith sub-irrigated meadow and "made" water in the creek bottom below Maxwell's mill.

At the Welch and Strayer Ditch diversion and rediversion from Oak Run Creek, which is the first diversion below the Smith Bridge, is a diversion flume so designed that half of the water should be diverted and half should remain in the creek. The flume, however, was not in good condition in 1923 so that considerably more than half of the water flowed on down the creek. Using the run-off figure obtained at the Smith Bridge (1062 acre feet) and that obtained as the amount diverted by the Welch and Strayer Ditch (443 acre feet) the amount remaining in the creek was 619 acre feet.

A record was kept of the water diverted by the Predmore Ditch which diverts below Walter Melton's three ditches and the Alpaugh Ditch, (see Diversions 10, 11, 12, and 13) at this point the owners of the Predmore Ditch aim to take two-thirds of the creek flow and allow one-third to pass their dam. Using the figure obtained for the Predmore Ditch diversion (274 acre feet)

the run-off of the creek at this point was 411 acre feet.

A staff gage was installed on Oak Run Creek about a quarter of a mile above the county bridge two miles below Oak Run. This point is below all diversions. Three current meter measurements were used to draw a rating curve for the gage, which, with three gage readings scattered throughout the season, forms the basis for the estimated run-off submitted at the end of this report in Table 2.

#### Murphy-Estep Branch

This is the channel that heads on the lower end of the Cox and Ross place and flows down to the Murphy and Estep places where the water thereof is equally divided between these two parties.

A current meter measurement was made of the flow in the channel on June 11th at a point a short distance above the Murphy Ditch take-out. The flow was 0.68 cubic foot per second.

A small spring rising on the Murphy place when not being used by Mr. Murphy, is tributary to this watercourse below the Murphy Ditch take-out. On June 11th the flow of the spring, as determined by float measurement, was 0.12 cubic foot per second.

#### USE OF WATER AND DIVERSION MEASUREMENTS

The waters of Oak Run Creek and its tributaries are used for domestic and stock watering purposes, and for the irrigation of 419.4 acres of land. In one instance there is also the use of water for the development of power for the operation of a planing and saw mill.

Transit and stadia surveys of the various ditch systems and irrigated lands in the Oak Run Creek watershed were made by the Division of Water Rights in the summer of 1923.

These surveys were plotted on a scale of one inch to three hundred feet, and the seven sheets obtained have been inked and reproduced. A map of the entire Oak Run Creek watershed, together with the North Cow Creek watershed, has been prepared on a scale of one inch to 2640 feet from the data obtained from these sheets. A key map, showing the location of the map sheets, 1 to 7 inclusive, has also been prepared.

The points of diversion of the various ditches have been indicated on the maps by numbers 1 to 23, inclusive.

The areas irrigated or sub-irrigated under the various diversion systems have been computed from the map sheets by the use of a planimeter, and Table 3 has been prepared, showing the acreage, legal description, and kind of crops grown on these areas. The use of water under each diversion is further discussed under the sub-heading "Description of Diversion Systems".

Measurements were made of all the diversions from Oak Run Creek and its tributaries by the Division of Water Rights during the irrigation season of 1923. The measurements were made whenever possible in the presence of the water users. Whenever sufficient water was available to fill the ditch to maximum capacity, at least two measurements were made on each ditch; one to determine the flow normally used for irrigation, and one to determine the flow required to fill the conduit to capacity. These measurements are hereinafter referred to as the "normal irrigating head", and the "maximum capacity" of the conduit, respectively. It was the practice to have the water user turn into the conduit the quantity of water normally used when irrigating. This flow

was then measured to determine the normal irrigating head. The conduit was afterwards filled to capacity and a second measurement taken to determine the maximum capacity of the conduit. The results obtained by these measurements are given under the descriptions of the respective diversions.

#### DESCRIPTION OF DIVERSION SYSTEMS.

Descriptions of the diversion systems from Oak Run Creek and its tributaries, taken up consecutively from 1 to 23, follow. A summary of the data contained under these descriptions is submitted in Table 7, at the end of this report. In this table, the names of the various diversions are listed alphabetically, and the corresponding diversion number, name of stream from which diversion is made, and the total acreage irrigated under each diversion is given.

Diversion 1 within the  $SE\frac{1}{4}$  of  $SW\frac{1}{4}$  Section 7, T 33 N, R 1 E, refers to the O. L. Rose Domestic Pipe Line heading in Oak Run Creek and supplying his house with domestic water. A wooden and earth dam pools the water so as to form a basin for the head of the small pipe line about three hundred and fifty feet long to the Rose house. The water not used returns to the creek.

On June 8th the flow of the pipe line was measured in a bucket of known capacity. The flow was .005 cubic foot per second.

Diversions 2 and 3 both within the  $NE\frac{1}{4}$  of  $NE\frac{1}{4}$  Section 13, T 33 N, R 1 W, refer to the W. Jackson ditches. The first is from a small wash that carries waste water from the Webb place (irrigated by water from North Cow Creek watershed). The water diverted is carried through an earth ditch about four hundred feet long to a short wooden flume across Oak Run Creek. The flume discharges

into the W. Jackson Ditch (Diversion 3) that diverts water from Oak Run Creek at about the point where the flume crosses. This ditch is about eight hundred feet long and has irrigated 2.6 acres of land, 1.7 acres of which were irrigated in 1923.

The Jackson Ditch has a box at its head with a hole cut out of the end through which the water flows into the ditch. The hole is an orifice of free discharge, with opening 5 inches wide by 1 inch high. On June 8th the head measured to the center of the orifice was  $3\frac{1}{2}$  inches. Using an orifice coefficient of 0.60 the estimated discharge is .091 cubic foot per second. The maximum head that could obtain on the orifice without flooding over the box is 7 inches. Using this value the estimated flow would be 0.13 cubic foot per second.

On June 19th, a float measurement was made of the water in the flume across Oak Run Creek. The result was .038 cubic foot per second. This amount filled the flume to capacity.

Diversions 4 and 6 both within the  $SW\frac{1}{4}$  of  $NW\frac{1}{4}$  Section 13, T 33 N, R 1 W, refer to the Henry Smith Upper Spring and Smith Lower Spring ditches, diverting from two springs here named Upper Spring and Lower Spring, respectively. About two hundred feet below its diversion, the Smith Upper Spring Ditch crosses Oak Run Creek on a wooden flume, and about four hundred feet below this crossing, a take-out turns water into a short ditch which crosses the Maxwell Mill Ditch on a flume and then empties into the creek, the water to be rediverted by the Smith Lower Spring Ditch a short distance below. The Smith Upper Spring Ditch then cuts through the Maxwell place, flowing parallel to their lateral from the Excelsior Ditch (see North Cow Creek Report) for about one-

half mile before reaching the Smith lands where the ditch irrigates 31.2 acres and supplies the house with domestic water.

The Smith Lower Spring Ditch heads on Oak Run Creek just below the point where the water taken out of the Smith Upper Spring Ditch is spilled into the creek. A little more than one hundred feet below this point, the Lower Spring empties into the ditch. The ditch then flows along the foothills for about one-half mile before reaching the Smith fields where 15.1 acres of land south of Oak Run Creek are irrigated. Besides this total of 46.3 acres of irrigated land there are 3.2 acres of sub-irrigated land on the Smith place, making a total of 49.5 acres.

On June 9th, current meter measurements were made of the flow of the springs as follows:

The flow of the Upper Spring, measured in the Smith Upper Spring Ditch about six hundred feet below the diversion was 0.62 cubic foot per second; the flow of the Lower Spring, obtained by subtracting the measured flow at the point of rediversion from the measured flow below the spring, was 0.53 cubic foot per second. The flow on this date represented the normal flow as per Henry Smith.

Diversion 5 within the SW $\frac{1}{4}$  of NW $\frac{1}{4}$  Section 13, T 33 N, R 1 W, refers to the diversion of the Maxwell Mill Ditch from Oak Run Creek. An earth and rock dam turns practically the entire flow of the creek into the ditch. About one hundred feet below the diversion, a channel empties into the ditch. The point where this channel empties into the Mill Ditch has not been called a point of diversion, for in the summer time when the channel carries waste water, such water is diverted by J. W. and Jennie Maxwell some distance above (North Cow

Creek Report, Diversion 68) and in the winter time the channel carries water emptied into it from the Excelsior Ditch and the taking out of such water is considered as a rediversion. About a quarter of a mile below this point the ditch enters a short wooden flume and wooden forebay for the penstock to the mill. The penstock is riveted steel pipe with good tapers between the different sizes which are as follows; 48" pipe for first 20 feet, then 24" pipe for next 38 feet, then 20" pipe for 10 feet, then 13" pipe for 50 feet, then a 6 foot length of tapering pipe to the nozzle. In 1915 or 1916, when water supply was ample, a 5" nozzle was used, but since then, a 3-3/4" nozzle has been used in the early season which is changed to a 3" nozzle when the water supply decreases.

On June 8th, with the 3-3/4" nozzle being used wide open and the wheel in operation, a current meter measurement was made of the flow in the flume above the penstock. The result was 4.17 cubic feet per second which was the entire flow of Oak Run Creek at the time. The head as measured by transit survey is 56.8 feet. The theoretical horsepower developed by a flow of 4.17 cubic feet per second would be  $\frac{4.17 \times 56.8}{8.8} = 26.9$  horsepower.

With a flow of 4.17 cubic feet per second the water surface was 0.35 foot below the top of the flume. The estimated capacity of the flume using hydraulic data calculated from the current meter measurement, assuming "n" = .013 and allowing 0.35 foot additional depth of water, would be 5.6 cubic feet per second. With this maximum flow the theoretical horsepower developed would be  $\frac{5.6 \times 56.8}{8.8} = 36.2$  horsepower.

It should be noted that most of the water available at this diversion is emptied into Oak Run Creek by the Welch and Strayer Ditch from

Mill Creek. Also the water here used is all returned to the creek after passing through the nozzle.

Diversion 7 within the  $SE\frac{1}{4}$  of  $NE\frac{1}{4}$  Section 14, T 33 N, R 1 W, refers to the Maxwell Sawdust Flume, diverting from Oak Run Creek. A V shaped wooden flume carries the water through the mill, picking up the sawdust therefrom and carrying it to a sawdust pipe below. The water carried by the ditch is returned to Oak Run Creek.

On June 8th a float measurement of the flow of the flume showed 0.43 cubic foot per second, all of which was returned to the creek about three hundred and fifty feet below the mill.

Diversion 8 within the  $NW\frac{1}{4}$  of  $SW\frac{1}{4}$  Section 13, T 33 N, R 1 W, refers to the diversion by the Maxwell Spring Ditch of the water of a small spring south of Oak Run Creek. The ditch is about two hundred feet long and carries water from the spring to a garden patch of 0.6 acre which was last irrigated in 1922.

On June 8th, the estimated flow of the spring was 0.05 cubic foot per second which Mr. Maxwell stated was only 20% of the flow in wetter seasons.

Diversion 9 within the  $NW\frac{1}{4}$  of  $SE\frac{1}{4}$  Section 15, T 33 N, R 1 W, has reference to the diversion of the Welch and Strayer Ditch from Oak Run Creek. At the head of the ditch a long wooden flume, 4.0 feet wide with a division board in the center running the length of the flume, divides the flow of the creek into two equal parts, one-half flowing into the Welch and Strayer Ditch, and the other half continuing down the creek. Owing to leaks in the flume on the ditch side, more than half of the water remained in the creek during the 1923 season. The ditch then flows for a distance of more than four miles until

it reaches the divide between Oak Run and Clover Creeks when it meets the Welch and Naylor Ditch from Clover Creek. At this place there is a group of division boxes which divide the waters of the two ditches for distribution. The interests in the two ditches are Welch and Strayer Ditch: Wilford E. Ross and John W. Cox jointly one-third interest from which Mr. J. L. McCarty is entitled to four miners inches under a six inch pressure, J. W. Ballard one-sixth interest, E. D. Herrick one-sixth interest, S. B. Carswell one-sixth interest, and E. English one-sixth interest; Welch and Naylor Ditch from Clover Creek: Mr. Axner, one-third interest, Mr. Hunt one-sixth interest, J. B. Carswell one-sixth interest, E. D. Herrick two-ninths interest, J. W. Ballard one-eighteenth interest, and E. English one-eighteenth interest.

The division board in the upper division box on the Welch and Naylor Ditch divides the width of the box into two parts, one being two feet wide and the other one foot wide. The former part turns the Axner and Carswell interests and one-fourth of Herrick's interest to the right and the latter part turns the Hunt, Ballard, and English interests, and the remaining three-fourths of Herrick's interest to the left. A division box in the left hand branch then divides the water therein equally, Hunt's part flowing to the left and the Ballard, English, Herrick part to the right for about three hundred feet before joining the Ballard, English, Herrick part from the Welch and Strayer Ditch. The division board in the upper division box on the Welch and Strayer Ditch divides the width of the box into two equal parts, each one foot wide. The left hand part, carrying the Ballard, English, Herrick water, flows about two hundred feet and then joins the ditch carrying the Ballard, English, Herrick share of the Welch and Naylor Ditch. About

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one-half mile below this junction, a division box turns Ballard's share out for his land and the English, Herrick ditch is divided by a rock and earth dam about one-half mile below that.

The two-thirds part of the Welch and Naylor Ditch belonging to Axner, Carswell, and Herrick, flows about one hundred feet and then joins the Cox and Ross and Carswell, part of the Welch and Strayer Ditch just below the main division box on the Ditch. The two parts so joined form the Morton Ditch, the users of which rotate.

Figure 1 is a sketch of this arrangement.

The Welch and Strayer Ditch System, including the Ballard, English, Herrick, and Carswell share of the Clover Creek Ditch, amounting to a one-half interest therein, irrigated a total of 125.1 acres of land in 1923 and has irrigated an additional 4.9 acres in recent years. The land irrigated by each user was as follows:

James W. Ballard, 10.6 acres irrigated in 1923 and 1.5 acres additional during recent years; Wilford E. Ross and John W. Cox, 37.2 acres irrigated in 1923, 8.7 acres sub-irrigated and 2.2 acres irrigated in recent years; J. L. McCarty, 1.3 acres irrigated in 1923, and 0.8 acre irrigated in recent years; J. B. Carswell, 14.5 acres irrigated in 1923, and 0.4 acre irrigated in recent years; E. D. Herrick, 7.5 acres on upper place and 1.2 acres on lower place, which is served by both the English and Herrick Ditch and the Morton Ditch, a total of 8.7 acres irrigated in 1923 besides 2.5 acres sub-irrigated; E. English, 41.0 acres irrigated in 1923 and 0.6 acre sub-irrigated.

Staff gages were installed on the Welch and Strayer Ditch near its diversion and on the Welch and Naylor Ditch just above the first diversion box.

Six current meter measurements on the former and four on the latter formed the basis for a rating curve for each gage. These curves with intermittent gage readings were used to estimate the total diversion of the Welch and Strayer Ditch from Oak Run Creek, and the total amount of water brought to the Oak Run Creek lands from Clover Creek. The results obtained at these measuring stations are submitted at the end of this report in Tables 4 and 5, respectively.

The following summary shows the relationship of the various amounts diverted by this system during the period June 12th to September 22nd, 1923. All quantities are in acre feet.

*Welch & Strayer Ditch Diversion from Mill Creek <u>Q 1</u>	*Probable amount emp-tied into Oak Run Creek <u>Q 2</u>	Total Amount Diverted from Oak Run Creek <u>Q 3</u>	Net Amount Diverted from Oak Run Creek <u>Q 3 - Q 2</u>	Ballard, English, Herrick & Carswell water from Welch & Naylor Ditch equal to one-half thereof <u>Q 4</u>	Total for Oak Run Creek Lands Involved <u>Q 3 + Q 4</u>
507	316	443	127	110	553

\*See discussion of Welch and Strayer Ditch (Diversion 45) North Cow Creek Report.

On July 26th and on August 23rd current meter measurements were made of the flow of the Welch and Strayer Ditch at the gage near the diversions and at a point just above the division boxes, some four miles below. The results are as follows:

<u>Date</u>	<u>Measurement at Diversion Second Feet</u>	<u>Measurement at Division Box Second Feet</u>	<u>Loss Second Feet</u>	<u>Percentage Loss</u>
July 26th	2.33	1.97	0.36	15.4
Aug. 23rd	1.71	1.56	0.15	8.8

J. L. McCarty has two small ditches out of the Morton Ditch on which float measurements were made June 13th. The normal irrigating head in the ditch on the north side was 0.12 cubic foot per second. The normal irrigating head in the other ditch was 0.10 cubic foot per second. Mr. McCarty then turned into this ditch the maximum amount that he ever used which was found by float measurement to be 0.29 cubic foot per second.

Diversion 10 within the NE $\frac{1}{4}$  of NW $\frac{1}{4}$  Section 21, T 33 N, R 1 W, refers to the diversion of the Walter Melton Upper Ditch from Oak Run Creek. A rock and brush dam turns the water into a ditch about one-half mile long which irrigates 5.4 acres of land at its lower end, of which 1.1 acres are described as sub-irrigated. Return water from this ditch returns to the creek directly from the land irrigated.

On June 5th, a float measurement was made, in a V shaped flume about 200 feet below the diversion, of the normal irrigating head turned into the ditch by the owner. The amount was 0.31 cubic foot per second. The ditch was then filled to capacity by Mr. Melton and a float measurement at the same section showed 0.38 cubic foot per second.

Diversion 11 within the SW $\frac{1}{4}$  of NW $\frac{1}{4}$  Section 21, T 33 N, R 1 W, is the diversion of the Walter Melton Lower Ditch from Oak Run Creek which is about one thousand feet long, irrigates 0.8 acre of land and returns to the creek.

The land irrigated under this ditch could be irrigated by the Upper Ditch.

On June 5th, a float measurement was made of the flow filling the

ditch to capacity. The result was 0.66 cubic foot per second. Mr. Melton stated that when no water was being used in the Upper Ditch about fifteen miners inches under a 4 inch pressure, or 0.30 cubic foot per second, was used in this ditch.

Diversion 12 within the SW $\frac{1}{4}$  of NW $\frac{1}{4}$  Section 21, T 33 N, R 1 W, is the diversion from Oak Run Creek of the Walter Melton South Ditch, which is about one-quarter mile long and irrigates 1.5 acres of land along the creek.

On August 2nd, a float measurement was made at the head of the ditch, of the water then being used in it. This flow was 0.16 cubic foot per second.

Diversion 13 within the NE $\frac{1}{4}$  of SE $\frac{1}{4}$  Section 19, T 33 N, R 1 W, is the diversion of the Alpaugh Ditch (Isaac Melton, owner) from Oak Run Creek. A rock and brush dam and wooden diversion box turns the water into the earth ditch which flows along the toe of the hills for about three quarters of a mile, irrigating 30.1 acres of land lying between the ditch and the creek. Of this 30.1 acres, only 19.3 acres were irrigated during 1923, the balance having been irrigated in recent years.

On June 4th, a current meter measurement, made about three hundred feet below the head of the ditch, of the normal irrigating head as turned in by Mr. Melton showed 0.68 cubic foot per second. The ditch was then filled to capacity by Mr. Melton and a current meter measurement at the same section, gave 1.06 cubic feet per second.

Diversion 14 within the NW $\frac{1}{4}$  of SE $\frac{1}{4}$  Section 19, T 33 N, R 1 W, refers to the rock and brush dam diversion of the Predmore Ditch from Oak Run Creek.

Nearly a half-mile below the diversion, a rock and earth dam divides the water of the ditch, approximately one-half continuing to the M. M. and R. M. Murphy place and the balance flowing on to the A. H. and J. D. Cook place, these two places each having one-half interest in the ditch. The Cook branch of this ditch irrigates 60.5 acres of land, 45.6 acres of which were irrigated in 1923.

Just before reaching the lands to be irrigated the Murphy branch splits, one part flowing along the north side of the farm and the other part following the foothills along the south side. The Murphy branch irrigates 37.5 acres of land, 28.3 acres of which were irrigated in 1923. This makes a total irrigated acreage of 98.0 acres under the Predmore Ditch, 73.9 acres of which were irrigated in 1923.

A staff gage was installed on the ditch about two hundred and fifty feet below the diversion. Five current meter measurements at this section formed the basis for a rating curve, which together with several gage readings by the owners and by the Field Engineer was used in estimating the quantity of water diverted during the season. The results obtained are submitted at the end of this report in Table 6.

On June 11th, with 2.26 cubic feet per second being diverted as shown by a current meter measurement, a meter measurement made of the water in the Cook Ditch just below the earth and rock division, showed 1.08 cubic feet per second as against a theoretically proper amount of one-half of 2.26 or 1.13 cubic feet per second.

Diversion 15 within the NE $\frac{1}{4}$  of SW $\frac{1}{4}$  Section 19, T 33 N, R 1 W, refers to the diversion of the Kirkendahl Ditch from Oak Run Creek. A rock and earth dam

raises the water to a wooden diverting flume which in turn empties the water into an earth ditch. About five hundred feet below the diversion, a swale carrying waste water from Isaac Melton's place empties into the ditch. This point is Diversion 16 and the water therefrom comeslingles with the water from Diversion 15 and aids in the irrigation of the land described hereunder.

Nearly one-half mile below Diversion 16, the Kirkendahl Ditch reaches the irrigated lands of F. A. Colby. From this point, the ditch continues along the sidehill for about one-half mile irrigating 31.5 acres. An additional 30 acres of land lying under the ditch (if the irrigation system was extended) are cultivated but have not been irrigated for fifteen years or more owing to scarcity of water.

On June 11th the water in the ditch was measured with current meter in the flume section near the head of the ditch. The quantity was 1.26 cubic feet per second. This flow was the normal irrigating head as per Mr. Colby. It also filled the flume to capacity.

Diversion 16 within the  $SE\frac{1}{4}$  of  $NW\frac{1}{4}$  Section 19, T 33 N, R 1 W, is the point where a swale carrying waste water from Isaac Melton's place empties into the Kirkendahl Ditch, and augments the flow thereof. The land irrigated by water from this diversion is the land described under Diversion 15.

No data were obtained on the flow of the waste water swale.

Diversions 17 and 18 within the  $NE\frac{1}{4}$  of  $NE\frac{1}{4}$  Section 25, T 33 N, R 2 W, are those of the R. M. and M. M. Murphy Spring and Slough ditches, diverting from a small spring and from the main channel of the Murphy-Estep Branch of Oak Run Creek, respectively. At Diversion 17, all of the water of the channel is diverted and carried by a small ditch for about two hundred feet

where it joins the water from Diversion 18 and, with it, spreads over the 8.7 acres of meadow irrigated by this system.

On June 11th the flow in the Murphy Spring Ditch was measured by the float method in the flume just above its junction with the other water. This flow which, Mr. Murphy stated, was the maximum flow of the spring, was 0.12 cubic foot per second.

On the same day a current meter measurement was made of the water being diverted by the Murphy Slough Ditch. This diversion aims to take one-half of the water of the channel, allowing one-half to flow down to the Estep Ditch (Diversion 19). The measurement showed 0.34 cubic foot per second, and since a current meter measurement made of the flow of the channel above the diversion showed 0.68 cubic foot per second, the division was being exactly made. Mr. Murphy stated that the flow as found that date represented the maximum amount available in the channel during the irrigation season.

Diversion 19 within the NE $\frac{1}{4}$  of NE $\frac{1}{4}$  Section 25, T 33 N, R 2 W, refers to the Mrs. A. Estep Ditch, diverting from the Murphy-Estep Branch of Oak Run Creek. An earth and rock dam turns the water into the earth ditch which flows for about seven hundred feet at which point it divides, one branch, an earth ditch, following along the foothills south of the Estep ranch. The other branch beginning as an elevated wooden flume about twelve hundred feet long, carries the water across the Murphy-Estep Channel and the waste water channel from Murphy's place and irrigates the Estep lands lying between the Murphy-Estep channel and Oak Run Creek. The irrigated acreage under the ditch is 39.2 acres, of which only 9.3 acres were irrigated in 1923.

On June 11th with all of the water reaching the long flume, a current meter measurement was made of the normal irrigation head as turned in by

Mrs. Estep's son, R. Estep. The amount was 0.23 cubic foot per second. The maximum capacity of the flume was determined by a current meter measurement of the flow required to fill it. This flow was 0.60 cubic foot per second.

It should be noted that measurements were made on this same date of the flow in the Murphy-Estep channel and of the water diverted by the Murphy Ditch therefrom. The difference between these two measurements (0.68 - 0.34, or 0.34 cubic foot per second) would probably have been the head used by the Estep Ditch had the Estep place been irrigating at the time.

Diversion 20 within the SW $\frac{1}{4}$  of NE $\frac{1}{4}$  Section 25, T 33 N, R 2 W, has reference to the head of the Mrs. A. Estep Domestic Pipe Line diverting from a spring. The conduit is a small buried pipe line about twelve hundred feet long which serves the house and barn with water for domestic purposes. Water from the spring causes a piece of springy ground which drains into the south branch of the Estep Ditch and from this ditch irrigates 1.6 acres of pasture.

No data were secured on the flow of the spring except that on August 15th it was observed that no water was reaching the above mentioned pasture.

Diversion 21 within the SW $\frac{1}{4}$  of NE $\frac{1}{4}$  Section 26, T 33 N, R 2 W, refers to the diversion of the Robert Winters Ditch from Oak Run Creek. A rock dam turns the water into a ditch on the north side of the creek about one hundred and fifty feet long, from which the water crosses the creek on a wooden flume and is emptied into a sidehill ditch and carried about three quarters of a mile to the upper end of Winters' irrigated land. The ditch continues along the sidehill, irrigating 18.4 acres of which 13.5 acres were irrigated in 1923.

On June 19th the normal irrigating head as turned in by Mr. Winters

was measured by current meter and found to be 0.61 cubic foot per second. This amount of water also filled the ditch to capacity.

Diversion 22 within the SW $\frac{1}{4}$  of SE $\frac{1}{4}$  Section 26, T 33 N, R 2 W, refers to the Robert Winters Flume and Ditch heading at a spring on the Winters place. A wooden flume a little more than a hundred feet long heads at the spring and carries the water to a small ditch, the combined system irrigating 1.5 acres of garden and orchard and furnishing the house with domestic water.

On June 19th, the flow of the spring which is said to be practically constant, was measured at the lower end of the flume. This flow, measured in a bucket of known capacity, was .022 cubic foot per second.

Diversion 23 within the NE $\frac{1}{4}$  of NE $\frac{1}{4}$  Section 35, T 33 N, R 2 W, has reference to the E. English House Ditch diverting from a gulch into which the English share of the water of the English-Herrick-Ballard Ditch (see Diversion 9) is emptied.

This ditch furnishes water for stock and irrigates some 9.9 acres of land, all of which has been included under the Welch and Strayer Ditch System.

During the irrigation season the only natural flow of this gulch is contributed by three small springs. The estimated flow on June 12th was 0.05 cubic foot per second for each spring, making a total of 0.15 cubic foot per second. Mr. English stated that the normal flow is about half of that observed on that date or .08 cubic foot per second.

#### METHODS OF IRRIGATION

The alfalfa and hay lands are irrigated by the wild flooding method,

while the furrow method is used for the irrigation of the gardens and orchards. Part of the water used for irrigation is lost by percolation, but a considerable portion returns to the creek as seepage water or by way of numerous swales and channels.

The irrigation season normally begins in April or May and ends with the fall rains in September or October.

#### DUTY OF WATER

Sufficient data are available on the quantity of water diverted by three different irrigation systems in the Oak Run Creek watershed to warrant some conclusions as to the duty of water in this vicinity.

The users of the North Cow Creek and Oak Run Creek waters ordinarily begin irrigation about May 15th, but cool weather and late rains made this date somewhat later in 1923, some of the users just beginning to irrigate at the time the investigation was started about June 5th. In fact, one of the large irrigators on lower North Cow Creek did not turn water into his ditch until about July 1st.

Since the records of the amounts diverted were started within two or three weeks of the beginning of the irrigation season, the length of season for which the duty has been worked out is the period between the date the record was started and the date the first fall rains ended the season, September 22nd; no attempt having been made to estimate the water diverted prior to the beginning of the record.

#### Welch and Strayer Ditch

The duty of water under this system is discussed in the North Cow

Creek Report since part of the water is diverted from that watershed and since the irrigated lands and methods of irrigation are typical of the practice in both the North Cow Creek and Oak Run Creek areas.

The estimated total diversion for the season June 12th - September 22nd of the Welch and Strayer Ditch from Oak Run Creek (which includes the water diverted from Mill Creek and turned into Oak Run Creek) was 443 acre feet. The estimated total amount brought to the Oak Run Creek watershed from Clover Creek was 219 acre feet, of which the Oak Run Creek users involved, were entitled to one-half or 110 acre feet (see Diversion 9). This makes a total of 553 acre feet used on 125.1 acres, including 11.8 acres of sub-irrigated land, during the irrigation season of 103 days. This amounts to 4.42 acre feet per acre or 1 cubic foot per second to 46.1 acres of land irrigated. If the 221 acre feet loss in the Welch and Strayer Ditch between the point of diversion from Mill Creek and the point where the water is emptied into Oak Run Creek, be added to the above 553 acre feet, the gross duty would be 774 acre feet for 125.1 acres, or 6.18 acre feet per acre. See Tables Numbers 4 and 5.

#### Henry Smith System

The Smith ranch is irrigated by the water from two springs, herein named Smith Upper Spring and Smith Lower Spring. The flows of these springs were stated by Mr. Smith to be more or less constant. As discussed under Diversions 4 and 6, the measured flows were on June 9th, 0.62 and 0.53 cubic foot per second, respectively. The acreage irrigated during 1923 was 49.5 acres including 3.2 acres of sub-irrigated land. The duty then, assuming the flow of the springs to have been constant throughout the season, was

1 cubic foot per second to 43.0 acres or for a season of 103 days, 4.74 acre feet per acre.

Predmore Ditch System

The estimate of the total quantity of water diverted by this ditch from June 11th to September 22nd, 1923, as shown in Table 6, is 274 acre feet. The acreage irrigated in 1923 was 73.9 acres. The use therefore amounted to 3.71 acre feet per acre or 1 cubic foot per second to 55.5 acres.

T A B L E S

T A B L E 1

ESTIMATE OF RUN-OFF OF OAK RUN CREEK AT SMITH'S BRIDGE

Date	Measured Flow In Second Feet	Mean Flow Second Feet	Days	Total Second Foot Days
June 13	7.5	7.50	6	45.0
June 18	7.5	7.50	2	15.0
June 20	7.5	7.50	7	52.5
June 27	7.5	7.50	4	30.0
July 1	7.5	7.05	9	63.4
July 10	6.6	7.05	3	21.1
July 13	7.5	6.90	4	27.6
July 17	6.3	5.70	9	51.3
July 26	5.1	4.35	28	121.8
Aug. 23	3.6	3.60	16	57.6
Sept. 8	3.6	3.60	14	50.4
Sept. 22 (Irr. Season Over)				
<b>Total Days</b>			<b>102</b>	
<b>Gross Flow in Second Foot Days</b>				<b>535.7</b>
<b>Gross <sup>Run-off</sup> Flow in Acre Feet</b>				<b>1062</b>

Discharges obtained by applying gage heights to rating curve.

T A B L E 2

ESTIMATE OF RUN-OFF OF OAK RUN CREEK BELOW ALL DIVERSIONS

Date	Measured Flow In Second Feet	Mean Flow Second Feet	Days	Total Second Foot Days
June 13	5.1	4.95	2	9.9
June 14	4.8	4.80	5	24.0
June 19	4.8	3.00	37	111.0
July 26	1.2	1.00	18	18.0
Aug. 13	0.8	1.15	10	11.5
Aug. 23	1.5	1.50	30	45.0
Sept. 22	(Rains)			
Sept. 23	(After Rains)			
	4.2			
<b>Total Days</b>			102	
<b>Gross Run-off in Second Foot Days</b>				219.4
<b>Gross Run-off in Acre Feet</b>				434

Discharges obtained by applying gage heights to rating curve.

TABLE 3

DESCRIPTION OF LANDS IRRIGATED

FROM

OAK RUN CREEK AND TRIBUTARIES

Name of Owner	Name of Ditch	Acreage Irrigated			Description	Crop	Map Sheet
		Irr	Sub-irr	Total			
Ballard, James W.	Welch & Strayer	0.8			SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 30	Orchard	5
	Ditch System				T 33 N R 1 W		
	Diversion 9.	0.5*			SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 30	Corn	5
					T 33 N R 1 W	1922	
			4.5		SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 30	Pasture	5
					T 33 N R 1 W		
			0.9		SE $\frac{1}{4}$ SW $\frac{1}{4}$ S 30	Orchard	5
					T 33 N R 1 W		
			0.6		SE $\frac{1}{4}$ SW $\frac{1}{4}$ S 30	Garden	5
					T 33 N R 1 W		
			0.3		SE $\frac{1}{4}$ SW $\frac{1}{4}$ S 30	Grass	5
					T 33 N R 1 W		
			2.1		SE $\frac{1}{4}$ SW $\frac{1}{4}$ S 30	Pasture	5
				T 33 N R 1 W			
		1.4		SE $\frac{1}{4}$ SW $\frac{1}{4}$ S 30	Pasture	5	
				T 33 N R 1 W			
		1.0*		SE $\frac{1}{4}$ SW $\frac{1}{4}$ S 30	Corn	5	
				T 33 N R 1 W	1922		
		12.1		12.1	TOTAL AND GRAND TOTAL		
Carswell, J.B.	Welch & Strayer	8.0			NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Orchard	6
	Ditch System				T 33 N R 2 W		
	Diversion 9.	2.1			NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Meadow	6
					T 33 N R 2 W		
			0.4		NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Berries	6
					T 33 N R 2 W		
			2.8		NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Garden	6
					T 33 N R 2 W		
			0.7		NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Sorghum	6
					T 33 N R 2 W		
			0.4*		NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Pasture	6
				T 33 N R 2 W	1922		
		0.5		NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Corn	6	
				T 33 N R 2 W			
		14.9		14.9	TOTAL AND GRAND TOTAL		

\*Not irrigated in 1923 but irrigated subsequent to 1916.

TABLE 3 (cont.)

Sheet 2

Name of Owner	Name of Ditch	Acreage Irrigated			Description	Crop	Map Sheet
		Irr	Sub-irr	Total			
Colby, F. A.	Kirkendahl Ditch	17.6			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 24	Meadow	4
	Diversions 15				T 33 N R 2 W		
	and 16.	1.9			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 24	Brush	4
					T 33 N R 2 W	Pasture	
			0.5		SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 24	Corn	4
					T 33 N R 2 W		
			0.6		NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Orchard	4
					T 33 N R 2 W		
			0.3		NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Garden	4
					T 33 N R 2 W		
			7.3		NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Meadow	4
					T 33 N R 2 W		
			2.0		NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Meadow &	4
					T 33 N R 2 W	Orchard	
		0.6		NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Alfalfa	4	
				T 33 N R 2 W			
		0.5		NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Garden	4	
				T 33 N R 2 W			
		0.2		NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Corn	4	
				T 33 N R 2 W			
		31.5		31.5	TOTAL AND GRAND TOTAL		
Cook, A.H. & J.D.	Predmore Ditch	1.5			NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 19	Garden	4
	Diversion 14.				T 33 N R 1 W		
		1.9			NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 19	Walnuts	4
					T 33 N R 1 W		
		0.9			NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 19	Alfalfa	4
					T 33 N R 1 W		
		0.6			NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 19	Pasture	4
					T 33 N R 1 W		
		2.1*			NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 19	Beans	4
					T 33 N R 1 W	1920	
		0.2*			NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 19	Corn	4
					T 33 N R 1 W	1919	
		1.9			NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 19	No Crop	4
					T 33 N R 1 W		
	3.9			Lot 2 Sec 19	Corn	4	
				T 33 N R 1 W			
	2.5			Lot 2 Sec 19	Beans	4	
				T 33 N R 1 W			
	2.0			Lot 2 Sec 19	Meadow	4	
				T 33 N R 1 W			
	6.8*			Lot 2 Sec 19	Corn	4	
				T 33 N R 1 W	1921		
	0.9*			Lot 2 Sec 19	Corn	4	
				T 33 N R 1 W	1916		

\*Not irrigated in 1923 but irrigated subsequent to 1916.

TABLE 3 (cont.)

Sheet 3

Name of Owner	Name of Ditch	Acreage Irrigated			Description	Crop	Map Sheet
		Irr	Sub-irr	Total			
Cook, A.H. & J.D. (cont.)	:Predmore Ditch	3.5	:	:	: Lot 3 Sec 19	: Beans	: 4
	:Diversion 14	:	:	:	: T 33 N R 1 W	:	:
	:	5.4	:	:	: Lot 3 Sec 19	: Corn	: 4
	:	:	:	:	: T 33 N R 1 W	:	:
	:	1.1	:	:	: Lot 3 Sec 19	: Orchard	: 4
	:	:	:	:	: T 33 N R 1 W	:	:
	:	0.1	:	:	: Lot 3 Sec 19	: Alfalfa	: 4
	:	:	:	:	: T 33 N R 1 W	:	:
	:	16.7	:	:	: Lot 3 Sec 19	: Meadow	: 4
	:	:	:	:	: T 33 N R 1 W	:	:
	:	3.5	:	:	: Lot 3 Sec 19	: Pasture	: 4
	:	:	:	:	: T 33 N R 1 W	:	:
	:	1.0*	:	:	: Lot 3 Sec 19	: Beans	: 4
	:	:	:	:	: T 33 N R 1 W	: 1920	:
	:	2.4*	:	:	: Lot 3 Sec 19	: Corn	: 4
	:	:	:	:	: T 33 N R 1 W	: 1919	:
	:	1.1*	:	:	: Lot 3 Sec 19	: Beets	: 4
:	:	:	:	: T 33 N R 1 W	: 1919	:	
:	0.1*	:	:	: Lot 3 Sec 19	: Corn	: 4	
:	:	:	:	: T 33 N R 1 W	: 1916	:	
:	0.1	:	:	: NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	: Beans	: 4	
:	:	:	:	: T 33 N R 2 W	:	:	
:	0.3	:	:	: SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 24	: Corn	: 4	
:	:	:	:	: T 33 N R 2 W	: 1921	:	
:	:	:	:	:	:	:	
:	60.5	:	:	60.5	TOTAL AND GRAND TOTAL	:	
English, E.	:English House	:	:	:	:	:	:
	:Ditch.	1.0	:	:	: SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 35	: Garden &	: 7
	:Diversion 23.	:	:	:	: T 33 N R 2 W	: Orchard	:
	:A part of the	2.5	:	:	: SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 35	: Meadow	: 7
	:Welch & Strayer:	:	:	:	: T 33 N R 2 W	:	:
	:Ditch System.	0.1	:	:	: SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 35	: Grass	: 7
	:	:	:	:	: T 33 N R 2 W	:	:
	:	6.3	:	:	: SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 25	: Pasture	: 7
	:	:	:	:	: T 33 N R 2 W	:	:
	:	9.9	:	:	9.9	:	:
:	:	:	:	:	:	:	
:	Welch & Strayer:	14.2	:	:	: NW $\frac{1}{4}$ NE $\frac{1}{4}$ S 35	: Meadow	: 7
:	:Ditch System.	:	:	:	: T 33 N R 2 W	:	:
:	:Diversion 9	2.7	:	:	: NW $\frac{1}{4}$ NE $\frac{1}{4}$ S 35	: Pasture	: 7
:	:	:	:	:	: T 33 N R 2 W	:	:

\*Not irrigated in 1923 but irrigated subsequent to 1916.

TABLE 3 (cont.)

Sheet 4

Name of Owner	Name of Ditch	Acreage Irrigated			Description	Crop	Map Sheet
		Irr	Sub-irr	Total			
English, E. (cont.)	Welch & Strayer	0.8			NW $\frac{1}{4}$ NE $\frac{1}{4}$ S 35	Grass	7
	Ditch System				T 33 N R 2 W		
	Diversion 9	3.7			NE $\frac{1}{4}$ NW $\frac{1}{4}$ S 35	Meadow	7
					T 33 N R 2 W		
			6.9		NE $\frac{1}{4}$ NW $\frac{1}{4}$ S 35	Pasture	7
					T 33 N R 2 W		
			2.8		NE $\frac{1}{4}$ NW $\frac{1}{4}$ S 35	Grain	7
					T 33 N R 2 W		
				0.6	NW $\frac{1}{4}$ NE $\frac{1}{4}$ S 35	Pasture	7
					T 33 N R 2 W		
		31.1	0.6	31.7			
		41.6			GRAND TOTAL		
Estep, Mrs.A.	Estep Ditch	2.0			SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Corn	4
	Diversion 19				T 33 N R 2 W		
			4.2		SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Meadow	4
					T 33 N R 2 W		
			3.5*		SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Corn	4
					T 33 N R 2 W		
			6.6*		SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Meadow	4
					T 33 N R 2 W		
			1.6*		SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Corn	4
					T 33 N R 2 W	1922	
			1.2		NE $\frac{1}{4}$ NW $\frac{1}{4}$ S 25	Garden	6
					T 33 N R 2 W		
			0.3		NE $\frac{1}{4}$ NW $\frac{1}{4}$ S 25	Alfalfa	6
					T 33 N R 2 W		
			0.3		NW $\frac{1}{4}$ NE $\frac{1}{4}$ S 25	Alfalfa	6
					T 33 N R 2 W		
			0.2		NW $\frac{1}{4}$ NE $\frac{1}{4}$ S 25	Garden	6
					T 33 N R 2 W		
			1.1		NW $\frac{1}{4}$ NE $\frac{1}{4}$ S 25	Meadow	6
				T 33 N R 2 W			
		0.7*		NW $\frac{1}{4}$ NE $\frac{1}{4}$ S 25	Alfalfa	6	
				T 33 N R 2 W	1922		
		0.3*		NW $\frac{1}{4}$ NE $\frac{1}{4}$ S 25	Corn	6	
				T 33 N R 2 W	1922		
		17.2*		NW $\frac{1}{4}$ NE $\frac{1}{4}$ S 25	Corn	6	
				T 33 N R 2 W	1919		
		39.2		39.2			

\*Not irrigated in 1923 but irrigated subsequent to 1916.

TABLE 3 (cont.)

Name of Owner	Name of Ditch	Acreage Irrigated			Description	Crop	Map Sheet
		Irr	Sub-irr	Total			
Estep, Mrs. A. (cont.)	:Estep Calf	:	:	:	:	:	:
	:Pasture Spring	1.6	:	:	NW $\frac{1}{4}$ NE $\frac{1}{4}$ S 25	Pasture	6
	:Diversions 20.	:	:	:	T 33 N R 2 W	:	:
	:	1.6	:	1.6	:	:	:
				40.8	GRAND TOTAL		
Herrick, E.D.	:Welch & Strayer	0.7	:	:	SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Vineyard	6
	:Ditch System	:	:	:	T 33 N R 2 W	Berries	:
	:Diversions 9	0.4	:	:	SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Straw-	6
	:	:	:	:	T 33 N R 2 W	berries	:
	:	0.8	:	:	SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Vineyard	6
	:	:	:	:	T 33 N R 2 W	:	:
	:	0.6	:	:	SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Garden	6
	:	:	:	:	T 33 N R 2 W	:	:
	:	5.0	:	:	SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Orchard	6
	:	:	:	:	T 33 N R 2 W	:	:
	:	1.2	:	:	SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Garden	6
	:	:	:	:	T 33 N R 2 W	:	:
	:	:	2.2	:	SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Meadow	6
	:	:	:	0.3	SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 25	Meadow	6
:	:	:	:	T 33 N R 2 W	:	:	
				8.7	2.5	11.2	TOTAL AND GRAND TOTAL
Jackson, Wm.	:Jackson Ditch	1.7	:	:	NE $\frac{1}{4}$ NE $\frac{1}{4}$ S 13	Grain	1
	:Diversions 2	:	:	:	T 33 N R 1 W	:	:
	:and 3.	0.9*	:	:	NE $\frac{1}{4}$ NE $\frac{1}{4}$ S 13	No Crop	1
	:	:	:	:	T 33 N R 1 W	:	:
				2.6	:	2.6	TOTAL AND GRAND TOTAL
Maxwell, J.W. & Jennie	:Maxwell Spring	:	:	:	:	:	:
	:Ditch.	0.6*	:	:	NW $\frac{1}{4}$ SW $\frac{1}{4}$ S 13	No Crop	2
	:Diversions 8	:	:	:	T 33 N R 1 W	:	:
				0.6	:	0.6	TOTAL AND GRAND TOTAL
McCarty, J.L.	:Welch & Strayer	0.8	:	:	Lot 3 Sec 30	Orchard	5
	:Ditch System	:	:	:	T 33 N R 1 W	:	:
	:Diversions 9	0.5	:	:	Lot 3 Sec.30	Orchard,	5
	:	:	:	:	T 33 N R 1 W	Garden	:

\*Not irrigated in 1923 but irrigated subsequent to 1916.

TABLE 3 (cont.)

Name of Owner	Name of Ditch	Acreage Irrigated			Description	Crop	Map Sheet	
		Irr	Sub-irr	Total				
McCarty, J.L. (cont.)	Welch & Strayer							
	Ditch System.	0.8*			Lot 3 Sec 30	Grass	5	
	Diversion 9				T 33 N R 1 W	1919		
		2.1		2.1	TOTAL AND GRAND TOTAL			
Melton, Walter	Melton Upper	0.4			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 20	Garden	3	
	Ditch.				T 33 N R 1 W			
	Diversion 10	1.6			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 20	Meadow	3	
					T 33 N R 1 W			
		0.3			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 20	Grass	3	
					T 33 N R 1 W			
		2.0			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 20	Pasture	3	
					T 33 N R 1 W			
			1.1		SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 20	Pasture	3	
					T 33 N R 1 W			
			4.3	1.1	5.4			
		Melton Lower	0.6			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 20	Garden	3
		Ditch.				T 33 N P 1 W		
	Diversion 11	0.2			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 20	Meadow	3	
					T 33 N R 1 W			
		0.8		0.8				
	Melton South	0.6			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 20	Garden	3	
	Ditch.				T 33 N R 1 W			
	Diversion 12	0.9			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 20	Orchard	3	
					T 33 N R 1 W			
		1.5		1.5				
				7.7	GRAND TOTAL			
Melton, Isaac	Alpaugh Ditch	1.0			NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 19	Pasture	4	
	Diversion 13				T 33 N R 1 W			
		0.8*			NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 19	Pasture	4	
					T 33 N R 1 W	1922		
		2.9*			NE $\frac{1}{4}$ SE $\frac{1}{4}$ S 19	Beans	4	
					T 33 N R 1 W	1920		
		3.0			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 19	Pasture	4	
				T 33 N R 1 W				
		2.5*			SE $\frac{1}{4}$ NE $\frac{1}{4}$ S 19	Pasture	4	
					T 33 N R 1 W	1922		

\*Not irrigated in 1923 but irrigated subsequent to 1916.

TABLE 3 (cont.)

Sheet 7

Name of Owner	Name of Ditch	Acreage Irrigated			Description	Crop	Map Sheet	
		Irr	Sub-irr	Total				
Melton, Isaac (cont.)	Alpaugh Ditch	5.2			SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 19	Pasture	4	
	Diversion 13				T 33 N R 1 W			
			1.6			SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 19	Garden	4
						T 33 N R 1 W		
			1.2			SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 19	Meadow	4
						T 33 N R 1 W		
			0.2*			SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 19	Pasture	4
						T 33 N R 1 W	1922	
			0.7*			SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 19	Beans	4
						T 33 N R 1 W	1920	
			1.0			NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 19	Garden	4
						T 33 N R 1 W		
			1.5			NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 19	Meadow	4
						T 33 N R 1 W		
			0.5			NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 19	Pasture	4
						T 33 N R 1 W		
			3.7*			NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 19	Beans	4
					T 33 N R 1 W	1920		
		1.4			SE $\frac{1}{4}$ NW $\frac{1}{4}$ S 19	Garden	4	
					T 33 N R 1 W			
		1.7			SE $\frac{1}{4}$ NW $\frac{1}{4}$ S 19	Meadow	4	
					T 33 N R 1 W			
		0.2			SE $\frac{1}{4}$ NW $\frac{1}{4}$ S 19	Grass	4	
					T 33 N R 1 W			
		0.2			NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 19	Garden	4	
					T 33 N R 1 W			
		0.8			NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 19	Meadow	4	
					T 33 N R 1 W			
		30.1		30.1	TOTAL AND GRAND TOTAL			
Murphy, M.M.& R.M.	Predmore Ditch	3.2			Lot 4 Sec 19	Orchard	4	
	Diversion 14				T 33 N R 1 W			
			2.1			Lot 4 Sec 19	Meadow	4
						T 33 N R 1 W		
			0.9			SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Orchard	4
						T 33 N R 2 W		
			13.4			SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Corn &	4
						T 33 N R 2 W	Garden	
			5.6			SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Meadow	4
						T 33 N R 2 W		
		0.9			SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Sorghum	4	
					T 33 N R 2 W			
		4.1*			SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Sorghum	4	
					T 33 N R 2 W	1922		
		1.1			SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Brush	4	
					T 33 N R 2 W	Pasture		

\*Not irrigated in 1923 but irrigated subsequent to 1916.

TABLE 3 (cont.)

Name of Owner	Name of Ditch	Acreage Irrigated			Description	Crop	Map Sheet
		Irr	Sub-irr	Total			
Murphy, M.M. & R.M. (cont.)	Predmore Ditch	2.1*			SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Rye 1922	4
	Diversion 14				T 33 N R 2 W		
		2.3*			SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Pasture	4
					T 33 N R 2 W	1917	
		1.1			NE $\frac{1}{4}$ NE $\frac{1}{4}$ S 25	Meadow	6
					T 33 N R 2 W		
		0.7*			NE $\frac{1}{4}$ NE $\frac{1}{4}$ S 25	Sorghum	6
					T 33 N R 2 W	1922	
			37.5		37.5		
		Murphy Spring Ditch and Murphy Slough Ditch	0.2			SE $\frac{1}{4}$ SE $\frac{1}{4}$ S 24	Meadow
	Diversions 17 and 18.	8.5			NE $\frac{1}{4}$ NE $\frac{1}{4}$ S 25	Meadow	6
					T 33 N R 2 W		
		8.7		8.7			
		46.2			GRAND TOTAL		
Ross, Wilford	Welch & Strayer	3.5			Lot 2 Sec 30	Meadow	5
E. & Cox, John W.	Ditch System				T 33 N R 1 W		
	Diversion 9	2.0			Lot 2 Sec 30	Garden	5
					T 33 N R 1 W		
		1.5			Lot 2 Sec 30	Corn	5
					T 33 N R 1 W		
		0.3			Lot 2 Sec 30	Meadow	5
					T 33 N R 1 W		
		1.9			Lot 2 Sec 30	Orchard	5
					T 33 N R 1 W		
		4.8			Lot 2 Sec 30	Pasture	5
					T 33 N R 1 W		
		2.2*			Lot 2 Sec 30	Meadow	5
					T 33 N R 1 W	1922	
		15.8			Lot 3 Sec 30	Meadow	5
					T 33 N R 1 W		
		6.6			Lot 3 Sec 30	Orchard	5
					T 33 N R 1 W		
		0.2			Lot 3 Sec 30	Vineyard	5
					T 33 N R 1 W		
		0.6			Lot 3 Sec 30	Garden	5
					T 33 N R 1 W		
			0.6		Lot 3 Sec 30	Meadow	5
					T 33 N R 1 W		
			8.1		Lot 2 Sec 30	Meadow	5
					T 33 N R 1 W		
		39.4	8.7	48.1	TOTAL AND GRAND TOTAL		

\*Not irrigated in 1923 but irrigated subsequent to 1916.

TABLE 3 (cont.)

Name of Owner	Name of Ditch	Acreage Irrigated			Description	Crop	Map Sheet
		Irr	Sub-irr	Total			
Smith, Henry A.	Smith Upper Sp.	0.7			SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 14	Garden	2
	Ditch.				T 33 N R 1 W		
	Diversion 4	12.0			SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 14	Meadow	2
					T 33 N R 1 W		
			1.2		SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 14	Orchard	2
					T 33 N R 1 W		
			0.1		SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 14	Grass	2
					T 33 N R 1 W		
			9.5		SW $\frac{1}{4}$ NE $\frac{1}{4}$ S 14	Pasture	2
					T 33 N R 1 W		
			0.4		SE $\frac{1}{4}$ NW $\frac{1}{4}$ S 14	Meadow	2
					T 33 N R 1 W		
			1.9		NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 14	Meadow	2
					T 33 N R 1 W		
			1.4		NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 14	Pasture	2
				T 33 N R 1 W			
		0.3		NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 14	Brush	2	
				T 33 N R 1 W	Pasture		
		1.4		NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 14	Meadow	2	
				T 33 N R 1 W			
		2.3		NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 14	Brush	2	
				T 33 N R 1 W	Pasture		
		31.2		31.2			
	Smith Lower	8.1			NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 14	Meadow	2
	Spring Ditch.				T 33 N R 1 W		
	Diversion 6.	1.3			NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 14	Garden	2
					T 33 N R 1 W		
		1.0			NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 14	Grain	2
					T 33 N R 1 W		
		1.6			NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 14	Pasture	2
					T 33 N R 1 W		
		1.3			NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 14	Brush	2
					T 33 N R 1 W	Pasture	
		1.7			NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 14	Brush	2
					T 33 N R 1 W	Pasture	
		0.1			NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 14	Meadow	2
					T 33 N R 1 W		
			0.2		NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 14	Pasture	2
					T 33 N R 1 W		
			1.5		NW $\frac{1}{4}$ SE $\frac{1}{4}$ S 14	Meadow	2
					T 33 N R 1 W		
			1.5		NE $\frac{1}{4}$ SW $\frac{1}{4}$ S 14	Meadow	2
					T 33 N R 1 W		
		15.1	3.2	18.3			
				49.5	GRAND TOTAL		

TABLE 3 (cont.)

Name of Owner	Name of Ditch	Acreage Irrigated			Description	Crop	Map Sheet
		Irr	Sub-irr	Total			
Winters, Robert	Winters Ditch	0.2			SW $\frac{1}{4}$ SW $\frac{1}{4}$ S 26	Pasture	7
	: Diversion 21				: T 33 N R 2 W		
		0.5			: SE $\frac{1}{4}$ SW $\frac{1}{4}$ S 26	Garden	7
					: T 33 N R 2 W		
		4.7			: SE $\frac{1}{4}$ SW $\frac{1}{4}$ S 26	Meadow	7
					: T 33 N R 2 W		
		4.3			: SE $\frac{1}{4}$ SW $\frac{1}{4}$ S 26	Pasture	7
					: T 33 N R 2 W		
		4.9*			: SE $\frac{1}{4}$ SW $\frac{1}{4}$ S 26	Corn	7
					: T 33 N R 2 W	1922	
		2.1			: SE $\frac{1}{4}$ SW $\frac{1}{4}$ S 26	Brush	7
					: T 33 N R 2 W	Pasture	
		0.5			: SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 26	Garden	7
					: T 33 N R 2 W		
		0.7			: SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 26	Pasture	7
					: T 33 N R 2 W		
		0.5			: SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 26	Brush	7
					: T 33 N R 2 W	Pasture	
		18.4		18.4			
	Winters Spring						
	: Ditch.	1.5			: SW $\frac{1}{4}$ SE $\frac{1}{4}$ S 26	Garden &	7
	: Diversion 22				: T 33 N R 2 W	Orchard	
		1.5		1.5			
				19.9	GRAND TOTAL		

T A B L E 4

ESTIMATE OF WELCH AND STRAYER DITCH DIVERSION FROM OAK RUN CREEK

Date	Measured Flow in Second Feet	Mean Flow Second Feet	Days	Total Second Foot Days
June 12	3.0	3.30	8	26.4
June 19	3.6	3.60	7	25.2
June 26	3.6	3.30	12	39.6
July 8	3.0	2.75	9	24.8
July 17	2.5	2.40	9	21.6
July 26	2.3	2.10	2	4.2
July 28	1.9	1.70	13	22.1
Aug. 10	1.5	1.50	9	13.5
Aug. 19	1.5	1.60	4	8.4
Aug. 23	1.7	1.55	7	10.8
Aug. 30	1.4	1.20	12	14.4
Sept. 11	1.0	1.00	11	11.0
Sept. 22	(Season Over)			
<b>Total Days</b>			<b>103</b>	
<b>Gross Diversion in Second Foot Days</b>				<b>222.0</b> ✓
<b>Gross Diversion in Acre Feet</b>				<b>439</b>

Discharges obtained by applying gage heights to rating curve.

T A B L E 5

ESTIMATE OF WATER BROUGHT TO OAK RUN CREEK WATERSHED BY WELCH AND NAYLOR DITCH

Date	Measured Flow In Second Feet	Mean Flow Second Feet	Days	Total Second Foot Days
June 12	1.4	1.30	8	10.4
June 19	1.2	1.50	7	10.5
June 26	1.8	1.50	12	18.0
July 8	1.2	1.10	2	2.2
July 10	1.0	1.20	7	8.4
July 17	1.4	0.70	6	4.2
July 23	0	1.00	3	3.0
July 26	2.0	1.75	2	3.5
July 28	1.5	1.25	14	17.5
Aug. 11	1.0	1.00	8	8.0
Aug. 19	1.0	0.90	4	3.6
Aug. 23	0.8	0.75	7	5.2
Aug. 30	0.7	0.70	12	8.4
Sept. 11	0.7	0.70	11	7.7
Sept. 22	(Season Over)			
<b>Total Days</b>			<b>103</b>	
<b>Gross Amount in Second Foot Days</b>				<b>110.6</b>
<b>Gross Amount in Acre Feet</b>				<b>219</b>

Discharges obtained by applying gage heights to rating curve

T A B L E    6

ESTIMATE OF PREDMORE DITCH DIVERSION FROM OAK RUN CREEK

Date	Measured Flow In Second Feet	Mean Flow Second Feet	Days	Total Second Foot Days
June 11	2.3			
		2.05	4	8.2
June 14	1.8			
		1.75	16	28.0
June 30	1.7			
		1.70	7	11.9
July 7	1.7			
		1.70	7	11.9
July 14	1.7			
		1.35	7	9.4
July 21	1.0			
		1.05	5	5.2
July 26	1.1			
		1.05	2	2.1
July 28	1.0			
		1.00	7	7.0
Aug. 4	1.0			
		1.00	7	7.0
Aug. 11	1.0			
		1.05	7	7.4
Aug. 18	1.1			
		1.20	5	6.0
Aug. 23	1.3			
		1.15	2	2.3
Aug. 25	1.0			
		1.05	7	7.4
Sept. 1	1.1			
		1.15	7	8.0
Sept. 8	1.2			
		1.20	14	16.8
Sept. 22	(Rains)			
<b>Total Days</b>			<b>104</b>	
<b>Gross Diversion in Second Foot Days</b>				<b>138.6</b>
<b>Gross Diversion in Acre Feet</b>				<b>274</b>

Discharges obtained by applying gage heights to rating curve

TABLE 7

SUMMARY OF DIVERSION SYSTEMS DIVERTING FROM  
OAK RUN CREEK AND ITS TRIBUTARIES

Name of Diversion System	Diversion Number	Stream Diverted From	Acreage Irrigated	Acreage Sub-irrigated	Total acreage irr. and sub-irrigated
Alpaugh Ditch	13	Oak Run Creek	30.1	0.0	30.1
English House Ditch	23	Unnamed Gulch	(a)0.0	0.0	0.0
Estep Ditch	19	Murphy-Estep Branch of Oak Run Creek	39.2	0.0	39.2
Estep Domestic Pipe Line	20	Spring	(b)0.0	0.0	0.0
Estep Calf Pasture Spring	20	Spring	1.6	0.0	1.6
Jackson Ditch	2	Unnamed Wash	2.6	0.0	2.6
Jackson Ditch	3	Oak Run Creek			
Kirkendahl Ditch	15	Oak Run Creek	31.5	0.0	31.5
Kirkendahl Ditch	16	Unnamed Swale			
Maxwell Mill Ditch	5	Oak Run Creek	(c)0.0	0.0	0.0
Maxwell Sawdust Flume	7	Spring	(c)0.0	0.0	0.0
Maxwell Spring Ditch	8	Spring	0.6	0.0	0.6
Melton Upper Ditch	10	Oak Run Creek	4.3	1.1	5.4
Melton Lower Ditch	11	Oak Run Creek	0.8	0.0	0.8

(a) Acreage included under Welch and Strayer Ditch System.

(b) Used for domestic purposes.

(c) Used for power and other purposes at Maxwell Mill.

TABLE 7 (cont.)

Name of Diversion System	Diversion Number	Stream Diverted From	Acreage Irrigated	Acreage Sub-irrigated	Total acreage irr. and sub-irrigated
Melton South Ditch	12	Oak Run Creek	1.5	0.0	1.5
Murphy Spring Ditch	17	Spring	8.7	0.0	8.7
Murphy Slough Ditch	18	Branch of Oak Run Creek			
Predmore Ditch	14	Oak Run Creek	98.0	0.0	98.0
Rose Domestic Pipe Line	1	Oak Run Creek	(b)0.0	0.0	0.0
Smith Upper Spring Ditch	4	Spring	31.2	0.0	31.2
Smith Lower Spring Ditch	6	Spring	15.1	3.2	18.3
Winters Ditch	21	Oak Run Creek	18.4	0.0	18.4
Winters Spring Ditch	22	Spring	1.5	0.0	1.5
Welch and Strayer Ditch System	9	Oak Run and Clover Creeks	118.2	11.8	130.0
		TOTALS	403.3	16.1	419.4

(b) Used for domestic purposes.