

STATE OF COLORADO

IRRIGATION DIVISION NO. 4

MONTROSE

December 1, 1946.

1946

FRED S. HOTCHKISS
IRRIGATION DIVISION ENGINEER
ROOM 7, COURT HOUSE
P. O. BOX 15

Mr. M. C. Hinderlider,
State Engineer,
Denver, Colo.

Dear Sir:

Herewith I submit my annual report for 1946.

The late fall of 1945 was a period of low precipitation, and notwithstanding late summer moisture, soil conditions at the beginning of 1946 were poor. Following this the first three months of 1946, - January, February and March were likewise far short of normal. In Montrose, where weather records have been kept for more than 50 years, the precipitation for these three months was only 1.15 inches, while the long time average was 1.97 inches, making a shortage of about 42 %. It appears that the deficiency in the high altitude areas which supply our streams must have been in about the same ratio, since the snow surveys on the Gunnison watershed showed a water content of 65 % of normal, and the Dolores 40 % of normal.

The spring was backward, with a freeze on the first of May that did serious damage to both apples and stone fruits.

It is estimated that the reservoirs on Grand Mesa and the Onion Valley Reservoir on Crystal Creek in District No. 40 filled to 75 % of capacity. The Taylor Park Reservoir, having a large carryover, filled to capacity.

Beginning in July, summer storms in the high altitudes relieved an otherwise desperate condition. The Uncompahgre River and similar streams held up well, and water supply for irrigation was not as short as anticipated.

Following is a copy of a letter by Jesse R. Thompson, Project Manager of the Uncompahgre Valley Project, giving details of the operation of that system:

UNCOMPAHGRE PROJECT COLORADO

SEASON 1946

Under the terms of the contract between the Bureau of Reclamation and the Uncompahgre Valley Water Users' Association approved August 4, 1931, the operation and maintenance of the Uncompahgre Project was taken over by the Association on January 1, 1932.

The Project irrigation system includes 575 miles of irrigation canals and laterals and 204 miles of drainage canals.

It requires 1600 second feet of water entering the Project to meet requirements during periods of peak demand.

The water content of the snowfall on the Uncompahgre watershed on March 1, 1946 was 54 % of the normal content on March 1 for the period of record. On April 1 the water content was 73 % and on May 1 there was no water content at the station where there was normally 9.4 inches of water content.

The water content of the snowfall on the Gunnison watershed on March 1

1946 was 77 % of the normal content on March 1 for the period of record. On April 1 it was 76 % of normal, and on May 1 it was 30 % of normal.

From the above record you will note that the outlook for water for the season of 1946 was far below normal. By the first of July the snow in the high mountains was getting scarce and we expected to have to begin drawing out of Taylor Park Reservoir in a short time. However, it began to rain in the high watersheds of both the Uncompahgre and Gunnison rivers. It rained practically every day and the discharge in the streams increased enough to practically meet demands without drawing from stored water in Taylor Park Reservoir. On July 26 the reservoir was still full. On Sept. 1, 1946 there was still 90,320 acrefeet in the reservoir.

The peak discharge of the Uncompahgre River, during the season of 1946, was 1300 sec. ft. and occurred on June 13. The discharge of the Uncompahgre River ranged from 400 sec. ft. on July 1 to 250 sec. ft. on August 1. The discharge through August ranged between 100 sec. ft. and 200 sec. ft., the most for the month. From August 22 to the end of the month the discharge ranged from 200 sec. ft. to 400 sec. ft.

From July 27 to the end of the irrigation season it was necessary to discharge water from the Taylor Park Reservoir to supplement the flow of the Gunnison River.

Taylor Park Reservoir filled and water started over the spillway at 3:00 A. M. May 29, 1946.

Water was turned through the Gunnison tunnel at 11:00 A. M. March 8, 1946. This was necessary to supply stock water to project farmers and was also needed to wash alkali out of the concrete section of the south canal.

Due to limited capacity of the Gunnison tunnel it was not possible to divert enough water to meet project demands throughout the irrigation season. During July and August, when the Gunnison tunnel was running to capacity and the Uncompahgre River was low, water had to be delivered on a percentage basis ranging from as low as 70 % to demand. However, the 70 % basis lasted for only a few days, deliveries in general ranging from 80 % up.

Water was delivered on demand to Water Users on an acre foot basis. The lands generally on the west side of the Uncompahgre River were furnished 5 acre feet per acre for a minimum charge of \$2.25 per acre. Lands generally on the east side of the Uncompahgre River, which consists mostly of adobe soils, were furnished 4 acre feet for a minimum charge of \$1.80 per acre. Excess water was furnished at the rate of 12 cents per acre foot for all water received in excess of 5 acre feet per acre. The major operating

The major operating difficulty for the season was a break on a high hillside section on the CQ lateral. This break occurred on July 22 at 6 A. M. and was caused by muskrat action. The ditch had to be moved over into the hillside and a bench flume 8 feet wide and 4 feet deep and 325 feet long built to carry the water. 6000 cubic yards of earth was moved in order to set the ditch back into the hill. The water was out of the lateral from 6:00 A. M. July 22 to 4:00 P. M. July 24, 1946.

No. 1 needle valve at Taylor Park dam was dismantled, cleaned and repaired.

No operating difficulties were experienced in connection with the Gunnison tunnel. The water was shut out of the Gunnison tunnel on April 29, 1946 to inspect the Gunnison tunnel and South Canal linings, and again for the same purpose on June 13, 1946.

Minor repairs were made to concrete linings on the South Canal during these shutouts.

Crop production in general was about normal. Late spring frosts cut the fruit crop about half. Early frosts in the fall caused considerable damage to the onion crop. Crop prices were good with the exception of onions and potatoes. Prices on these two crops were very low.

Mr. Fred Hotchkiss, Irrigation Division Engineer, ably handled the distribution of stream flow in this part of Colorado.

(Signed)

Jesse R. Thompson

Manager- Treasurer.

Holdover in the reservoirs on Grand Mesa was only nominal. The Taylor Park Reservoir had a holdover of about 60,000 acre feet.

Crop yields were good, except for fruit, which was damaged by frosts, and was further seriously injured by a heavy hail in July.

Prices were good for most crops, except onions and early potatoes. Onion prices were very low. Indications are that the late potato crop will show a fair profit. Pinto beans gave good yields, prices were high, and no storm damage occurred during harvest. Some alfalfa hay was damaged by rain, but native hay in the higher valleys was in excellent condition. Prices for hay were good, but not more than reasonable considering the high cost of production.

Apples ran about \$75.00 per ton. In 1945 the same class of apples brought about \$130.00, a record high. However, where frost and hail damage did not injure them the orchardist still had a good profit.

A new development in spraying is the use of DDT, which, when used properly, has shown splendid results. However, experience has shown that it is inactivated by violet rays or heat, and lack of knowledge of this has shown some failures in the control of codling moth. It seems that this development will save considerable cost in spraying, and it may even eliminate the necessity of washing apples which caused much expense when arsenical sprays were used.

Some new measuring flumes were installed, but the supply was uncertain, and many ditches still need them. It has been my experience that metal Parshall flumes are most desirable. At present lumber prices of lumber installations of that sort cost nearly as much as metal. Any settlement or heaving from frost warps lumber structures so badly that they often have to be replaced. Some concrete flumes have been installed, but in cases where they are subject to the attack of alkali they do not last well. The metal flume is far superior in both these respects.

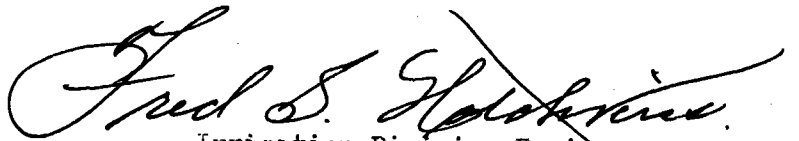
For the first time since 1941 equipment for dam and ditch work is available. Many small reservoirs on Grand Mesa had dams in serious need of repair, and some of this was done.

Investigations by the Bureau of Reclamation on the Gunnison and San Miguel river watersheds are continuing.

Hydrographic work on a large number of administrative and investigation stations has been done under the co-operative agreement between this Department and the Water Resources Branch of the U. S. Geological Survey.

Of the ten Water Districts in this Division only five,- Districts 40, 41, 42, 61 and 68,- have had water officials out for a sufficient length of time to enable them to keep an accurate record of ditch diversions and reservoir storage and use. The other districts have a large area of irrigated land that should be reported. Accordingly I have estimated the amounts of water used, and the land irrigated, and have included it in my tabulation of Water Commissioners' Annual Ditch, Crop and Reservoir reports.

Very truly yours,

A handwritten signature in cursive script, reading "Fred S. Holdrege". The signature is written in dark ink and is positioned above the typed name and title.

Irrigation Division Engineer.
Irrigation Division No. 4.

IRRIGATION DIVISION NO. 4
 TABULATED STATEMENT OF WATER COMMISSIONERS' ANNUAL DITCH REPORTS

1946.

Dist. No.	Ditches Reported	Amt. of Appropriation Second Feet	Capacity of Canals or Ditches Second Feet	No. Acres can be Irrigated
28n	192	319	1,000	29,253
40	474	3,100	4,307	227,590
41	98	1,878	2,826	106,930
42	239	3,353	3,810	112,840
59n	99	680	2,109	24,031
60n	212	1,219	1,252	90,960
61	7	86	75	11,500
62n	75	313	799	18,905
68	134	596	657	25,107
<hr/> Totals:	<hr/> 1,530	<hr/> 11,544	<hr/> 16,835	<hr/> 647,116

Note: District numbers followed by letter "n" indicate no Commissioner's report.
 Estimated by Division Engineer.

DISTRICT NUMBER	FIRST DAY WATER WAS USED	LAST DAY WATER WAS USED	AVERAGE NO. OF DAYS WATER WAS USED	AVERAGE DAILY AMOUNT IN SECOND FEET	NO. ACRE FEET USED
28n	May 1	Aug. 1	86	674	111,476
40	April 1	Nov. 2	139	1,239	344,855
41					
41	Mch. 10	Oct. 31	201	1,484	595,759
42	Apr. 1	Oct. 31	162	985	318,722
59n	May 1	Oct. 10	83	1,538	255,461
60n	April 1	Oct. 31	124	429	106,193
61	April 1	Oct. 23	158	15	4,755
62n	April 15	Oct. 31	106	515	108,676
68	April 12	Oct. 24	82	<u>476</u>	<u>77,812</u>
Totals:				7,355	1,923,709

IRRIGATION DIVISION NO. 4
 TABULATED STATEMENT OF WATER COMMISSIONERS' ANNUAL CROP REPORTS.

1946

Dist. No.	Alfalfa	Natural Grasses	Cereals	Orchards
28n	93	29,101	31	--
40	52,710	27,324	20,612	13,394
41	19,044	1,908	24,536	1,121
42	26,964	14,642	11,617	7,385
59n	119	21,058	5	-----
60n	14,776	13,134	14,269	
61	880	1,397	833	16
62n	1,430	7,836	1,699	30
68	<u>5,078</u>	<u>13,564</u>	<u>1,092</u>	<u>16</u>
Totals:	121,094	129,964	74,694	21,962

Dist. No.	Market Gardens	Potatoes	Sugar Beets	Other Crops	Total Irrigated
28n	1	27			29,253
40	787	2,304	4,449	28,636	150,216
41	643	2,240	24,422	26,146	78,060
42	1,968	1,614	2,670	7,585	74,445
59n		68		118	21,368
60n	23	9		256	42,467
61					3,126
62n	30	1,047		2,557	14,629
68	<u>12</u>	<u>81</u>	<u>29</u>	<u>30</u>	<u>19,902</u>
Totals:	3,464	7,390	9,570	65,328	433,466

Note: Districts with number followed by letter "n", no Commissioner's report; estimated by Division Engineer.

IRRIGATION DIVISION NO. 4.

TABULATED STATEMENT OF WATER COMMISSIONERS' ANNUAL RESERVOIR REPORTS.

1946

DIST. NO.	NO. IN DIST.	AREA OF HIGH WATER LINE, ACRES	CAPACITY IN ACRE FEET	QUANTITY OF WATER IN RESERVOIR MAY 1	QUANTITY OF WATER IN RESERVOIR NOV. 1
40	149	3,708	48,932	35,764	1,834
42	73	2,008	16,591		
59	101	102,033	106,200	100,000	62,865
60n	2	392	4,861	1,200	660
Totals:	<u>225</u>	<u>8,138</u>	<u>176,854</u>	<u>136,964</u>	<u>65,359</u>

DIST. NO.	FIRST DAY WATER WAS USED	LAST DAY WATER WAS USED	AVERAGE NO. DAYS WATER WAS USED	AVERAGE DAILY AMT. IN SECOND FEET	NO. ACRE FEET CARRIED
40			53	266	28,186
42	May 9	Oct. 11	46	108	9,860
59	July 26	Oct. 8	74	293	43,335
60n	June 20	Oct. 6	50	<u>42</u>	<u>4,200</u>
Totals:				709	85,581

Note: Districts marked "n", no Commissioner's report; estimated by Division Engineer. List includes no reservoirs used for purposes other than irrigation.