

M. C. HINDERLIDER  
STATE ENGINEER

C. C. HEZMALHALCH  
DEPUTY



L. T. BURGESS  
CHIEF HYDROGRAPHER  
W. T. BLIGHT  
OFFICE ENGINEER

STATE OF COLORADO  
OFFICE OF STATE ENGINEER  
DIVISION OF WATER RESOURCES

DENVER 2

November 27, 1950

SUBJECT:

Mr. M. C. Hinderliger  
State Engineer  
20 Capitol Building  
Denver, Colorado

Dear Sir:

I hereby transmit the Annual Report of administrative activities of this office for the year of 1950.

The year of 1950 was very erratic in regard to water supply and, in general, shortages were prevalent in all districts of this division. There was no appreciable spring run-off following a winter of deficient snowfall and shortage of precipitation during the usually wet spring months. The deficiency in precipitation continued during the summer and fall which condition caused serious damage to dry land crops and heavy demands on storage facilities in the irrigated areas. Crops on the whole were average in the irrigated area although shortage of water in some sections materially reduced the yield. An above average carry-over of storage water from the fall of 1949 was a saving factor during the dry season of 1950.

The reservoir carry-over on October 1, 1949 was 425,000 acre feet as compared to 315,000 acre feet on October 1, 1950 and a mean of 370,000 acre feet. The maximum storage for this year was 685,000 acre feet on July 1; the present reservoir capacity in the division is about 900,000 acre feet. (Not including reservoirs which are units of the Colorado-Big Thompson Project).

With the completion of the various units of the Colorado-Big Thompson, project storage capacity and water supply will be greatly increased in this division. A considerable part of the project has been completed and it is expected that considerable water will be available from this source in 1951 for water users under systems taking water from the Cache la Poudre river as well as the Big Thompson. All water diverted by the Colorado-Big Thompson project up to this time, has been used by the Big Thompson river system.

Temperatures have been generally below normal except for October which was well above normal for the month.

The City of Englewood has initiated the acquisition of an independent water supply system to serve the City and, in this connection, has purchased and had transferred, certain direct flow water rights. The City of Denver and the Water Users Association of Water District No. 2 opposed the transfer and appeal from the decision of the District Court is being carried to the Supreme Court.

M. C. Hinderlider  
Denver, Colorado

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One controversy of importance involving the department arose when the Water Users Association of Water District No. 6 brought charges against the Water Commissioner of that district, demanding his ouster. The case was heard by the Civil Service Commission resulting in dismissal of the charges.

There were very few floods in this division during the past year and none of major proportions; consequently, little flood damage was suffered this year.

Rebuilding of Wellington Lake Dam is in progress and nearing completion at this time.

Several new Parshall flumes have been built in canals in Water District No. 3 and it is expected that this work will continue until all diversions in that district are so equipped, since in connection with the distribution of the Colorado-Big Thompson project water, correct measurement and recording, is imperative.

The duties of the Special Deputy, Mr. Schnurr, who is located at Loveland, Colorado, will become increasingly arduous as the distribution of the project water expands, and it is recommended that an additional employee be placed in the Loveland office. A detailed report on the Colorado-Big Thompson project is being made by Mr. Schnurr.

Trans-Mountain diversion of water into this division increased somewhat this year, there having been 107,686 acre feet imported. This will, no doubt, increase as the trans-mountain projects are developed.

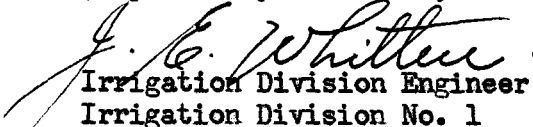
A rather unique trans-mountain diversion project is being fostered by the City of Colorado Springs. This project makes use of the Hoosier Pass system and ultimately proposes to divert water from Irrigation Division No. 5, pass through Division No. 1 and find its use in Irrigation Division No. 2.

Considerable assistance was given during the past season by Special Deputy A. R. Owens who was of material help to the Division Engineer in handling the many administrative problems which arose during the season and, particularly, in the administration of the Laramie River decree in which district a new Water Commissioner was appointed this year.

New Water Commissioners were appointed in Water Districts No's. 8, 23, 47 and 48, to fill vacancies. Some dissatisfaction has been expressed by the Water Commissioners who believe the salaries are inadequate. A substantial increase in the salary scale of Water Commissioners is recommended.

Tables of trans-mountain diversion, amount of water in storage by months, tabulation of Laramie River diversions and tabulation of the Water Commissioners' Annual Reports accompany and form a part of this report.

Respectfully submitted,

  
Irrigation Division Engineer  
Irrigation Division No. 1

JEW/a  
Att.

TRANS-MOUNTAIN DIVERSIONS  
Irrigation Division No. 1  
 1 9 5 0  
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Name of Diversion	From District	To District	Source of Supply	First Day	Last Day	Acre Feet
Deadman	48	3	Laramie River	6-1	7-11	1,128
Laramie-Poudre Tunnel	48	3	" "	5-23	7-13	15,496
Skyline	48	3	" "	6-2	6-20	2,965
Lost Lake	48	3	" "	-	-	0
Columbine	48	3	" "	6-6	7-2	87
Bob Creek	48	3	" "	5-21	7-2	300
Sand Creek	48	3	Sand Creek	5-14	7-11	3,439
Michigan	47	3	No. Platte	5-29	7-31	2,070
Cameron Pass	47	3	" "	6-5	7-1	130
Grand River	51	4	Colo. River	5-20	8-25	16,169
Moffat Tunnel	51	6	" "	5-3	11-8	29,338
Williams Fork Tunnel	51	7	" "	5-26	9-6	9,128
Berthoud Pass	51	7	" "	6-13	7-29	490
Eureka	51	4	" "	6-13	8-31	77
Adams Tunnel	51	4	" "	5-17		26,907 x
Boreas Pass	36	23	" "	6-11	7-9	69
Total . . . . .						107,793

Note: "x" - Some diversions during Dec. 1950 -  
 Amount to be shown on Record of Diversion  
 during 1951.

DIVERSIONS FROM LARAMIE RIVER BY DITCHES IN COLORADO FOR  
THE YEAR 1950

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Records of the Office of the State Engineer of Colorado

<u>Name of Ditch</u>	<u>Amount Diverted Second Feet</u>
Bliler - Boswell	474.86
British Crk. No. 1	18.58
Brown - Nunn Creek	357.63
Brown - Porter Creek	29.06
Brinker	19.32
Comet	162.76
Cabin	48.17
Detro No. 1	115.68
Detro No. 2	--
Davy	244.90
Forrester Brown	28.19
Forrester No. 1	205.15
Forrester No. 2	--
Glendevey	43.37
Grace Creek & Enlg.	664.92
Grant (Lower)	101.80
Grant (Upper)	50.12
Upper Hills	195.21
Homestead (McIntyre)	95.52
Homestead No. 1 (Big Jenkins)	143.14
Homestead No. 2 (Little Jenks)	76.56
Jim (Jimmy Crk)	70.39
Jim	--
Jim No. 2	38.69
Jimmy & Enlg. (Jimmy Crk)	282.85
Jimmy Creek (Laramie River)	92.21
Jimmy Creek Waste	--
LaGarde & Enlg.	288.47
LaGarde (Lower)	--
Lamb	482.76
Link No. 1	233.15
Lone Tree	63.64
Mansfield & Enlg.	429.83
Mansfield No. 2	468.77
Martin No. 1	267.50
Martin No. 2 & Enlg.	758.65
McIntyre	305.92
Nellie	105.84
Ollie	127.27
Pache	189.36
Pine Creek & Enlg.	--
Stuck	168.07

Laramie River Diversions - Continued

<u>Name of Ditch</u>	<u>Amount Diverted</u> <u>Second Feet</u>
Smith-Brown	232.88
Stuart No. 1	61.41
Stuart No. 2	121.08
Stubb	47.04
Schnitger	112.22
Trollope	48.87
Talmadge	55.48
Timothy	653.60
Warren	33.39
Ward No. 1	74.42
Ward No. 2	66.35
Wright	342.22
Yelton	288.19
Yelton (Lower)	—
La Garde No. 1	14.96
<b>Total Meadow Land Diversion</b>	<b>9,600.42 Second Feet</b> <b>18,843. Acre Feet</b>

Trans-Mountain Diversions - Laramie River

Laramie-Poudre Tunnel	15,496	Acre Feet
Skyline Ditch	2,965	" "
Deadman "	1,128	" "
Lost Lake "	0	" "
Columbine "	87	" "
Bob Creek "	300	" "
<b>Total Trans-Mountain Diversions</b>	<b>19,976</b>	<b>" "</b>
<b>Grand Total Diversion from the Laramie River</b>	<b>38,819</b>	<b>Acre Feet</b>

The following is a statement of water in storage in Irrigation Division No. 1, from January 1 to December 1, 1950, tabulated by districts. Does not include North Park District No. 47, nor the Laramie River Basin District No. 48, as there is very little storage in either of these districts.

Dist. No.	-----											
	Values in Acre Feet											
	Jan. 1st	Feb. 1st	Mar. 1st	Apr. 1st	May 1st	June 1st	July 1st	Aug. 1st	Sept. 1st	Oct. 1st	Nov. 1st	Dec. 1st
1	85,175	104,485	125,047	134,621	128,338	114,804	90,794	54,714	17,836	3,991	2,380	37,757
2	53,857	60,547	72,388	77,800	79,529	79,329	61,288	39,551	11,335	4,235	5,629	14,627
3	74,357	78,032	85,203	88,525	94,098	106,027	120,285	92,863	42,527	26,947	31,244	37,572
4	42,845	42,765	42,397	43,941	44,456	54,357	59,492	53,144	35,982	26,053	24,421	28,889
5	13,304	13,734	14,864	15,433	16,276	18,587	22,207	17,116	6,674	4,100	4,192	5,002
6	18,640	16,573	13,419	16,591	16,851	18,192	23,038	18,794	12,574	10,647	9,773	10,444
7	5,946	5,033	4,164	4,218	3,133	6,879	12,018	11,312	8,490	9,157	9,085	8,923
8	14,809	12,873	13,098	13,400	16,563	18,040	16,229	15,133	13,407	14,116	11,387	12,590
9	4,316	4,920	5,254	5,672	5,845	7,055	5,850	4,009	1,863	1,359	1,261	1,700
23	171,589	155,293	168,103	166,630	160,088	159,301	156,839	151,857	144,246	135,023	131,318	128,265
64	<u>97,721</u>	<u>109,540</u>	<u>119,850</u>	<u>120,424</u>	<u>118,978</u>	<u>104,492</u>	<u>81,395</u>	<u>58,152</u>	<u>30,907</u>	<u>24,963</u>	<u>34,406</u>	<u>46,652</u>
<b>Totals:</b>	582,559	603,795	663,787	687,255	684,155	687,063	649,435	516,635	325,840	260,591	264,996	332,421
<b>City of Denver:</b>	190,535	171,190	183,204	180,736	176,308	178,059	182,590	177,019	162,592	156,442	147,928	145,559
<b>Bal. for Irrigation</b>	392,024	432,605	480,583	506,519	507,847	509,004	466,840	339,616	163,248	104,149	117,068	186,862

WATER COMMISSIONERS' ANNUAL REPORT  
IRRIGATION DIVISION NO. 1  
FOR THE IRRIGATION SEASON OF 1950

WATER DIST. NO.	FIRST DAY WATER USED FROM NATURAL STREAM	LAST DAY WATER USED FROM NATURAL STREAM	ACRE FEET	TOTAL NO. OF ACRES THAT CAN BE IRRIGATED	ALFALFA	NATURAL GRASSES	CEREALS	ORCHARDS	MARKET GARDENS	POTATOES	SUGAR BEETS	BEANS	PEAS	CABBAGE	CORN	OTHER	TOTAL IRRIGATED
1	4-1	10-31	327,593	180,552	30,008	14,005	35,268	20	327	1825	15,990	21,423		139	26,342	13,312	158,659
2	4-1	11- 7	340,527	231,165	41,057	11,915	82,716	307	12,767	9845	35,100	23,458	1,185	2,162	3,789	3,768	228,069
3	4-1	11- 7	374,224	264,055	58,621	5,004	83,049	1,954	4,565	21410	39,267	10,020	986	419	38,760		264,055
4	4-9	11- 2	134,404	142,120	44,690	340	56,010	1,365	4,795	8430	9,780	6,375	3,475	190	570		136,020
5	4-2	11- 7	102,839	111,880	42,315	8,905	43,930	90	955		15,035				500		111,730
6	4-10	10-31	92,006	195,335	30,530	58,385	43,715	639	2,523	355	3,387	840	870	110	21,290	5,721	168,365
7	4-1	11- 7	108,044	118,733	12,224	940	61,575	1,051	9,285	50	870	585	242	1,290	12,929	4,308	105,349
8	4-1	11- 7	111,919	112,880	6,511	1,681	4,554	75	880		109	10		10	1,227	3,823	18,880
9	4-1	11- 7	24,168	15,533	4,944	2,412	5,920	74	295		50			45	509	601	14,850
23	4-1	11- 1	48,527	48,900		41,439											41,439
47	No Report		E. 180,000	135,000		130,000											130,000
48	5-9	11- 1	18,843	5,000		4,600											4,600
64	4-1	10-31	306,394	181,978	37,267	29,977	34,190	125	855	2297	15,296	7,243	0	283	22,765	5,417	155,715
65	4-15	11- 6	16,402	9,036 *	1,376	85	32	145	45	7	128				1,084	279 #	3,181
			2,185,890	1,752,167	309,543	309,688	450,959	5,845	37,292	44,219	135,012	69,954	6,758	4,648	129,765	37,229	1,540,912

\* 5,000 Acres in Nebraska  
# 2,071 " " "

ANNUAL REPORT

TO: M. C. Hinderlider, State Engineer

Submitted by: A. Ralph Owens, Special Deputy State Engineer

December 4, 1950

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Due to the various duties performed and the several different areas in which those duties were performed, the subject matter of this report has been segregated as to "Water District" and types of duties.

Water District #51

A tabulation of water rights was started during 1949. This was completed during January 1950, and a copy furnished the Water Commissioner. For convenience in field use, the tabulation was made by stream.

Water District # 8

Under the direction of the Division Engineer, acted as Water Commissioner in this District during May and June, changing register charts and performing other routine duties. The snow runoff was short and complaints were received from owners of ditches on Cherry and Deer Creeks which were answered promptly. The complaint on Deer Creek was of a continuing nature and current meter gagings were made each week above the upper active ditch to determine the available supply, and distribution was made agreeable to such determinations.

Water District #48

A trip was made into this area in late June to assist the newly appointed Water Commissioner in administrative duties.

The records of diversions were checked in this office each week as rapidly as they were received from W. C. Gleason and statements of the cumulative diver-



sions of each ditch and each rancher's balance, were prepared and mailed to Water Commissioner Gleason at frequent intervals. Proper statements have been mailed to the State Engineer of Wyoming in compliance with Supreme Court Order.

#### Water District #47

A complaint was received from this district in which it was alleged that the Water Commissioner was shorting the Midland Ditch. The question involved the accuracy of a Parshall measuring flume. It was agreed by both the owner and the Water Commissioner that the 12" Parshall measuring flume was badly out of level. Levels were taken across the crest and the staff gage set with zero at the mean elevation. Following this, a measurement was made with current meter. Current meter 20.1 cfs, discharge table 19.5 cfs, error 0.6 cfs, or 3% (Approximately). The crest of this flume sloped 0.13 in 12 feet and the entrance of the converging section had a cross slope of 0.18 in the opposite direction; further, the converging floor had a grade of approximately 0.20. It seems inconceivable that a measuring flume of this type which we have been trained to believe, must be absolutely level both axially and transversely, could properly measure water.

The results of this investigation have been brought to the attention of this group for two purposes. First: To emphasize the importance of making seasonal checks of crest elevations and correcting the staff or tape gages to the mean crest elevation. Second: To establish the fact that although badly out of level by frost action, reasonable accuracy can be obtained.

Charts from the various trans-mountain diversions were computed and discharges applied as rapidly as the charts were received in order that the Division Engineer might make a proper distribution of these foreign waters.

Transmountain diversion measuring flumes visited include: Cameron Pass, Michigan Ditch, Skyline Ditch, Laramie-Poudre Tunnel, Deadman Ditch, Sand Creek

Ditch, Columbine Ditch, Bob Creek Ditch, Moffat Tunnel, Williams Fork Tunnel and Berthoud Pass Ditch.

Some time was given to hydrographic duties. This was largely in the computation of annual stream flow records during winter months when administrative demands are light.

One week was spent in Loveland attending to the duties of Mr. Schnurr during his absence.

A somewhat cursory check was made of the records supplied this office of the operation of the Costilla River Compact.

A field inspection was made of the Huerfano Valley Reservoir Dam after the completion of repairs and written report submitted to the State Engineer.

The Division Engineer was required to spend considerable time in the field this season. During his absence, the Special Deputy received calls from the several Water Commissioners and issued orders to them to pick up or release water, according to the supply and demand.

Two runs of water from Union Reservoir to Bijou Irrigation District were supervised in the field.

#### Plans for Next Season

##### Water District #48

In order to speed up the checking of the Water Commissioners work and computation of cumulative ditch versions, the report form presently used in this area is being re-arranged to permit recording of each rancher's daily total diversion on the daily report sheets. It is believed this will save considerable time in our office and provide a quicker check of the Water Commissioners' work.

##### Water District #4

It is believed that much simpler report forms for the Water Commissioners' use are possible and desirable in this area. This will be completed in the very near future so all interested persons will have ample time to study the proposed

changes.

Water District #3

Some method of recording and reporting Adams Tunnel water diverted and used in this area will be required. It is contemplated that suitable forms will be prepared well in advance of the next irrigating season.

Water District #47

Plans are being made to spend sometime in this area next season in an effort to educate ranchers in the need for adequate measuring devices and headgates.

Respectfully submitted,



A. Ralph Owens,  
Special Deputy State Engineer