

1964
ANNUAL REPORT
OF
GLEN E. BREES
DIVISION ENGINEER
IRRIGATION DIVISION NO. 3

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Alamosa, Colorado

November 30, 1964

Mr. J. E. Whitten, State Engineer
Room 232 State Services Building
Denver, Colorado

Dear Mr. Whitten:

Herewith is submitted my annual report covering activities in Irrigation Division No. 3 for the irrigation season of 1964.

This report includes the tabulated and summarized records of ditches, canals, reservoirs, and transmountain diversions.

The snow reports of February 1 and March 1 indicated the water supply outlook for the San Luis Valley would again be very poor for 1964. At that time the snow pack ranged from only 50% to 55% over the basin with the exception of the Sangre De Cristo Range. This area had caught part of the eastern slope storms and the snow pack on this range was about 75% of normal. Soil moisture in the mountains and over the valley ranged from fair to poor. Little help could be expected from the reservoirs as (carryover) storage was only about 30% of normal.

This was a gloomy picture facing the San Luis Valley water users as a follow-up of the extremely dry year of 1963. March and April did bring some hope to them, as the snowfall at higher elevations during these months was above normal. However, late water supplies were expected to be critically short unless the mountains received much above-normal rainfall during the summer. Cool temperatures and the late spring held up the normal rate of melt somewhat, and we did have higher water than was first anticipated. This permitted many of the junior rights to divert water for a time. Storage in the reservoirs on the Rio Grande was stopped on April 9, and, due to calls from senior direct flow rights, further storage after this date was not permitted. /

The months of May and June were extremely dry and caused the stockmen to become concerned about the mountain ranges. However, rains during the late summer months came in time to bring relief, and many reported the ranges in better shape than they had been for several years. These rains did hold up the stream flow to permit more water for direct flow rights for late crops.

The early forecast for the Rio Grande River Station Near Del Norte was about 350,000 acre feet for the period April 1 to September 30, this figure being about 71% of normal. The forecast for the Conejos River Station Near Mogote was 145,000 acre feet for the same period, this

TABLE III

TABLE III
[Illegible text]

Item	Value
acre feet	2,500
acre feet	61,800
acre feet	38,100
acre feet	9,700
acre feet	15,000
acre feet	4,300

acre feet 138,400

at the Del Norte Station for
on the forecast of 119,000
ation for this period was
ast of 145,000 acre feet.
air capacity of 132,492 ac
water in storage on May 1,
at 10% of the total capaci

figure being about 74% of normal. Below is the monthly discharge of these streams for the period.

<u>MONTH</u>	<u>RIO GRANDE NR. DEL NORTE</u>	<u>CONEJOS NR. MOGOTE</u>
April	23,800 A.F.	8,600 A.F.
May	130,600 A.F.	61,800 A.F.
June	83,400 A.F.	38,100 A.F.
July	31,200 A.F.	9,700 A.F.
August	30,200 A.F.	16,000 A.F.
September	<u>17,100 A.F.</u>	<u>4,200 A.F.</u>
Total	316,300 A.F.	138,400 A.F.

The total discharge at the Del Norte Station for this period was 33,700 acre feet below the forecast of 350,000. The total discharge at the Mogote Station for this period was only 6,600 acre feet below the forecast of 145,000 acre feet.

Out of a total reservoir capacity of 372,498 acre feet, there was 38,541 acre feet of water in storage on May 1, 1964. This figure is only slightly over 10% of the total capacity. Additional storage after May 1 in some of the reservoirs allowed 25,235 acre feet to be released during the irrigation season for use of ditches in Colorado. Since November 1, 8,000 acre feet has been released to New Mexico and Texas under the terms of the Rio Grande Compact.

The trans-mountain records show that there was a total of 2,912 acre feet imported from other divisions and 2,019 acre feet delivered to ditches and reservoirs in Division No. 3.

I do not have any figures regarding the amount of underground water pumped this year, but it is sure to be extensive.

A good many new wells were drilled during the year to increase the amount pumped. We have what I consider an unusual situation developing here in the San Luis Valley regarding pump water. In the past, pump water was considered as supplemental to decreed rights and in the past few years the reverse is true. Many water users plant their crops knowing that they can expect so much water from their pumps and any water they may get from their decreed rights is just supplemental water to be used on hay and pasture land.

Table No. 5 in the summary shows that the 1964 discharge of the Rio Grande River Near Del Norte was about 109% of the 1963 discharge and about 71% of the past 10-year average.

Table No. 7 in the summary shows that the 1964 discharge of the Conejos River Near Mogote was about 117% of the 1963 discharge and about 78% of the past 10-year average.

There was 795,363 acre feet diverted to ditches in this division during 1964 compared to 619,864 acre feet in 1963. This 1964 figure is 128% of the 1963 figure and 78% of the past 10-year average. There was 460,639 acres irrigated during 1964 compared to 419,638 acres irrigated in 1963. This 1964 figure is 110% of the 1963 figure and 93% of the past 10-year average. The number of acre feet used per acre in 1964 was about 117% of the acre feet used per acre in 1963 and 85% of the past 10-year average.

Out of a total of 714 ditches reporting in 1964, 178 ditches received no water and many more received water for

only a few days. Water was used for 366 days from November 1, 1963, to October 31, 1964.

With over 2,500 irrigation wells in the San Luis Valley, crops in general were good. The price of lettuce remained good throughout most of the summer. The potato crop especially was damaged extensively due to frost on August 20 and again on August 21. This caused a considerable reduction in the yield in the valley. Potatoes are still the major row crop in the valley; however, the production of other vegetables is increasing every year.

Regarding Rio Grande Compact Data, preliminary Computations indicate that Colorado will again incur an indebtedness this year. The figure will be about 80,000 acre feet, which will bring the total to something over 800,000 acre feet. Beginning on November 7, 1964, 8,000 acre feet of compact water was released from Platoro Reservoir to the Rio Grande River for New Mexico and Texas. At this time figures are not available as to the amount of this water that reached the Colorado-New Mexico State Line; but the water commissioner, his deputy, and myself spent a considerable amount of time on the river during the release to get through as much of the water as was possible.

Some of the water commissioners in this division have continued with their programs of demanding and securing the installation of new headgates and measuring flumes. It is hoped that more of them will push the program during the next few years.

The Santa Maria Reservoir Company completed the resurvey of the capacity of the Continental Reservoir. The dam at Love Lake was rebuilt and reported as satisfactory by Mr. Rees Brooks following an inspection trip late this fall. Work has started on Big Meadow Reservoir.

I spent quite a lot of time this past season in District No. 24 attempting to work out a solution to a problem that has given the water commissioners and the Division Engineers trouble for a good many years. The problem concerns the contention by senior priority rights that there was a considerable amount of flow from springs in the vicinity of Sanchez Reservoir at the time the dam was constructed. The direct flow users contend that they are now deprived of this water causing junior rights upstream to be shut off to satisfy earlier decrees below the outflow from the Reservoir. Due to my illness during August and September, I was unable to follow the investigation through the entire year. Although there is no doubt some inflow into the reservoir from springs below the water surface in the reservoir, I do not believe there is at this time anywhere near the amounts contended by the old timer's reports. I hope to follow this through with closer supervision next year and come up with some solution to the problem.

The water commissioners and deputies in the various districts in this division are to be commended for the manner in which they administered the water this year. During my

illness things apparently went along in a smooth manner. I wish to extend my thanks to them for their splendid cooperation during this past year. Also I want to express my thanks to Hydrographer, Tom Kelly, and the personnel in the Denver Office.

Respectfully submitted,

Glen E. Brees

Glen E. Brees
Division Engineer
Irrigation Division No. 3

Table No. 1

RESERVOIR STORAGE IN ACRE FEET

Date	Rio Grande	Santa Maria	Continental	Beaver Park	Terrace
Dec. 1, 1963	450	2,220	160	200	200
Jan. 1, 1964	2,340	2,590	480	740	800
Feb. 1, 1964	3,190	2,850	740	1,230	950
Mar. 1, 1964	4,090	3,110	1,050	1,630	1,046
Apr. 1, 1964	5,000	3,400	1,370	1,980	1,097
May 1, 1964	5,283	3,543	1,530	2,083	2,489
June 1, 1964	2,643	3,543	1,530	2,083	2,489
July 1, 1964	0	1,605	156	943	2,291
Aug. 1, 1964	0	1,609	0	0	1,311
Sept. 1, 1964	0	1,565	0	0	1,308
Oct. 1, 1964	0	1,553	0	0	1,308
Nov. 1, 1964	0	1,553	0	0	1,308

Date	Platoro	Cove Lake	Sanchez	Mountain Home	Smith
Dec. 1, 1963	3,000	0	4,094	953	1,105
Jan. 1, 1964	3,000	0	4,555	1,090	1,051
Feb. 1, 1964	3,000	0	4,854	1,170	1,051
Mar. 1, 1964	3,000	0	5,136	1,500	1,141
Apr. 1, 1964	3,000	0	5,789	1,796	1,411
May 1, 1964	3,000	0	6,470	2,116	1,340
June 1, 1964	10,700	5,018	6,886	2,578	871
July 1, 1964	10,700	3,395	4,361	2,213	59
Aug. 1, 1964	10,700	2,255	2,610	1,510	0
Sept. 1, 1964	10,700	1,385	2,003	886	0
Oct. 1, 1964	10,700	884	2,231	1,212	0
Nov. 1, 1964	10,700	540	2,368	1,268	87

Table No. 2

RESERVOIRS

Name	Capacity in A.F.	Quantity of Water May 1 in A.F.	Quantity of Water Nov. 1 in A.F.	Quantity of Water Delivered to Ditches in A.F.
Alberta Park	598	598	598	0
Beaver Park	4,758	2,083	0	1,874
Big Ruby	94	57	33	21
Bristol Head No. 1	121	0	0	0
Bristol Head No. 2	804	0	0	0
Continental	26,716	1,530	0	1,370
Cove Lake	6,480	0	540	5,368
Downing	30	30	30	0
Eastdale No. 1	3,468	596	0	634
Eastdale No. 2	3,041	0	0	0
Fuchs	241	196	196	0
Goose Lake	232	60	0	54
Hermit No. 1	385	297	297	0
Hermit No. 2	407	380	380	0
Hermit No. 3	192	192	192	0
Humphreys	842	842	842	0
Hunters Lake	35	10	10	0
Jumper Creek	38	38	38	0
La Jara	14,052	1,916	995	0
Loch Laven	24	24	24	0
Lost Lake (Lower)	966	340	0	303
Lost Lake (Upper)	68	0	0	0
Meadow Lake (McCrone)	174	92	22	64
Meadow Lake (Wright)	115	115	115	0
Metroz (Lower Basin)	396	306	306	0
Metroz (Upper Basin)	84	84	84	0
Mill Creek	43	34	34	0
Mountain Home	20,147	2,116	1,268	2,525
Platoro	60,000	3,000	10,700	0
Poage	370	45	25	18
Regan's Lake	823	24	24	0
Rio Grande	51,113	5,283	0	3,558
Rito Hondo	561	561	561	0
Road Canyon No. 1	1,587	1,587	1,587	0
Road Canyon No. 2	84	84	84	0
Salazar No. 1	234	No report		
Salazar No. 2	35	No report		
Sanchez	103,155	6,470	2,368	5,198
Santa Maria	43,565	3,543	1,553	1,809
Shaw Lake	681	177	49	114
S. Lazy U Dude Ranch	106	106	106	0
S Lazy U No. 2	42	42	42	0
Smith	5,336	1,303	87	1,128

RESERVOIRS CONTINUED

Name	Capacity in A.F.	Quantity of Water May 1 in A.F.	Quantity of Water Nov. 1 in A.F.	Quantity of Water Delivered to Ditches in A.F.
Sowards No. 1-A	8	8	8	0
Sowards No. 2	35	35	35	0
Sowards No. 3	19	19	19	0
Sowards No. 4	45	45	45	0
Spring Creek	165	165	165	0
Spruce Lake No. 1	98	29	8	19
Spruce Lake No. 2	105	35	10	23
Squaw Lake	162	0	0	0
Streams Lake	41	41	41	0
Terrace	17,700	2,489	1,308	1,062
Trout Lake	320	112	0	93
Troutvale No. 1	201	201	201	0
Troutvale No. 2	257	257	257	0
Trujillo Meadows	913	913	913	0
Wee Ruby	186	31	31	0
Totals	372,498	38,541	26,231	25,235

Table No. 3

TRANS-MOUNTAIN DIVERSIONS

Name of Diversion	Acre Feet Imported	Acre Feet Delivered to Ditches	Acre Feet Delivered to Reservoirs
Fuchs Ditch @ Weminuche Pass	245	218	0
Piedra Pass Ditch (East) @ Piedra Pass	348	224	0
Piedra Pass Ditch (West) @ Piedra Pass	206	183	0
Raber-Lohr Ditch @ Weminuche Pass	775	544	139
Squaw Pass Ditch @ Squaw Pass	201	184	0
Tabor Ditch @ Spring Creek Pass	459	0	0
Tarbell Ditch Near Cochetopa Pass	549	417	0
Treasure Pass Ditch @ Wolf Creek Pass	129	110	0
Total	2,912	1,880	139

Table No. 4

DIVERSIONS TO CANALS AND DITCHES DISTRICT NO. 20

Diverted From	Direct A.F.	Trans.Mt. Diversions A.F.	Reservoir A.F.	Total A.F.	Acres Irrigated	A.F. Per Acre
Rio Grande	386,980	1,324	9,127	397,431	280,653	1.42
Pinos, Frisco, & Schrader	11,890	0	0	11,890	4,743	2.51
Rock and Spring	6,522	0	0	6,522	4,409	1.48
Other Streams	9,584	139	157	9,880	3,488	2.83
Total	414,976	1,463	9,284	425,723	293,293	1.45

Table No. 5

COMPARISON OF RIVER DISCHARGE, DITCH DIVERSIONS,
AND ACRES IRRIGATED IN DISTRICT NO. 20

Year	Total Acre Feet Discharge of Rio Grande River Near Del Norte Yr. Ending Sept. 30	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1955	382,800	422,133	267,732	1.58
1956	340,700	361,716	256,483	1.41
1957	801,200	866,049	314,430	2.75
1958	750,700	632,543	324,248	1.95
1959	347,500	387,147	278,485	1.39
1960	624,200	637,986	326,884	1.95
1961	478,200	558,410	318,591	1.75
1962	771,600	761,901	341,205	2.23
1963	341,400	364,825	281,629	1.30
1964	371,600	425,723	293,293	1.45
Total	5,209,900	5,418,433	3,002,980	
Mean	520,990	541,843	300,298	1.80

Table No. 6

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 21

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1955	51,493	32,349	1.59
1956	67,781	40,465	1.68
1957	145,032	49,781	2.91
1958	81,710	46,001	1.78
1959	47,595	30,426	1.56
1960	86,736	45,248	1.92
1961	72,908	45,417	1.61
1962	116,178	47,109	2.47
1963	39,486	24,587	1.61
1964	56,390	35,755	1.58
TOTAL	765,309	397,139	
MEAN	76,531	39,714	1.93

Table No. 7

COMPARISON OF RIVER DISCHARGE, DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 22

Year	Total Acre Feet Discharge of Conejos River Near Mogote Yr. Ending Sept. 30	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1955	135,500	191,822	91,540	2.10
1956	168,400	223,468	95,498	2.34
1957	325,600	339,634	100,976	3.36
1958	251,100	231,797	98,342	2.36
1959	150,600	170,793	85,306	2.00
1960	208,300	222,302	89,094	2.50
1961	201,600	248,348	94,781	2.62
1962	255,300	271,729	93,823	2.90
1963	132,600	135,835	76,228	1.78
1964	155,500	181,686	86,966	2.09
Total	1,984,500	2,217,414	912,554	
Mean	198,450	221,741	91,255	2.43

Table No. 8

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 24

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1955	56,021	20,813	2.69
1956	36,616	14,664	2.50
1957	34,986	24,867	1.41
1958	61,528	23,376	2.63
1959	57,959	20,074	2.89
1960	57,993	22,720	2.55
1961	58,882	22,205	2.65
1962	54,973	21,654	2.54
1963	31,426	16,885	1.86
1964	39,226	16,735	2.34
Total	489,610	203,993	
Mean	48,961	20,399	2.40

Table No. 9

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 25

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1955	29,718	8,526	3.49
1956	17,232	5,571	3.09
1957	46,600	18,835	2.47
1958	42,543	17,910	2.38
1959	27,395	11,366	2.41
1960	44,530	12,467	3.57
1961	43,633	12,755	3.42
1962	38,655	10,102	3.83
1963	11,795	2,099	5.62
1964	33,961	8,021	4.23
Total	336,062	107,652	
Mean	33,606	10,765	3.12

Table No. 10

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 26

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1955	19,477	7,065	2.76
1956	15,247	6,370	2.39
1957	95,060	31,638	3.00
1958	62,505	33,420	1.87
1959	25,295	10,076	2.51
1960	40,036	15,535	2.58
1961	24,624	10,034	2.45
1962	45,624	17,490	2.61
1963	12,718	5,513	2.31
1964	30,063	9,189	3.27
Total	370,649	146,330	
Mean	37,065	14,633	2.53

Table No. 11

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 27

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1955	3,700	1,245	2.97
1956	2,780	830	3.35
1957	17,575	6,862	2.56
1958	11,085	6,692	1.66
1959	7,368	3,057	2.41
1960	7,341	4,420	1.66
1961	7,047	2,555	2.76
1962	6,785	3,088	2.20
1963	2,710	785	3.45
1964	7,509	1,100	6.83
Total	73,900	30,634	
Mean	7,390	3,063	2.41

Table No. 12

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 35

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1955	43,640	17,420	2.51
1956	27,698	14,565	1.90
1957	110,469	23,406	4.72
1958	57,644	22,190	2.60
1959	35,694	15,654	2.28
1960	56,324	18,227	3.09
1961	47,511	17,225	2.76
1962	56,882	18,215	3.12
1963	21,069	11,912	1.77
1964	20,805	9,580	2.17
Total	477,736	168,394	
Mean	47,774	16,839	2.84

Table No. 13

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DIVISION NO. 3

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1955	818,004	446,690	1.83
1956	752,538	434,446	1.73
1957	1,655,405	570,796	2.90
1958	1,181,355	572,179	2.06
1959	759,246	454,444	1.67
1960	1,153,248	534,595	2.16
1961	1,061,317	523,553	2.03
1962	1,352,711	553,111	2.45
1963	619,864	419,638	1.48
1964	795,363	460,639	1.73
Total	10,149,051	4,970,091	
Mean	1,014,905	497,009	2.04

Table No. 14

PERCENTAGE COMPARISONS

District	Ditch Diversions in 1964 Compared to 1963	Ditch Diversions in 1964 Compared to Past 10 Years	Acres Irrigated in 1964 Compared to 1963	Acres Irrigated in 1964 Compared to Past 10 Years	No. of A.F. Used Per Acre in 1964 Compared to 1963	No. of A.F. Used Per Acre in 1964 Compared to Past 10 Years
20	117%	79%	104%	98%	112%	81%
21	143%	74%	145%	90%	98%	82%
22	134%	82%	114%	95%	117%	86%
24	125%	80%	99%	82%	126%	98%
25	288%	101%	382%	75%	75%	136%
26	236%	81%	167%	63%	142%	129%
27	277%	102%	140%	36%	198%	283%
35	99%	44%	80%	57%	123%	76%
ALL DISTRICTS	128%	78%	110%	93%	117%	85%

Table No. 15

WATER COMMISSIONER'S DITCH REPORTS
IRRIGATION DIVISION NO. 3

Water District	Number of Ditches Reporting	First Day Water Was Used	Last Day Water Was Used	No. of Days Water Carried	No. of Acre Feet Used	No. of Acres Irrigated
20	225	Nov. 1, 1963	Oct. 31, 1964	366	425,723	293,293
21	81	Mar. 2, 1964	Oct. 31, 1964	244	56,390	35,755
22	95	Mar. 12, 1964	Oct. 31, 1964	234	181,686	86,966
24	61	Apr. 1, 1964	Oct. 31, 1964	214	39,226	16,735
25	71	Mar. 15, 1964	Oct. 31, 1964	231	33,961	8,021
26	74	Apr. 1, 1964	Oct. 31, 1964	214	30,063	9,189
27	35	Apr. 1, 1964	Oct. 31, 1964	214	7,509	1,100
35	72	Apr. 1, 1964	Oct. 31, 1964	214	20,805	9,580
Div. No. 3	714	Nov. 1, 1963	Oct. 31, 1964	366	795,363	460,639