PHONES OFFICE 263 RES. 331

# Department of Water Resources

OFFICE OF
Special Deputy State Engineer
147 WASHINGTON
MONTE VISTA, COLO.

MONTE VISTA, COLO December 15, 1952



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

Dear Mr. Hinderlider: -

Here is my annual report for Water Division No. 3, District No. 20 for the season of 1952, supplementing my oral report to you on November 24th.

Water Supply Prospects.

The prospects for an abundant water supply perhaps were never better, as so indicated by the snow pack in the surrounding mountains; April 1st Snow Survey report showing over 200 percent of normal.

Attached here to Herewith are two sheets taken from reports furnished by the Federal-State Cooperative Snow Survey Service. One showing the snow pack and water content of the various snow courses on the Upper Rio Grande water shed as of April 1st, 1952, and the other a graft by Mr. Stockwell showing probable discharge of the Rio Grande river at the Del Norte station for the period April-September forecasting 1,050,000 acre feet.

Actual discharge of the river at the Del Norte station for the April-September period was 751,300 acre feet; thus it is quite obvious something happened to throw these forecasts so much out of balance.

It seems now, quite apparent that the various forecasters did not allow sufficient weight for the extremely dry conditions of the mountains.

Another feature which no doubt diminished the total runoff was the fact that we did not have the usual extreme high temperature period in June. This, naturally, was a condition much to be desired for it not only prevented damaging floods but contributed to a more uniform and extended river supply.

#### Ground Water Conditions:

Two years of short water supply accompanied with excessive pumping both of those years from our underground reservoir, with practically no replenishment, pulled the water table down to near an all time lows.

A record of four wells over an extended area show the distance from the ground surface to the ground water level, October 1st readings.

Well	1951	1952
No. 1	11' 10"	3' 10"
No. 2	15' 6"	41 711
No. 3	18' 6"	10' 2"
No. 4	21' 9"	6' 1"

# Diversion & Canals and Ditches:

With deficient top moisture and extremely low water table accompanied with a rather backward spring the early river flow was far below the demand.

When the water supply in the river became adaquate, it was found that many of the larger canals, for many reasons, were not able to meet the unusual demands, thus the water users in many instances were nervous and often unreasonable.

Following is the amount of water used in acre feet from the river and it's tributaries in Water District 20 - 1952.

Rio Grande River	809,138	Acre feet
Misc. small streams	9,340	11
Pinos & Frisco Creek	18 <b>,0</b> 76	11
Rock Creek	24,230	Ħ
Total	860,784	Ħ

Included in the total above is 70,716 acre feet of Reservoir water and 2,108 acre feet from Trans Mountain diversions.

#### Reservoirs:

Total reservoir storage the past season in District 20 was considerably under that anticipated April 1st.

The direct diversion demand was so heavy and the actual flood stage period of the river so short, that the only one of the larger reservoirs filled was the Rio Grande on the main river.

In all reservoirs, total storage was about 98,000 acre feet with a total storage capacity of approximately 130,000 acre feet or about 75 percent of capacity.

There is a carry-over storage in all reservoirs of near 26,000 acre feet.

Little repairs have been made on the dams and related structures except on the Beaver Park dam, The work being done there you are quite familiar with. Inspecting the work at Beaver dam on December 8th in company with Mr. Bethune, Mr. Davis, two of the owners and contractor Scheels it appears that work might be completed this year.

indicated

Trans-mountain Diversions:

Use of the Trans-mountain diversions was about normal with a total diversion of 2912 acre feet.

A distressing accident occurred this past summer near the Fuchs diversion on Wemminuche Pass, when one of the Fuchs Brothers was thrown or fell from his horse and sustained a broken neck; he lived but a few days after the accident.

#### Pumping:

Pumping for irrigation was not extensive but considerable use was made of the irrigation wells in the spring to furnish sufficient moisture in soil preparation for seeding and later to supplement the river supply for heavy flooding operations.

#### Hail Damage:

It may be said that damage in the district due to hail was below average; yet some very distructive storms occurred, widely distributed, but in each instance rather small areas were effected.

## Crop Production:

Production of crops was well above normal, may actually prove to be an all time high in District 20, with better than average dollar values.

Estimates of the yield of potatoes in the valley are from 14,000 to 15,000 car loads and the major portion of this production was in District 20.

#### Repairs and Improvements:

The unusual heavy demand on the canals and ditches the past season has definately indicated the need for repairs and renewal of structures as well as extensive cleaning of the ditches.

Much cleaning has been done this late summer and fall with much more necessary and anticipated.

The Rio Grande Canal Company is now at work at their head-works on the construction of a concrete slab to support the lower end of a steel grill in front of the present new structure and extending the trash racks by adding five more twelve foot openings.

The Company also the Rio Grande Genel is replacing an old wooden division structure with reinforced concrete to be equipped with four, five by twelve foot steel radial gates, at a cost of about \$12,000.00. The concrete OG section diversion dam 180 feet long was completed this last spring (1952) at a cost of \$42,430.00.

Modern improvements of the permanent type on the Rio Grande Canal the past three years hat cost the company more than \$130,000.00 which has been paid by assessments, without bond issues or loans.

New measuring structures have been placed in the Midland and Chicago ditches equipped with new Stevens recorders; also new steel gates and measuring wier with a new Stevens eleck are to be installed this next spring in the Westside ditch.

Some of the smaller ditches, at this time, are installing steel gates at their river headings.

The water users generally seem to recognize more and more the real value of water realizing that only by keeping the rigation systems in good repair may they expect equitable administration and delivery as of water.

#### Problems of Administration:

Canal superintendents and ditch-riders, at least for the first half of the season, experienced rather difficult administration and distribution of water.

\*\*Cproblems of\*\*

Water users had just past through two very dry years resulting in low financial returns. Ground-water was very low and top moisture extremely deficient. For an extended time the water supply was not sufficient to meet the farmers demands. Thus With this combination of circumstances the water-users were very anxious and the pressure was extreme on those whose duty it was to deliver the water to the users.

during No serious or extraordinary problems of administration have some up the past season in my work, All in all it has been a good year.

#### Out-look for 1953:

With the mountains well filled with water, a fair snow supply indicated, about 25,000 acre feet of carry-over in the reservoirs, the ground water high and top moisture very good, prospects for next season are quite satisfactory. Tavorable

plans

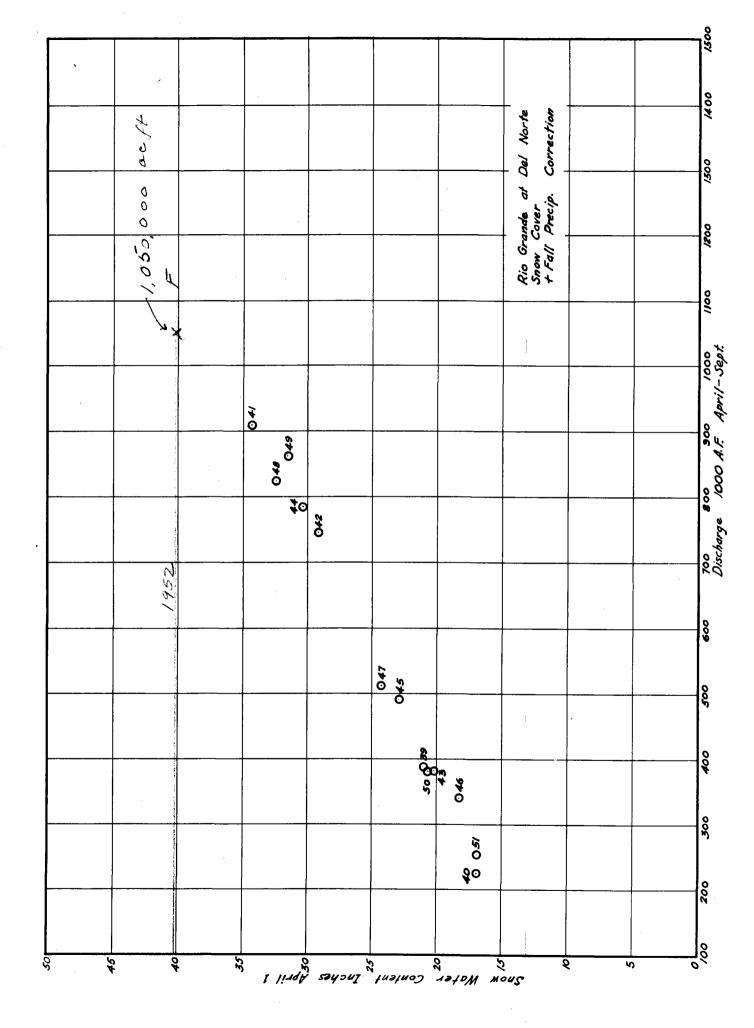
Respectfully submitted,

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Special Deputy State Engineer.

RIO GRANDE DRAINAGE SNOW SURVEYS April 1. 1952

1	nts	Past Record	Av.Water Con-	tent (Inches)		30°08	7.4	φ W	7.2	7.9	20,3:	4.3	10.3	5*6	19.9.	₩ 8	27.12	1001	7. 17	6.1	6.9	5.3				-	10,6		30.00	7407	4.3	13.9	
	asureme	Pa	Yrs.of	Reca		97	91	끘	兄	16	12	12	25	12	m	<u>m</u> .	m	m	m	m	m	m	<b>~</b> -1		~	<b>H</b>			91	9T	13		
	Snow cover Measurements	(Inches)		1950	77	31.02	2,5	2.2	7,0	4.2	20 <b>°</b> 8	6,3	6,3	00	18.4	0,00	ಬ್ಬ	<b>7.</b> 6	8,2	3,0	2,9	3,0	1	1	ì		400	100 100	31.2	6,21	37	13.5	Post.
,	MOUC	Content		1951		20°3	ر م	3.4	0°7	ሊ	13,7	6.1	6.1	7.0	12.9	۲. در	15,7	†°9	7,0	3.0	3,83	1.4	9°6	29.1	6,9	19.0	6.9	\	20.37	2000	The state of the s	20	- he
		Water (		1952	1	55.3	1709	14.5	19.8	9.71	38.9 2	10,01	24,2	w Z	38.3	21.07	48,3	18.4	16,2	10,4	12,1	<b>1.</b> 9	20,3	0.11	19,8	52.1	22,0		55,3 5	14.27°	ू १	26°7 ~	
		Snow	Depth	(Inches)		131.3	148.5	12.5	53.8	1,5,9	102.7	35.0	58.6	14,21	80,7	ff. Lo	2,111	56.8	50.3	35.7	39.2	34.2	66.2	110,2	<b>58.</b> 8	130,7	59.2		131.3	18.5	35.0	72.06	<u></u>
, 175¢		Date		Survey		3/31	3/31	3/31	3/31	3/31	3/31	3/31	3/31	3/30	1/1	172	4	m	3/29	3	3/30	3/31	ルカ	なる	2/29	3/31			$\frac{8}{2}$	4	m		
April 1			Elev.			10000	9350	800	9300	9300	11500	9700	10000	8200	9950	9450	10100	10300	10900	10000	9300	10000	880	11000	10400	11000	inage		10000	9350	- 28. 89.	drainfage	
	on		Range			ধ	<u> </u>	召	8	<b>30</b> M	凷	2	105°3	72W	F	띜	因	K	Ä	R	鬥	띘	巴	8 8	Ř	2压	or drai	`	Ħ	· 三		for dra	
	Location		Twp			37N	NOT	36N	334	283	373	NT	37°2N	291	36N	35N	32N		12N	PEN I	Mo#	<b>公</b>	NT	LZN	MI	37	Average f	-	3	10N	NT7	Average f	
	7	_	Sec			ᆂ	13	7,	<i>K</i> 3	22	200	<u>∞</u>	.,	13	25	<b>K</b> )	77	56	~	13	32	12	15	13	7	9	AV		-=	13	age	AV	
		No	and	State	2400	26 Colo.	23 n	n 14	n 64	72	9 <i>l</i>	80 <b>"</b>	82 "	 18	108	109 m	, oli	122 m	123 n	124 "	1 <i>S</i> 5 **	126 "	151 "	153 "	. TST	155 "		•	26 Certo.	*	80		×.
		Drainage Basin		O	RIO GRANDE IN COLOR	Wolf Creek Pass	Upper Rio Grande	Silver Lakes	River Springs	LaVeta Pass #2	Summitville	Santa Maria	Culebra	Ft. Garland	Platoro	nejos	La Manga			<del></del>	Lake Humphreys	Cochetopa Pass	11e	Red Mt. Pass	pine	Wolf Greek Summit		UPPER RIO GRANDE	Wolf Creek Pass	Upper Rio Grande	Santa Maria		



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Alamosa, Colorado, December 15, 1952

Mr. M. C. Hinderlider,
State Engineer,
State Capitol Building,
Denver, Colorado

Herewith is submitted my annual report as Irrigation Division Engineer for Division No. 3 for the year 1952. This report includes tabulated summarized statements of the reports of the water commissioners of the various water districts of the amounts of water diverted from the streams, of reservoir reports and the number of acres irrigated.

On the whole the 1952 season in Water Division No. 3, which comprises the San Luis Valley, was very good. The winter's snow pack and the water content in the mountains on the west side of the Valley was the highest of record. The snow report of April 1, 1952 showed some 200 per cent of normal. A run off of flood proportions was forcast, particularly, in District No. 20. However, the run off did not develop into flood proportions due to a number of reasons, the principal ones being, perhaps, the very dry condition in the mountains and the absence of very warm weather during the periods of usual peak flow.

In District No. 21 the run off did reach flood proportions and some flood damage was done by the flooding of the Alamosa River. In District No. 22, the run off on the San Antonio River did reach flood proportions and, except for the operation of the Platora

Reservoir, the Conejos River would have reached flood proportions. This reservoir was completed in the fall of 1951, and was operated during the 1952 season for flood control only. At various times there was considerable water in storage, which was released so as to maintain a more or less steady flow in the river.

The total diversions from the streams to the ditches was approximately 124 % of the past 10 year average and was only about 9500 acre feet less than the amount diverted in 1941. This percentage for the various Water Districts varied from approximately 165 % in District # 21 to 88 % in District # 25 and 87% in District No. 26. Due to favorable weather conditions the run off period lasted longer than usual and rains in the mountains during the latter part of the season helped materially in holding up the stream flow.

All the reservoirs were able to store some water. The  $R_{10}$  Grande and Terrace Reservoirs filled to capacity. The amount of water diverted from Reservoirs in this Division during the 1952 season was  $41\frac{1}{2}$ % of total reservoir capacity. The amount of water in storage on November 1, 1952 was approximately 14% of total capacity.

The crops throughout the Division were good. The season was good and the yield was very good. The mountain ranges were good, due to the general snow cover and the rains.

Pump wells were again used to supply supplemental water where reservoir water was not available. The number of pump wells and artesian wells continues to increase year by year. There have been a number of large artesian wells dug which flow from 2 to 6 cubic feet per second, depending upon the size, the depth, and the location of the well.

There were few administrative provlems, as is usual in years of good water supply.

Respectfully submitted,

Roy B. Heilman,

Irrigation Division Engineer Division No. 3.

## SUMMARY

# WATER COMMISSIONERS' DITCH REPORTS

1952

## DIVISION NO. 3

Ne. of Water District	Number of Ditches Reporting	First Day Water was carried	Last Day Water was carried	No. Days Water carried	No. of Acre Feet carried by all
20 21 22 24 25 26 27 35	188 73 101 57 56 59 34 76	3-29 3-30 4-1 4-2 3-21 4-1 4-1	11-18 10-31 10-31 10-31 10-31 10-31 10-31	234 215 214 213 225 214 214 214	860784 153870 382680 63416 45674 44180 15662 60094
Totals for Division	<u>6</u> 44			·	1626360

No. of Water District	Total Number of Acres that can be Irrigated	Total Acres Irrigated	
20 21 22 24 25 26 27 35	449754 57125 115418 46841 354 <b>9</b> 4 42882 10540 40581	358527 52078 109979 28749 17460 17379 5330 25836	
Total for Division	798635	615338	

These figures include Reservoir Water and Trans-Mountain Diversions.

#### SUMMARY

## WATER COMMISSIONERS' RESERVOIR REPORTS

,1952

Name of Reservoir	Water District No.	Capacity in Acre Feet	Acre Fe in Stor May 1		Total Acre Feet Delivered.
Rio Grande	20	51113	2227	10916	40268
Santa Maria	20	43565	2822	8951	21456
Continental	20	26716	6934	2918	5482
San Luis	¥ 20	3283		898	1350
(Beaver Park)				,	
Metroz	20	395	246	116	88
Little Ruby	20	225	225	155	40
Sowards No. 1	20	121	121	121	Notused
Sowards No. 2	20	22	22	22	11 11
Sowards No. 3	20	18	18	18	11 11
Meadow Lake	20	199	122	, 0	82
Lech Laven	20	24	24	24	Not used
Streams	20	40	40	4Ó	11 11
Goose Lake	20	232 48	(m) (m)	-	11 11
Hunters Lake	20	<u>4</u> 8	48	_48	11 11
Humphreys	20	842	842	842	11 11
Jumper Lake	20	38	38	38	tt tt
Bristol No. 1	20	151	0	0	11 11
No. 2	20	80H	θ ,	. 0	11 11
Archuletta	20		Breach in da		_
Spruce No. 1.	<b>2</b> 0	111 )	111	75	126
" No. 2.	20	105 )	,	i	_
Shaw	20	49 <b>1</b>	450	298	138
Fuchs	20	237	_ 237	19	192
Road Ganon	20	1480	1555	276	638
Regan	20	667	5 <b>1</b> 9	379	Not used
Lost Lakes - Lo		966	956	679	336
	per 20	100	100	100	Not used
Spring Creek(Wr	_	145	100	; 0	92
Meadow Lake	20				Not used
Trout Lake	20	320	320		237
S.V.Dude	20	120	120	120	Not used
Poage	20	208	208	145	86
Squaw	20	140	140	77.00 0	115
Terrace	21	17700	3414	4425	12396
La J <sub>ara</sub> Como Loiro	21	14052	ړ 7120	4298 2000	889
Cove Laks	22 21:	9710	7130	2090 2084	5850
Sanchez	24 21:	103155	7874	3286	24973
East Dale No. 1		3468 3047	No weter	tonod	1179
2		3047	No water st	- '	n 1. 4 0
Salazar No. 1.	5h	234	No water st	20	1468
No. 2. Mountain Home	3 है 5 गि	35 <b>20147</b>	1898		ברט.
Smith	35 35		3210	1294	5504 6504
-mr on	<b>3</b> 2	5336	3210	1091	6506
Totals for Divi		309810	42241	43702	129491

# 1952 RESERVOIR STORAGE REPORT - DIVISION NO. 3.

## AMOUNTS IN STORAGE IN ACRE FEET.

	Rio Grande	Santa Maria	Continental	Sanchez	Terrace
<del></del>	<u> </u>			·	<i>L</i>
12-1-51	1386	432	1781	1880	1741
1-1-52	<b>33</b> 50	1393	2081	2777	1808
2-1-52	5300	1900	<b>2</b> 500	3085	1970
3 <b>-1-</b> 52	5482	2584		3597	
4-1-52	6825	2753	5006	5400	2320
5-1-52	2671	2822	6934	7874	3414
6-1-52	16354	20064	3172	14709	11974
7-1-52	45728	29068	11365	17196	16138
8-1-52	23173	14408	9455	8925	8367
9-1-52	10123	9122	3309	2838	5668
10-1-52	10916	9122	2829	2163	5628
11-1-52	10916	8291	2918	3236	4425

•	Mt. Home	'Smith	Ćove Lake	Ľa Jara	San Luis Beaver Park
12-1-51	514	604	0	0	0
× 1-1-52	653	~ 69i	0	Ō	Ô
2-1-52	953	1051	0	0	Ö
3-1-52	1161	1288	0	0	Ö
4-1-52	1421	1631	?	Ō	Ŏ
5 <b>-1-</b> 52	1898	3210	7130	• ?	Õ
6-1-52	5431	5336	7390	6666	?
7 <b>-1-</b> 52	7408	3514	7390	6629	2180
8-1-52	2806	2400	5160	5433	2180
9-1-52	1898	1515	4335	XXX	1751
10-1-52	1556	1231	3020	4316	1750
11-1-52	1294	1091	2090	4298	1751

#### VEGETABLE SHIPMENTS

1952 Season to Dec. 16, 1952.

Lettuce	436	Car	Loads
Mixed Vegetables	214	11	***
Garden Peas	190	11	Ħ
Cabbage	163	n	**
Carrots	41	n	Ħ
Cauliflower	385	11	ń
Potatoes	4798	tt	79
Total Car Loads	6227		

These figures do not include truck shipments, which are estimated to be about one-third of the car load shipments.

#### SUMMARY

#### 1952 TRANS-MOUNTAIN DIVERSIONS

#### INTO DIVISION NO. 3.

	Acre Feet
Weninuche	2180
Squaw Pass	240.6
Spring Creek Pass	294.1
Treasure Pass	197.5
Piedra Pass	0
Lake Fork of Cochetopa	Not computed.

## COMPARISON FOR PAST 10 YEAR PERIOD

	No. of Acres Irrigated	Acre Feet of Water Delivered to Ditches
1943	769680	1123219
1944	749625	1557569
1945	746751	1318180
1946	698431	912394
1947	742289	1351229
1948	757041	1320484
1949	789722	1կկկկկ
1950	570392	964516
1951	359228	631136
1952	615338	1626360