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Alamosa, Colorado,
November 28, 1955

Mr. J. E. Whitten,
State Engineer,
State Capitol Building,
Denver, Colorado

Dear Sir:

Herewith is submitted my annual report as Irrigation Division Engineer for Division No. 3 for the year 1955. This report includes the tabulated, summarized reports of the water commissioners of the various water districts in this division of the amounts of water diverted from the streams, of reservoir storage and of the number of acres irrigated.

1955 has been another dry year in this division, being the third in succession. The irrigation season started rather early; some districts diverting water for irrigation purposes as early as March 1. The snow pact on the Rio Grande River in Colorado on May 1. was only 56% of the average. At that time the prospect for adequate run off was bad, which was reflected in the acreage planted. The weather during the regular run-off period was mild and hence, none of the streams reached flood proportions. At no time did the streams supply the demand for water for irrigation purpose, with the possible exception of the Culebra River in District No. 24. Accordingly, there was no reservoir storage after March 1st. in the reservoirs on the west side of the Valley. On May 1, 1955 the total reservoir storage was 34074 acre feet in this division out of total capacity of 372000 acre feet. The only carry-over storage this year in the larger reservoir is in the Sanchez and Mountain Home Reservoirs.

During the 1955 season there was diverted to ditches 7% more water than in the 1954 season, but this was only 67% of the previous ten year average. The forecast of run off on May 1 by the State and Federal Agencies was 50% of the past ten year average. On May 18 and 19 there was a good general snow over the Valley and left considerable snow in the higher elevations; particularly, on the east side of the Valley in the Culebra Mountains. Some good rains came the latter part of July and continued into August, which helped very materially to mature the crops. The last damaging frost in the spring was on the 10th. of June and the first one in the fall was on September 12th. Artesian and pump wells were used extensively to supplement the water supply. More artesian wells are being put down and more pump wells installed every year; especially so, in districts which have just recently started using them. The ground water level has been lowered throughout the Valley, because of the use of both types of wells. It is my firm belief that some manner of regulation of these wells must be provided in the reasonably near future or this supply of underground water will be severely damaged.

Special Deputy State Engineer, D. H. Mathias, has supervision of the administration of the water in District No. 20, and will make a detailed report for that district. Total diversions in this district were 71% of the past ten year average compared to 67% in 1954. The acres irrigated were 81% of the past ten year average.

In District # 21 the season began early. There was no reservoir storage. At no time did the streams supply the demands for water for irrigation purposes. The diversions to ditches were 62% and the acres irrigated were 69% of the past ten year average.

In District No. 22 the diversions were 69% of the past ten year average, and the acres irrigated were 92% compared to 59% and 80%

respectively for 1954. The Platora Reservoir was again operated by the Reclamation Bureau; presumably, for flood control only. However, there were 1200 acre feet stored in this reservoir during the run off season. In my opinion this water was stored illegally, as at no time was the Conejos River at the Mogote station near flood stage and I feel that the water users on the river should not be penalized because the gates in the dam are not large enough to permit the natural flow of the river to go through. I might add that this opinion is shared by many of the water users in District No. 22. At no time were the demands on the water commissioners for water for direct irrigation satisfied. This 1200 acre feet was run down the river, beginning Nov. 1. The results of this run are not available at this time, but it is believed there was considerable loss.

District No. 24 had the best season of any district in the Valley. The snow in May and the rains in July and August provided this District with an adequate supply of water. On May 1st. the Sanchez Reservoir in this district had only 5890 acre feet in storage. This reservoir supplied 18889 acre feet to ditches and finished the season with 12776 acre feet in storage. The diversions in this District were 106% of the past ten year average, while the acres irrigated were only 74%.

The districts in the north end of the Valley were hardest hit by the dry season. In District No. 25 the diversion were 70% of the past ten year average and the acreage irrigated was 12%. Out of a total of 60 ditches reporting, there were 16 which received no diversions and a number of others which received water for only a few days. Native hay is the principal crop in this district. The crop was very short. Many meadows were not cut at all.

District No. 26, being Saguache Creek, was also very hard hit by the dry season; 1955 being but little better than 1954, which was one

of the driest of record. There was practically no run off at all. The stream flow was very steady throughout the season. The diversions in 1955 were 47% of the past ten year average, compared to 41% in 1954. The acres irrigated were 22% of the past ten year average. 37 ditches out of a total of 69 reporting, received no diversions. Priority No. 12 was the latest priority receiving sufficient water for beneficial irrigation.

District No. 27 was really pitiful, being much worse than 1954. The total diversions in 1955 were 32% of the ten year average, compared to the 41% in 1954. The acres irrigated were 17% of the past ten year average. Only the first 3 earliest ditches received water on Carnero Creek and the first 3 on La Garita Creek.

District No. 35, on the east side of the Valley, was similar to District No. 24. The snow in May and the timely rains in July and August supplied this district with a normal run off. At no time did the creeks reach flood stage, but for a considerable length of time the Mountain Home Reservoir stored water while all demands for direct irrigation were being met on Trinchera Creek. On May 1 there were in storage in this reservoir 2505 acre feet. It supplied 6204 acre feet to ditches and finished the season with 5175 acre feet in storage.

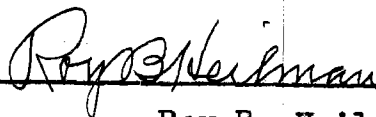
Many of the crops were damaged by the late frost in June. The potato yield per acre was somewhat below average. The vegetable crop was good and especially lettuce and the price was also very good. A new dehydrating tube for lettuce was installed in Alamosa, which saves considerable expense in the shipping and hence, makes the crop more profitable. It is reported that there are to be two more similar tubes installed in the Valley before the shipping season in 1956. The mountain ranges were good. The livestock came off the ranges in good condition.

The Bankers' Life and Casualty Company of Chicago is continuing to develop considerable acreage in the Valley by means of levelling and pump wells.

Again the water commissioners in the various districts are to be commended for the manner in which they administered the water in this third consecutive very dry season. Most of the administrative problems which did arise were handled satisfactorily by them before reaching this office. We are anticipating some difficulty next spring in regard to the administration of decrees for spring water.

In this division water was administered by the water officials for 267 days. This very dry season again required that the commissioners put in more days and more hours per day than usual. I feel that I would be amiss in my obligation to my job to secure a better administration of the water, if I did not again express the same opinion in this report that was expressed in my last years report, "that a better administration of the water could be had if more money were made available, so that the commissioners and deputies could be employed for a longer period each year and could be paid an increased and more equitable wage."

Respectfully submitted,



Roy B. Heilman,

Irrigation Division

Engineer,

Division # 3,

SUMMARY

WATER COMMISSIONERS' DITCH REPORTS

1955

IRRIGATION DIVISION NO. 3

No. of Water District	Number of Ditches Reporting	First day Water was Carried	Last Day Water was carried	No. Days carried	No. of Acre feet carried by all	Total Acres Irrigated.
20	179	3-1	11-24	269	422133	267732
21	73	3-1	11-1	245	51493	32349
22	96	3-20	11-10	236	191822	91540
24	54	4-2	10-31	213	56021	20813
25	61	4-1	10-31	214	29718	8526
26	69	4-1	11-10	224	19477	7065
27	34	4-11	10-31	204	3700	1245
35	76	4-1	10-31	214	43640	17420
Totals	642				818004	446690

VEGETABLES SHIPMENTS

1955 Season to November 1955

		Railroad	Car	Loads
Lettuce	725	"	"	"
Mixed Vegetables	145	"	"	"
Spinach	40	"	"	"
Garden Peas	206	"	"	"
Cabbage	174	"	"	"
Carrots	75	"	"	"
Cauliflower	181	"	"	"
Potatoes	1087	"	"	"
Total -	2633			

These are only shipments by railroad and do not include shipments by truck.

SUMMARY

WATER COMMISSIONERS' RESERVOIR REPORTS

IRRIGATION DIVISION NO.3

1955

Name of Reservoir	Water District No.	Capacity in Acre Feet	Acre Feet in storage or available May 1	Acre Feet in storage or available Nov. 1	Total Acre feet delivered.
Rio Grande	20	51113	7841	0	6098
Santa Maria	20	43565	3439	1356	2014
Continental	20	26716	4137	0	3723
San Luis	20	4758	2141	0	2015
Metroz	20	395	233	180	48
Regan Lake	20	667	191	0	170
Big Ruby	20	77	15	0	13
Wee Ruby	20	186	70	0	63
Sowards 1-2-3,	20	162	No Report		
Meadow Lake	20	199	132	0	120
Lock Laven	20	24	No Report		
Streams	20	40	" "		
Downing	20	41	" "		
Goose Lake	20	232	92	0	90
Alberta Park	20	599	343	-----	135
Jumper Creek	20	38	38	38	
Mill Creek	20	43	30	30	
Hunter Lake	20	48	48	48	
Humphreys	20	842	842	842	
Lake Cliff	20	No Record	No Record		
Bristol Head	20	151	" "		
No. 1					
Bristol Head,	20	804	" "		
No. 2					
Spruce Lakes,	20	216	102	0	92
No. 1 & 2					
Archuletta	20	0	0	0	
Shaw Lake	20	491	352		144
Hermit Nos.	20	200	200	200	
1-2-3					
Fuchs	20	237	83	0	64
Troutvale No.	20	299	250	49	223
1					
Troutvale No.	20	257	257	257	
2					
Road Canon	20	1183	210	973	190
Lost Lakes	20	966	430	0	386
Spring Creek	20	145	145	145	
Meadow Lake	20	114	114	114	
(Wrights)					
Trout Lake	20	320	160	0	112
Su Dude	20	120	60	60	
Poage	20	261	180	0	148
Squaw	20	162	162	0	144

1955 RESERVOIR STORAGE REPORT - DIVISION NO.3

AMOUNTS IN STORAGE IN ACRE FEET.

	Rio Grande	Santa Maria	Continental	Sanchez	Terrace
12-1-54	1976	1166	1000 Est.	2340	1113
1-1-55	3404	1756	2200	3108	1037
2-1-55	5081	2315	2915	3460	895
3-1-55	6221	2753	3535	3800	1022
4-1-55	7485	3163	4080	4300	1321
5-1-55	7841	3439	4137	5890	1445
6-1-55	7841	3439	4137	10398	1577
7-1-55	1461	3439	2957	13267	1022
8-1-55	0	2086	0	9230	856
9-1-55	0	1392	0	12600	936
10-1-55	0	1356	0	12536	856
11-1-55	0	1356	0	12776	755

	Mt. Home	Smith	Cove Lake	La Jara	San Luis or Beaver Park	Platora
12-1-54	1059	758	0		11	0
1-1-55	1252	1051			11	0
2-1-55	1510	1291			11	0
3-1-55	1510	1366			11	0
4-1-55	2367	1591			2046	0
5-1-55	2505	1591			2141	0
6-1-55	4771	4463	3160		2141	0
7-1-55	9760	4191	2336		2171	1200
8-1-55	7490	2805	941		0	1200
9-1-55	6619	2400	483		0	1200
10-1-55	5175	1592	161		0	1200
11-1-55	5175	1692	0		0	1200

SUMMARY - Continued -

WATER COMMISSIONERS' RESERVOIR REPORTS

1955

Name of Reservoir	Water District No.	Capacity in Acre Feet	Acre Feet in storage or available May 1,	Acre Feet in storage or available Nov. 1	Total Acre feet delivered.
Terrace	21	17770	1445	755	542
La Jara	21	14052	246	0	246
Cove Lake	22	9710	0	0	4524
Platora	22	60000	0	1200	0
Sanchez	24	103155	5890	12776	18889
Eastdale No.1,	24	3468	----	100	3552
Eastdale No.2,	24	3047	No Report		
Salazar No.1,	24	234	----	----	234
Salazar No.2,	24	35	----	----	32
Mountain Home	35	20147	2505	5175	6204
Smith	35	5336	1591	1692	2892
Totals		372625	33974	25990	53107

SUMMARY

1955 TRANS-MOUNTAIN DIVERSIONS

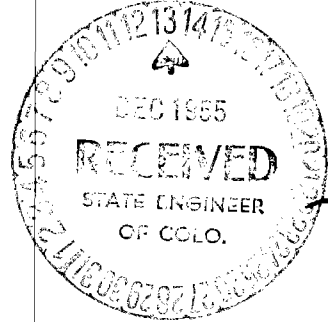
IRRIGATION DIVISION NO.3

Name	Into Water Water Number	Acre Feet Diverted	Acre Feet Delivered
Weminuche-Raber and Lohr	20	3435	2570
Weminuche-Fuchs	20	647	483
Tabor (SpringCreek)	20	31	21
Squaw	20	71	61
Treasure Pass	20	90	22
Cochetopa (Lake Fork)	26	297	270
Totals		4571	3427

DIVISION NO. 3,
COMPARISON FOR PAST 10 YEAR PERIOD

	No. of Acres Irrigated	Acre Feet of Water Delivered to Ditches
1946	698431	912394
1947	742289	1351229
1948	757041	1320484
1949	789722	1444440
1950	570392	964516
1951	359228	631136
1952	615338	1626360
1953	581441	880377
1954	421406	772333
1955	446690	818004

STATE OF COLORADO
Department of Water Resources
OFFICE OF
Special Deputy State Engineer
147 WASHINGTON
MONTE VISTA, COLO.
December 12, 1955



Mr. J. E. Whitten,
State Engineer,
Denver, Colorado

Dear Mr. Whitten:-

Herewith I submit my annual report as Special Deputy State Engineer for Irrigation Division No. 3, water District No. 20 for the Irrigation season of 1955.

The irrigation season of 1955 in water District 20, was quite similar to 1950, 1951, 1953, and 1954 so far as water supply is concerned, being about 60 per cent of normal.

May first snow surveys, with subsequent stream flow forecasts, indicated very definitely that another very short water season confronted the farmers, with the snow courses on the higher elevations showing about 60% of normal and the lower courses dry and the Valley floor in the same condition.

Adding to the dismal outlook for water the ground water table this last spring was near an all time low.

Reservoir storage for district 20 was about 12% of capacity or about 40 percent of normal.

Thus, with this picture facing the water user, as the crop reports will indicate, rather a large acreage was not seeded or irrigated. Such crops as were produced in most part, were matured only by pumping.

Following is some precipitation data from the Monte Vista station for 1955 compared with the previous 15 year period.

MONTH	PRECIPITATION 1955	PRECIPITATION MEAN 1940 - 1954
January	.03"	.38"
February	.04"	.23"
March	.02"	.46"
April	1.52"	.79"
May	.53"	.66"
June	.07"	.53"

CONTINUED REPORT

MONTH	PRECIPITATION 1955	PRECIPITATION MEAN 1940 - 1954
July	.49"	1.07"
August	.87"	1.27"
September	.31"	.64"
Total	3.88"	6.03"

With an area which has only 7" to 8" average annual rain fall, it is apparent that crop production depends little upon rainfall on the Valley floor during the growing season, however it should be pointed out that many years, the latter part of July and often through August the Valley is blessed with much needed rains, just at the time when they are most beneficial and needed. It will be noted from the preceding table that for July and August this year the total precipitation for the two months was 1.36" while the 15 year average for the same two months is 2.34" or almost double.

Before leaving the subject of an inadequate water supply which has existed in the San Luis Valley the past five years out of six, 1952 being the exception, I wish to present the following tabulated data covering discharge of the Rio Grande River at the Del Norte Index station showing the mean annual flow for five year periods, in 1000 acre feet units, since 1911.

PERIOD	MEAN ANNUAL DISCHARGE,	1000 A.F. units
1911 - 1915	782.7	A.F.
1916 - 1920	825.2	A.F.
1921 - 1925	860.1	A.F.
1926 - 1930	752.2	A.F.
1931 - 1935	551.0	A.F.
1936 - 1940	542.2	A.F.
1941 - 1945	754.5	A.F.
1946 - 1950	666.0	A.F.
1950 - 1954	478.2	A.F.
1950 - 1955 *	460.0	A.F.
1911 - 1949 (39 years)	723.6	A.F.

* Used 370.0 acre feet for year 1955.

The interesting observation is that for the 39 year period 1911 - 1949 inc. the mean was 723,600 acre feet while for the 6 year period 1950 - 1955 inc. was 460,000 acre feet or a mean annual deficiency of 263,600 acre feet.

Under adequate storage, followed by proper river regulation which should then be possible, it is my observation that something like 650,000 acre feet available annually for the present canals and ditches would, some ways near, meet their demand.

The total Rio Grande River discharge at the Del Norte Gaging station January 1st - October 31st. 1955 was 350,500 acre feet.

The total reservoir storage available for 1955 was 21,198 acre feet and the total Trans-mountain diversions amounted to 4,274 acre feet for water District No. 20.

Following is the amount of water diverted to Canals and Ditches in acre feet from the river and its tributaries with total acres irrigated in District 20.

STREAM	FROM STREAM DIRECT	RES'VRS	TRANS- MT.	TOTAL Ac.Ft.	ACRES IRRIGATED
Rio Grande	382,794	15,993	3,157	401,944	258,573
Misc. Small	6,837			6,837	3,100
Friscoe & Pinos	6,858			6,858	3,519
Rock Creek	6,494			6,494	2,540
TOTAL	402,983	15,993	3,157	422,133	267,732

As has been mentioned, large acreages normally in use were not irrigated. The largest canal in the district being the Rio Grande with 119,000 acres that can be irrigated, reported only 99,000 acres actually were irrigated. The next two largest being the Farmers Union and the San Luis Valley Canals reported only 60 percent irrigated.

While little actual data is available at this time it is safe to state that the past season has required the heaviest pumping for irrigation in the history of the Valley.

Pumps were started the first of April and were more or less in continuous operation well into November.

Naturally this extensive pumping is very expensive and brings serious results to the underground water supply.

With the ground water at a very low stage at the start of the season, with such heavy use of pumps, the ground water is now perhaps as low as we have recorded, with ample evidence that the artesian basin is also seriously effected.

Many new irrigation wells were constructed with some penetrating the various artesian aquifers.

It is my understanding that considerable interest has been manifest in Map Filing on wells with many such filings presented to your office.

Crops generally were better than we might well have anticipated but were matured, except under the very early ditches, only by excessive pumping.

The alfalfa crop was very light, due, partly, to heavy winter kill. Native hay fared better because the acreage generally is situated on low ground and largely under old water rights. Small grains were low in acreage and with very low yields.

There was below normal acreage seeded to vegetables but it is my understanding that the yields were fair to good with the prices good, and in some instance extremely high, especially late head lettuce.

The quality of potatoes, I am informed, is above average but the yield was far below normal. The average potato production in the Valley for the seven year period 1948 - 1954 inc. was about 13,000 car loads with an estimated 9,000 cars for 1955; 360 - 100 lb. sacks to the car.

Land-leveling is so closely associated to irrigation, it seems fitting that it be mentioned in my report to you, for properly leveled land requires much less water to mature crops.

The Soil Conservation furnished the following data as of January 1st, 1955.

LOCATION	ACRES LEVELED.
Rio Grande	41,747
Center	29,300
Mosca-Hooper	22,496
Mt. Blanca	19,000
Sanchez	3,589
Total	116,132
Estimated outside	12,500
Grand Total	128,632

Average cost about \$46.00 per acre.

A very moderate amount of new construction or repairs was carried on the past season.

The Shaw Reservoir Company completed work which was started last year which consisted mainly in raising the south dam to required height and construction of suitable spill-way. This work was done under plans for the Construction of the enlargement of the Dam of the Shaw Reservoir, dated May 1955 filing Map C-724.

Work was completed this fall on a new reinforced concrete Parshall flume with a 15 foot throat, in lateral #1 of the Rio Grande Canal.

Chemicals are being used more and more to destroy willows and other brush growth along the canals and ditches. Also chemicals are being used with considerable success to kill weed growth within the ditches, when applied to the water running in the ditch.

Administration problems were many, which can be expected in low water years, but nothing serious, to the extent that court action was required.

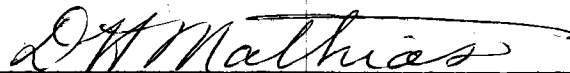
While the water shed for District 20 went into the winter very dry, the valley floor is in like condition and the ground water table is extremely low. Prospects for the coming year have brightened due to a very favorable snow cover on the western water shed.

A snow survey made on December 5th on two Wolf Creek Courses indicate the following:

COURSE	SNOW	WATER
Wolf Creek, Summit	49.2"	12.20"
Wolf Creek, Alberta Park	50.7"	14.25"

I feel I would be remiss in my duty if I did not take this opportunity to express my appreciation for the very fine cooperation of the Division Engineer Roy Heilman, and all other water officials, as well as the large personnel representing the water users.

Respectfully submitted,



Special Deputy State Engineer
Division No. 3, District No. 20