

STATE OF COLORADO
Department of Water Resources

1949

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

December 12, 1949

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

Dear Mr. Hinderlider:

Having given my annual report to you verbally at the annual meeting on Nov. 28th last, I now submit to you much the same information in written form for your records.

Water District 20, Division 3, has experienced one of it's best water supply seasons.

Snow surveys indicated April 18th that the annual run off for 1949 would be far above normal and near the maximum, and actual records now substantiate these water supply outlook data.

On April 18th an extra snow survey was called for by the Federal and State Co-operative Forecasters with results as follows:

	WATER CONTENT	
	1949	10 year avg.
Wolf Creek Pass	43.3"	29.7"
Farmers Union Reservoir	15.1	6.2
Santa Maria Reservoir	9.7	4.1

The discharge of the Rio Grande River at the Del Norte Station January to November 1st inclusive 1949 is 892,500 acre feet--adding normal discharge for November and December of 23,500 acre feet would indicate 916,000 acre feet, normal discharge being about 620,000 acre feet per year. The peak flow at the Del Norte Station was on June 19th and was approximately 9,500 cu. ft. per second.

The flood, or out of its banks stage, of the Rio Grande River was over a longer period of time than has been experienced for many years. The daily average flow based on morning readings from June 13 to June 30 inclusive was 6844 cu. ft. per second. This high stage of discharge did considerable damage to roads, bridges, and crops along it's course.

In spite of this prolonged flood stage extending up to July 1st, by July 17th, there was not sufficient river flow to supply the ditch demand; with a call for special or Reservoir delivery on that date and a very rapid deminishing flow there-after.

It is interesting to note that 1949 was the first year that all reservoirs in District 20 filled to capacity.

Records show that there was 700,463 acre feet of river water and 59,607 acre feet of Reservoir water or a total of 760,070 acre feet delivered to all ditches in District 20 in 1949; and further that there was in storage in acre feet on November 1st in the Farmers Union Reservoir 25,420, the Santa Maria 23,257, the Continental 16,818 and the small reservoirs 3,157 or a total of 68,652 acre feet carry over.

There was only 490 acre feet of trans-mountain diversion water diverted and this only from the Weminuche, Geo. Fuchs and the Raber-Lohr ditches.

It seems to me that perhaps the most interesting observation relative to irrigation is the unusual amount of new construction, repair and improvement of structures throughout the district. Water users generally have come to realize more and more the necessity of better diversion structures, clean open ditches, better delivery gates, improved measuring equipment and etc.

Old wooden structures are being replaced by modern steel and concrete installations.

The Terrace Project, though not in Dist. 20, has for the past five or six years carried on an extensive improvement program- starting with a new masonry spillway replacing the old wooden structure, then, a year ago, raising and strengthening the main dam and spillway dyke, facing the new work and old sections, where required, with adequate stone rip-rap.

This summer, as you know, the crest of the new spillway at the Terrace, was raised 24" with a re-inforced concrete extension to fit the OG crest as best as could be done. This additional storage was permitted under your recommendation to take care of the loss due to accumulation of silt; the new work on the dam and dyke having provided adequate free-board.

Also, this past summer a new concrete rectangular section was placed in the rock cut in the main canal of the Terrace for water measurements and recording equipment.

This winter electrical equipment is being installed in the control tower for operation of the gates of the Terrace Reservoir.

At the close of the irrigation season last fall 1948 a new concrete control structure was placed about a mile below the river diversion on the Monte Vista Canal, consisting of one 8' and three 10' steel radial gates at a cost of about \$14,000.00, work being completed in the early winter.

The flood damage this past summer at the Monte Vista Canal river diversion required the expenditure of about \$6,000.00 to rebuild and entailed considerable loss of water to the system.

An extensive cleaning program of the Monte Vista main canal has been carried on for the past few years with their own dragline and other heavy dirt moving equipment.

The Rio Grande Canal Co. completed the construction last winter of the new concrete division gates situated about a mile below the headworks on the main canal. This structure included 6 large steel radial gates for the control of water from the main canal to Lateral #1, a ditch almost as large as the main canal below the point of division; at a total cost of about \$17,000.00.

At the Rio Grande Canal river diversion a new concrete structure equipped with automatically controlled radial steel gates is at this time well under way, to cost approximately \$22,000.00. Damage to the headworks structures and channel due to this seasons prolonged high river stage cost the canal company about \$9,000.00.

In the gate houses at both the Santa Maria and Continental Reservoirs, new hydraulic controlled power equipment was installed.

A new concrete control section was placed in the outlet canal about 1000 feet Below the Santa Maria Dam, equippped with a Stevens Type-F recorder for measurements and record of discharge from the reservoir.

As you know there has been ever since the Santa Maria Reservoir was built, or at least for many years, a large pond or lake situated just below the dam covering several acres in area.

This impounding of water made it difficult to immediately ascertain the amount of flow of the outlet canal when discharging for irrigation.

To correct the situation many thousands of cubic yards of material was moved by excavating a channel some what to the left of the lake (looking down stream) and piling up a large dyke between the new ditch and the lake; a small intercepting ditch was cut below the toe of the dam to collect seepage water from the reservoir carrying it away from the old lake and into the new channel.

It seemed when the Santa Maria Reservoir was filled this summer, practically to capacity, that the leakage through the North end of the dam or the north abutment was greater than has been apparent at similar stage of the reservoir in the past.

As the water from the reservoir was used and receded, I personally observed with the superintendent, sump holes where the water was actually pouring in and disappearing at the right end or north abutment of the dam. Three or four of these holes located near each other were pouring water apparently into the same general cavity or outlet, which under pressure, it seemed, would be the cause of excessive loss.

The elevation of the effected area was about 12 or 15 feet below high water line.

Some effort was made to sluice some impervious materials into the cavaties and cover the area with an earth blanket, but my observation of the attempt is that not nearly enough material was deposited to cover to a sufficient depth to insure water tightness.

As has been stated, the Continental Reservoir filled again this season and has proven to be of great value to the water users under it and the Santa Maria Reservoir.

A new measuring wier on North Clear Creek below the Continental is very much needed as the old wooden Parshall flume is practically demolished and is not properly located. A new gage staff must be installed as it has never been provided with any type of gage-only grade stakes, set on the reservoir bank and face of the dam, has been used.

Little need be said relative to repairs carried on this season at the Beaver Park Dam ~~you~~ you are quite familiar with every phase of the work and in addition Mr. Coley who was personally on the job during operations has no doubt furnished a full report to you.

As stated in a separate report to you recently, it might be well to state here for the records that the cat-walk was repaired and both gates are in fair operating condition.

The gates are now closed, with storage at about gage height 27 ft. with practically no seepage or loss from the reservoir indicated below the dam; a condition I have not observed in the nine years I have been familiar with the project.

Repairs on both Spruce Lake dams has been discussed with you recently.

Mr. Paul Davis a registered engineer, now resident at Del Norte, Colo. furnished the plans and designs for the improvement and supervised personally the construction of both dams. Plans and specifications covering this work will be submitted to you no doubt in the near future.

The construction of many miles of new road through very rough mountain territory was built in order to get heavy earth-moving equipment for the work at Spruce Lakes.

Similar road construction as that done for the Spruce Lakes job was required for moving in heavy equipment to Poage Lake where extensive improvement was made this past summer on that dam.

I have personally inspected the Poage dam repairs but did not get into Spruce Lakes.

This fall has been unusually dry in the Valley but the sub-water level is some what higher than usual and the snow coverage in the surrounding mountains about normal. Thus, with almost 70,000 acre feet carry-over in the reservoirs, prospects for the 1950 irrigation season for Dist. 20 is better than average for this season of the year.

No administrative problems of any consequence have been encountered this season and the only cloud, so to speak, showing up on the horizon is the question of water rights or decrees for our elaborate use of pumping wells for irrigation.

Very truly yours,



Special Deputy State Engineer

1741

M. C. HINDERLIDER
STATE ENGINEER
C. C. HEZMALHALCH
DEPUTY



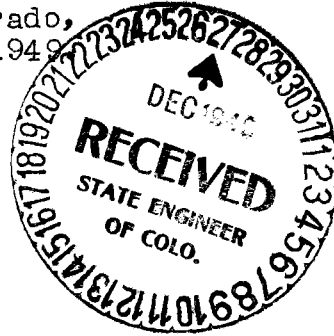
L. T. BURGESS
CHIEF HYDROGRAPHER
W. T. BLIGHT
OFFICE ENGINEER

STATE OF COLORADO
OFFICE OF STATE ENGINEER
DIVISION OF WATER RESOURCES

-DENVER-2-

Alamosa, Colorado,
December 22, 1949

SUBJECT:



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

Dear Mr. Hinderlider:

Enclosed is my annual report for the past year.

The water commissioners' books and water commissioners' report sheets for diversions and reservoirs are being expressed today to Mr. Blight.

May I extend you and the entire office force the Seasons Greetings.

Yours very truly,

Roy B. Heilman
Roy B. Heilman.

1949

Alamosa, Colorado,
November 22, 1949.

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

Dear Mr. Hinderlider:

Herewith is handed you my annual report as Irrigation Division Engineer for Division No. 3 for the year 1949. This report is made up of tabulated summarized statements of the reports, from the Water Commissioners, of diversions to various ditches, crop acreages and reservoir reports.

This irrigation season was one of the best remembered by even the old timers of the Valley. The water run off in the Districts on the west side of the Valley was considerably above normal and more than in 1948. This was due to more than an average amount of snow in the mountains and to rains which came earlier than usual. The diversions to ditches were above normal and continued longer than usual because of rains which held up the stream flow. The main streams were at flood stage and considerable damage was done by the high water.

In the north end of the Valley the stream flow was above normal and also continued longer than usual, due to the snow and rains. A larger hay crop was put up than in 1948 and that was the best year for several years. The run off on the east side of the Valley was about normal but the irrigation season was better because the stream flow held up better than usual because of the rains.

Crops on the whole were good. The quantity of the vegetable crops was about normal but the quality was better than in 1948. Vegetable prices in the forepart of the season were good but declined as the season progressed.

The mountain ranges were good but the season was late because the snow kept livestock off the higher ranges until late. Livestock came off the ranges in good condition.

Rains came early and continued so that stream flow in most of the streams held up longer than usual. However, there has been practically no moisture in the Valley since about the 1st. of September.

A contract was let by the Reclamation Bureau for the building of the Platora Dam on the upper Conejos River. Work was started early in the summer and is progressing more rapidly than anticipated.

A Water Conservancy District was organized late this fall at Alamosa for the purpose of promoting the building of storage facilities on the Rio Grande River. This District, at this time, includes only lands in the northwest part of Alamosa County. However, it is intended that other lands may petition into the District as desired.

There have been several projects started in the Valley this year for the development of irrigated lands by means of water furnished entirely by pump. The largest one of these projects is in the south part of the Valley, south of lower Trinchera Creek, in which some 1200 acres, of a large tract of the land, were broken up and planted to grains. Water was furnished by a large pump well run by a twin Deisel motor, which supplied some $12\frac{1}{2}$ cubic feet of water per second. Another of these projects is located about 5 miles southeast of Mineral Hot Springs. In this instance some 5 pump wells were put down and were run by electric motors. Several hundred acres were broken up and planted to grain. The results of these projects are not known at this time by the public.

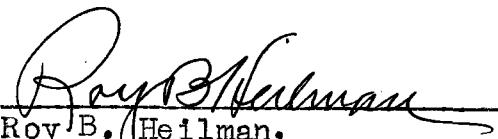
The dam at the Terrace Reservoir on the Alamosa River in District # 21 was raised some 5 feet in height and a concrete core 2 feet in height was placed across the crest of the spillway which raised the water level in the Reservoir that much. This did not necessarily increase the actual capacity of the reservoir, as it is believed this would just about off-set the sedimentation in the reservoir.

There has been considerable work done on the dam at the San Luis Valley Reservoir on Beaver Creek in District No. 20. This work consists principally of placing an earth fill against the up stream side of the concrete dam in order to stop the leaks from the reservoir.

A trans-mountain diversion was resumed this year from the Lake Fork of Cochetopa Creek into Saguache Creek in District No. 26. A 30 inch steel Parshall Flume and an automatic recorder were installed and an accurate record of the flow was kept.

There were few administrative problems because of the good supply of water.

Respectfully submitted,


Roy B. Heilman,
Irrigation Division Engineer,
Division No. 3.

SUMMARY
WATER COMMISSIONERS' DITCH REPORTS

1949

Division No. 3

No. 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	191	3-16	11-18	247	765265 765265	
21	67	3-29	11-10	226	135856	
22	118	4-1	10-31	214	323593	
24	54	4-1	10-31	214	63 952	
25	58	4-1	10-31	214	92578	
26	58	4-1	10-31	214	75318	
27	33	4-1	10-21	204	27178	
35	78	4-1	10-31	214	49358	
Totals for Division					657	<u>1533098</u>

765265 should be approximately 676650 M.S. 3/12/76

1444532 which relates 1444440

These figures include Reservoir water and Trans-Mountain Diversions.

SUMMARY

WATER COMMISSIONERS' DITCH REPORTS

1949

Number of Acres

Water District	No. Acres That Can Be Irrigated	Alfalfa	Natural Grass	Cereals	Pasture	Garden Peas
20	514600	68006	55082	77404	104961	2116
21	69078	6998	11294	13545	12497	2832
22	197846	15621	27642	22873	23908	660
24	37674	4220	2480	12626	2449	205
25	135404	1964	28179	1405	91846	
26	60364	2623	31515	800	13421	110
27	16900	842	5710	205	4112	5
35	44508	1991	8067	3863	10607	53
Totals:	1070164	102265	169968	132721	263801	5981

Number of Acres

Water District	Potatoes	Sugar Beets	Beans	Field Peas	Cabbage	Lettuce
20	28875	229	124	9395	794	1416
21	2355	60	257	4741	183	158
22	1783	118	311	4009	50	90
24	1765		1315	8478	380	105
25	31					
26	4					
27	25		3	47		
35	489	362	58	1478	431	252
Totals:	35025	769	2068	28148	1838	2011

Number of Acres

Water District	Cauliflower	Spinach	Summer Plow	Sweet Clover	Other Crops	Total Irrigated.
20	639	55	2340	28011	890	380035
21	185	10	1339	2940	100	59494
22	55		690	2905	210	100915
24	1330			565	895	36813
25				67	10	123502
26					10	48483
27			5	80	506	11540
35	249	500	326	264	400	28940
Totals:	2458	115	4700	34832	3021	789722

SUMMARY

WATER COMMISSIONERS' RESERVOIR REPORTS

1949

Name of Reservoir	Water District No.	Capacity in Acre Feet	Amount Available in Acre Feet	Acre Feet in Storage May 1	Nov. 1	Total Acre Feet Delivered	
Rio Grande	20	51113	51651	25420		27770	
Santa Maria	20	43565	41366	23257		18170	
Continental	20	26716	26716	16818		10330	
San Luis (Beaver)	20	3283	616	0		616	
Metroz	20	136	136	0		127	
Wee Ruby	20	186	186	0		186	
Ruby	20	Not used for irrigation.					
Sowards No. 1	20	121					
Sowards No. 2	20	22					
Sowards No. 3	20	19	19		0		
Meadow Lake	20	199	199		0	258	
Streams	20	40	40				
Archuleta	20	Not used - Dam failed in 1944					
Spruce No. 1	20	111	50		0	154	
Spruce No. 2	20	105	105		0		
Fuchs	20	237	237		50	187	
Troutvale No. 1	20	510					
Troutvale No. 2	20	257					
Squaw	20	140	140		0	140	
Poage	20	261	66		0	66	
Shaw	20	491	491		234	257	
Bristol Head No. 1-20		151	151		475	480	
Bristol Head No. 2-20		804	804				
Road Canon	20	395	395				
Regan	20	667	400		247	153	
Lost Lakes	20	966	966		841	125	
Spring Creek	20	145	145		145		
Meadow Creek	20	114	114		114		
S U Dude	20	120	100		20	100	
Hunters	20	31			31		
Trout Lake	20	312	312		0	312	
Goose Lake	20	232	183		0	176	
Terrace	21	17700 +		2733	3093	17236	
La Jara	21	14052		4387	2781	2032	
Cove Lake	22	7910		884	0	6826	
Sanchez	24	103155		8884	10502	26726	
Eastdale No. 1	24	3468		1270	10	987	
Salazar No. 1	24	142		10	40	504	
Mountain Home	35	19150		3055	2970	6898	
Smith	35	5336		5336	2805	6550	
Totals for Division		302362	125588	152247	89863	127366	

1949 RESERVOIR STORAGE REPORT - DIVISION NO. 3.

AMOUNTS IN STORAGE IN ACRE FEET.

	Rio Grande ✓	Santa Maria ✓	Continental ✓	Sanchez	Terrace ✓
12-1-1948	13400	15815	5104	3945	872
1-1-1949	15092	15815	5104	4650	1293
2-1-1949	16685	17100	5200	4790	1741
3-1-1949	17543	17100	5760	5392	2028
4-1-1949	19491	15800	6000	6248	2200
5-1-1949	21240	17339	12576	8884	2733
6-1-1949	45110	27869	17709	14862	5424
7-1-1949	51377	40154	26486	21535	17700
8-1-1949	43351	39546	26716	19920	9537
9-1-1949	23881	24716	16166	11420	4499
10-1-1949	23881	23196	16386	9510	2028
11-1-1949	25420	23257	16818	10502	3093
* 12-1-1949	26,978	22,916	17,287		3338
* 1-1-1950	27745	22,906	17,500		3578

Omit from printed Report of S. E.

	Mt. Home ✓	Smith	Cove Lake	La Jara
12-1-1948	1205	3514	0	1751 ?
1-1-1949	1510	4123	0	1751 ?
2-1-1949	1672	4264	0	1751 ?
3-1-1949	2116	5336	0	1751 ?
4-1-1949	2505	5336	0	1751 ?
5-1-1949	3055	5336	884	4387
6-1-1949	3731	5336	4335	6629
7-1-1949	8544	5336	3610	7038
8-1-1949	7165	4191	1962	6873
9-1-1949	3756	2805	483	5243
10-1-1949	2970	2805	0	4029
11-1-1949	2970	2805	0	2781
* 12-1-1949	3230			
* 1-1-1950	3606			

VEGETABLE SHIPMENTS

To date in 1949 Season

Lettuce	373	Car loads
Mixed Vegetables	736	Car loads
Spinach	12	" "
Garden Peas	554	" "
Cabbage	344	" "
Carrots	31	" "
Cauliflower	929	" "
Potatoes	4341	" "
<hr/>		
Total	7320	

These figures include an estimated 1062 carload of potatoes hauled by trucks to date.

1949 TRANS-MOUNTAIN DIVERSIONS

Weminuche - District No. 20

^{512.0}
~~488.6~~ Acre Feet.

Amount diverted from Lake Fork of Cochetopa Creek into Saguache Creek in District 26 not computed.

COMPARISON FOR 10 YEAR PERIOD

	No. of Acres Irrigated.	Acre Feet of Water Delivered to Ditches
1940	664267	769141
1941	717654	1635840
1942	733996	1398212
1943	769680	1123219
1944	749625	1557569
1945	746751	1318180
1946	698431	912394
1947	742289	1351229
1948	757041	1320484
1949	789722	1444440