

Box 551
Durango, Colorado
November 29, 1964

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

Dear Mr. Whitten:

The following is the annual report of the Division Engineer, for Irrigation (District) 7 for the irrigation year ending October 31, 1964. Attached is a resume of Division 7 Commissioners' reports.

GENERAL

For this year the combination of weather, temperature and runoff made up a unique pattern. During the early 1963 fall the temperatures were above average with good rains in October; the remainder of the winter we had below-average moisture and temperatures. March had above normal precipitation; this moisture combined with a below average spring temperature caused a slow snow melt. Very little water was lost in this district due to high spring runoffs.

Division
SNOW PACK

The following is the runoff forecast for the main waters in this division.

The stream flow forecast compared to actual runoff in 1,000 acre feet for the April 1 to September 30 period.

<u>Stream</u>	<u>March 1</u>	<u>1943-1957 Average</u>	<u>Actual Runoff</u>	<u>Percentage of Normal</u>
San Juan	300	369*	146*	39.7
Dolores	167	279	182	65.2
Animas	300	475	300	64.2
La Plata	N.F.	23	23	100.0
Blanco**	N.F.		40	
Navajo***			47	

* 12 months' period 135 actual flow for period
** Blanco River Station at Blanco Basin
*** Navajo Station at Chromo
N.F. Not forecasted

It is interesting to note that while the runoff on most streams was below normal, the flow in the La Plata River was normal. We forecasted this possibility, as the focal point of the late spring snows was the SW face of the La Plata Mountains. The amount of precipitation diminished Easterly along the San Juan Frontal Range and to the North on the western and northern slopes of the La Plata Mountains.

TEMPERATURE

<u>Station</u>	<u>Nov</u>	<u>D</u>	<u>Dec</u>	<u>D</u>	<u>Jan</u>	<u>D</u>	<u>Feb</u>	<u>D</u>	<u>March</u>	<u>D</u>	<u>April</u>	<u>D</u>
Durango	38.8	2.7	28.2	.3	24.7	-.6	26.7	-3.0	33.4	-3.3	42.9	-2.2
Cortez	39.8	2.6	27.5	-2.0	25.4	-2.1	27.5	-4.4	34.3	-4.2	44.9	-2.8
Ft. Lewis	36.2	3.0	25.3	-.6	21.2	-1.8	20.4	-5.5	27.2	-4.5	31.7	-3.9
Silverton	30.3	3.7	19.7	.4	15.3	-1.4	13.8	-5.2	19.3	-4.5	31.7	-1.5
	<u>May</u>	<u>D</u>	<u>June</u>	<u>D</u>	<u>July</u>	<u>D</u>	<u>Aug.</u>	<u>D</u>	<u>Sept.</u>	<u>D</u>	<u>Oct.</u>	<u>D</u>
Durango	53.5	1.0	59.8	-.8	69.5	2.5	65.2	-.8	58.5	-.5	51.0	2.3
Cortez	56.0	.1	64.1	-.6	72.8	1.5	68.0	-1.6	60.7	-1.5	52.3	1.3
Ft. Lewis	49.5	.5	57.3	.1	66.5	2.9	61.7	-.2	54.9	-.8	53.2	7.6
Silverton	43.2	1.3	49.8	.1	57.4	2.3	53.7	-.5	49.8	.7	--	--

Note regarding temperatures from generalizing page
 Durango averaged 0.4° below normal for the year.
 Cortez averaged 1.1° below normal for the year.
 Ft. Lewis averaged .2° below normal for the year.
 -Degrees below an average 1943-57 normal under (D)

PRECIPITATION

<u>Station</u>	<u>Nov</u>	<u>D</u>	<u>Dec</u>	<u>D</u>	<u>Jan</u>	<u>D</u>	<u>Feb</u>	<u>D</u>	<u>March</u>	<u>D</u>	<u>April</u>	<u>D</u>
Durango	.88	-.10	.42	-1.21	.56	-1.05	.48	-.82	2.28	.80	1.84	-.55
Cortez	.24	-.51	.35	-.77	.39	-.67	.16	-.94	1.90	.81	1.14	.05
Ft. Lewis	.06	.07	.36	-1.24	.37	-1.27	.43	-1.28	1.40	-1.5	1.81	.33
Silverton	.90	-.26	.69	-.81	.91	-.55	.52	-1.15	2.33	.25	1.68	-.08
	<u>May</u>	<u>D</u>	<u>June</u>	<u>D</u>	<u>July</u>	<u>D</u>	<u>Aug.</u>	<u>D</u>	<u>Sept.</u>	<u>D</u>	<u>Oct.</u>	<u>D</u>
Durango	.33	-.80	.1	-.75	2.13	.32	3.75	1.39	2.07	1.24	00	-1.86
Cortez	.53	-.33	.02	-.52	1.23	.02	2.27	.76	2.07	.66	00	-1.46
Ft. Lewis	.44	-.75	.14	-.76	3.00	1.25	2.58	.44	1.51	-.29	00	-2.03
Silverton	.41	.02	.85	-.56	2.88	.41	3.34	.52	2.73	.45		

D Departure from Mean
 - Below Mean

Durango measured -3.41 inches moisture during the year below the 1943-57 average
 Cortez measured -2.90 inches moisture during the year below the 1943-57 average
 Ft. Lewis measured -4.68 inches moisture during the year below the 1943-57 average

TEMPERATURE

The temperature pattern this year did not follow the "average" 1943-57 scale. October, 1963, and November were above normal. Starting with December we had a below average cold winter and spring. Although we did have a very early killing frost in August in some localities, very little damage was noted. October, and especially September, had above average temperatures.

PRECIPITATION

The precipitation did not follow a set pattern. We had very good snows late in the spring on the La Plata Mountains. We did not receive a satisfactory amount of snow on the San Juan's. We had excellent rains in August and September throughout the division. These rains made above average hay crops and improved range conditions. Although we received about 60-80% of normal moisture during the period, it came at a time when the most good was realized.

RESERVOIR STORAGE -- ACRE FEET

P164

Checked with Rees →

<u>Name</u>	<u>May 1, 1964</u>	<u>Capacity When Full</u>
Groundhog	6,475	21,710
Jackson	3,031	10,000
Vallecitos	72,226	126,280
Bauer #1	300	350
Bauer #2	1,500	1,532
Webber	260	265
Naraguinepp <i>Naraguinepp</i>	6,122	19,050
Summit	1,852	4,753
Puett	1,690	2,257
Durango Reservoir #2	162	231
Big Pine	190	259
Belmar	274	466
Cascade	4,938	23,976
Wommer	186	186
Red Mesa	1,200	1,200
LA Bar Reservoir	72	72
<u>TOTAL</u>	100,478	209,587

WATER SUPPLY

Although the total runoff was below the 1943-57 average, the percentage of total useable water to the total runoff was high. On the Mancos very little water flowed below the irrigated farms on the upper

Mancos. On the La Plata (with the exception of a 3,000 c.f.s. flood near the New Mexico line in late August) no water flowed into the San Juan. Enough water was available in the San Juan, Animas, Blanco, Piedra and Navajo to satisfy water demands.

The new Lemon Dam proved itself in helping Florida Mesa farmers over "the hump."

It was difficult to regulate the waters on the La Plata and the Mancos Rivers this spring due to the wide variation of flows during the day.

CROPS

Although precipitation was down this year, very good crops were grown. This year in Montezuma County an estimated 150,000 bushels of fruit was grown, but only about 90,000 bushels were harvested due to the low prices of apples. Beans made 100-200 pounds per acre as a low average to 800 pounds per acre as a high. Alfalfa hay produced three good cuttings. Good growths of native or improved hay were made. In La Plata County beans averaged 200-300 pounds per acre; the lower yield was caused by a late dry spring and an early August frost. Wheat averaged 15 to 20 bushels per acre.

On the Ute Indian Reservation in the Pine River Irrigation Project we obtained some interesting information. Alfalfa averaged 1.6 tons per acre; apples yielded 125 bushels per acre; improved hay yielded 1.3 tons per acre; oats yielded 50 bushels per acre; wheat made 18 bushels per acre. The total income per acre on all lands was \$30.84.

INSPECTION OF RESERVOIRS

An inspection of all major reservoirs was made.

COMPACTS

La Plata

Very little trouble was experienced in the administration of the La Plata River. Both States should have been happy and satisfied. Due to the lateness of spring, New Mexico received some water that Colorado could not use; cold nights and cool days during the early spring caused a slow snow melt which extended the flow of useable water. In August when we expected some difficulties with New Mexico, a "cloud burst" occurred near the New Mexico line and a flow of at least 3,000 c.f.s. occurred. This high flow washed out all New Mexico ditch headings and many of their ditches. New Mexico Water Officials called up and told us not to deliver more than a limited amount of water.

SMALL DAMS

A moderate number of small dams were installed this year. About 10 sites were inspected by this office.

STRUCTURES

Very good cooperation was obtained in the installation of headgates and Parshall Flumes this year. Below is listed the number installed this year:

<u>District</u>	<u>Flumes</u>	<u>Check and ^{Alaska} Water or Headworks Structure</u>
29	0	0
30	9	2
31	all in	all in
32	14	7
33	2	2
34	<u>23</u>	<u>19</u>
<u>Total</u>	48	30

With the exception of two ditches that were not used, all control and measuring structures on the Dolores River were installed. Most of the flumes that were needed in District 32 have been installed. With the exception of about three ditches, all the control and measuring structures have been installed on the Florida River ditches.

NEW CONSTRUCTIONSan Juan - Chama Project

Work on the San Juan - Chama Project consisted of building the inlet and outlet portals. Work is to begin on the New Mexico end. The Bureau of Reclamation offices are located in Chama, New Mexico. The prime contractor's office is located in New Mexico close to the outlet portal. Work on the actual digging of the tunnel will start about January 1 upon the arrival of the "mole" which is being built especially for this job. The Bureau of Reclamation is continuing their work on the location of the Blanco, Little Navajo, Big Navajo diversion locations.

Work is nearly completed on the Florida River Project lateral system.

Work has been completed on Lemon Dam.

Rehabilitation work on Havilland Dam by the Game Department has been completed.

NEW ADJUDICATIONS

Testimony is still being taken on the Florida and Animas Rivers ditches leading to a new adjudication in District 30. Some testimony is being taken for off-stream ditches in District 31. Some testimony has been taken leading to a new adjudication in District 33.

The referee has taken considerable testimony relative to the 1962 adjudication in District 32.

PROBLEMS

"Growing Pains" have been experienced in the allocation of water from Lemon Reservoir. The Bureau of Reclamation way and the State law way, it may take a year or so, but we will win out.

Very truly yours,

George E. Barclay
George E. Barclay
Division Engineer

GEB:rs

Attachments

P167

TABULATION OF WATER COMMISSIONERS' ANNUAL DITCH REPORT

<u>District Number</u>	<u>Amount Approx. In Sec. Ft.</u>	<u>Total Capacity of Ditches In C.F.S.</u>	<u>First Day Water Was Used</u>	<u>Last Day Water Was Used</u>	<u>Number Days Water Was Used</u>	<u>Aver. Daily Amount Used C.F.S.</u>	<u>Number Acre Feet Used</u>	<u>Number Acres Irrigated From Nat. Stream</u>
29	647	936	May 1	Oct. 31	184	546	200,060	27,420
30	3,294	860	Apr 1	Oct. 31	214	345	147,695	30,678
31	714	905	Apr 24	Oct. 30	190	294	111,704	49,339
32	185	261	Mar 30	Oct. 31	188	90	33,898	5,207
33	273	472	Mar 16	Oct. 31	229	39	17,939	11,111
34	862	1,345	May 19	Oct. 31	198	341	155,151	53,738
69	86	61	Apr 19	July 28	70	23	3,233	839
Total	6,061	4,840	Mar 30	Oct. 31	216	1,550	669,680	178,332

P168

TABULATION OF WATER COMMISSIONERS' ANNUAL RESERVOIR REPORT

<u>District Number</u>	<u>First Water Used From Storage</u>	<u>Last Day Water Was Used From Storage</u>	<u>Number of Days Used</u>	<u>Number of Acre Feet Used</u>	<u>Number of Acres Irrigated From Storage</u>
29	Information not available				
30	May 15	Oct. 31	169	11,009	22,150
31	June 9	Oct. 30	144	57,137	36,409
32	--	--	None	None	None
33	May 23	Sept. 19	100	1,106	460
34	May 1	Oct. 31	184	40,850	105,539
69	June 23	Sept. 21	19	96	80
Total			184	110,198	164,638

TABULATION OF WATER COMMISSIONERS' ANNUAL RESERVOIR REPORTS

District Number	Number of Reservoirs Reported	Area of High Water Line in Acres	Capacity In Acre Feet	Amount In Storage May 1 Acre Feet	Amount In Storage November 1 Acre Feet
29	Information not available.				
30	6	1,563	65,623	8,359	24,896
31	2	3,093	128,336	37,452	27,383
32	None				
33	1	50	1,200	1,200	490
34	10	2,171	60,260	21,492	12,515
69	4	709	22,281	6,475	80
Total	23	7,585	277,600	74,978	65,364

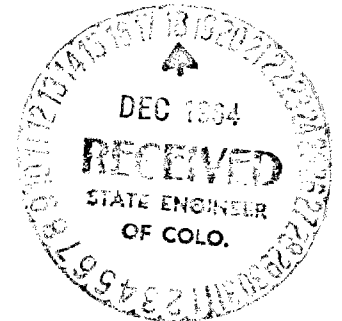
December 17th, 64

Dear Ellen:

Would you make the following changes in my annual report. On the first page under "Stream flow forecast -- the 1943-57 Average for the La Plata River should read 31 instead of 23, and the Percentage of normal should be 73%. On the second page paragraph 1 sentence one, it should read "the flow in the La Plata River was about normal."

Thanks-

Very truly yours,
George Barclay
George Barclay



*My report is in the mail
of 12/17/64 - 12/17/64*