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DIVISION OF WATER RESOURCES

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December 9, 1969

Mr. C. J. Kuiper, State Engineer
101 Columbine Building
Denver, Colorado 80203

Dear Mr. Kuiper:

Attached is my annual report for Division 7, for the water year of 1969.

Very truly yours,

George E. Barclay
Division Engineer

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Enc.

ANNUAL REPORT

WATER DIVISION 7

1969

PREPARED BY

GEORGE E. BARCLAY

DIVISION ENGINEER

DURANGO, COLORADO

ANNUAL REPORT

WATER DIVISION 7 for 1969

GENERAL

Considering both the irrigated lands and those lands with less than sufficient irrigation water, and dry lands in the southwestern part of Colorado, better than average conditions relative to growing crops existed. Our winter came late; last fall temperatures dropped early, but we did not receive any appreciable amount of snowfall until late in December. It did not take long to "catch up" on deficiencies. The rest of the winter was one of the heaviest snowfalls we had in our history. We had good snows even up until April. Much of the heavy snow fell at lower elevations, causing a high runoff on our rivers in April. With a good crusted snow high up, we had a fairly slow runoff. Even on the La Plata River Watershed, we had very little complaint relative to insufficiencies of water. You will see from the snow pack below, that above-normal snow and water content was found on all watersheds.

SNOW PACK

Station	Date	Water Content In Inches	1948-69 Average Water Content Inch.
Upper San Juan	Jan. 1	14.0	13.6
	Feb. 1	26.7	19.4
	May 15	18.3	18.6
	June 1	1.1	5.2
Wolf Creek Pass	Jan. 1	11.7	13.1
	Feb. 1	23.1	17.8
	May 15	14.8	14.5
	June 1	0.0	5.5
Wolf Creek Summit	Jan. 1	10.8	13.8.
	Feb. 1	21.3	17.7
	May 15	33.3	31.4
	June 1	24.4	23.7
Red Mountain	Jan. 1	11.5	11.4
	Feb. 1	23.3	17.0
	May 15	27.3	30.3
	June 1	10.7	9.3

RUNOFF

You will note that we had above-average runoff in all of our rivers in the southwestern part of the State. Due to low snow conditions, we had one-third above-normal on the La Plata River and we had nearly 25% above-normal on the Animas and Dolores. Most of this high runoff can be attributed to low heavy snows.

RUNOFF OF THE MAJOR RIVERS IN THIS DIVISION (in thousands)

River	Station	Period Of Average	Amount Acre Feet Average	Amount Acre Feet 1969	Percent Of Total
San Juan	Pagosa Springs	38	267	275	103
Dolores	Dolores	58	246	311	126
Animas	Durango	64	498	606	121
La Plata	State Line	39	23	31	134

TEMPERATURE

Station	[1968] Nov.	Dec.	[Jan.	Feb.	1 Mar.	9 Apr.	6 May.	9 Jun.	Jul.	Aug.	Sept.	] Oct.
Cortez:												
Temperature	37.1	25.2	31.4	30.8	34.2	49.6	59.0	63.0	72.9	73.5	63.8	46.6
Departure	- .1	-4.3	+3.9	-1.1	-4.3	+2.2	+3.1	-1.7	+1.6	+3.9	+1.6	-4.4
Durango:												
Temperature	35.9	23.5	28.4	28.5M	33.1	47.2	55.2	58.5	68.7	68.5	59.8	44.2
Departure	- .2	-4.4	+3.1	-1.2	-3.6	+2.1	+2.7	-2.1	+1.7	+2.5	+ .8	-1.5
Ft. Lewis:												
Temperature	32.1M	21.8M	25.5	24.1M	26.4	43.5M	52.7	54.9M	65.9M	65.0M	56.6M	40.0
Departure	-1.1	-4.1	+2.5	-1.8	-5.3	+2.3	+3.7	-2.3	+2.3	+3.1	+ .9	-6.2
Silverton:												
Temperature	26.3	16.3	19.8	15.8	18.9	36.0	46.0	48.0	56.9	57.3	49.8	34.2
Departure	- .3	-3.0	+3.1	-3.2	-4.9	+2.8	+4.1	-1.7	+1.8	+3.2	+1.6	-5.8
PRECIPITATION												
Cortez:												
Precip.	.56	1.28	2.06	1.61	.65	.21	.45	1.66	1.49	.61	1.06	2.82
Departure	-.19	+.16	+1.00	+.52	-.44	-.80	-.41	+1.12	+.28	-.89	+.55	+1.37
Durango:												
Precip.	.94	1.73	3.59	1.89	1.14	.22	.87	2.44	1.96	1.53	1.72	3.51
Departure	-.04	+.10	+1.98	+.47	-.35	-1.07	-.26	+1.56	+.15	+.17	-.01	+1.63
Fort Lewis:												
Precip.	..93	1.45	3.86	3.78	2.04	.53	1.11	2.33	1.87	1.96	2.89	5.82
Departure	-.06	-.15	+2.22	+2.07	+.49	-.95	-.08	+1.43	+.12	-1.44	+1.09	+3.79
Silverton:												
Precip.	1.23	1.59	3.43	2.66	1.26	.43	1.25	4.43	4.11	2.52	3.34	4.72
Departure	+.07	+.09	+1.02	+.99	-.82	-.98	+.14	+3.02	+1.64	-.30	+4.02	+2.46

Above are listed the divergencies of temperatures and precipitations from the mean, for Cortez, Durango, Fort Lewis, and Silverton. You will note that all of these

stations follow the same pattern - that is they had a cold fall in 1968, a warm April and May, with about a normal June and July, and a warm August and September. "Old Joe the Indian" didn't have his summer this fall. From the temperature and precipitation shown, we had a late winter, a summer, and then an early winter. Spring and fall did not exist this year. We had a very good precipitation year, with an average precipitation throughout this southwestern part of the state, of about 15% above normal.

CROPS

The weather and temperature pattern was conducive to growing good crops in Division 7. Late frost was very spotty and did not affect the bean or fruit crops. Snows covered the winter wheat which was not affected by early spring thaws and temperature drops. Without heavy moisture during the forepart of the growing year, excellent bean growth was realized. It was nip and tuck during August, when very little precipitation accompanied above-average temperatures, but late rains in August, coupled with high temperatures, made an above-average bean crop. Some difficulty was experienced in harvesting this crop due to rains and frost during the latter part of the harvest season. However, all beans were harvested, and the same may be said relative to the harvesting of grain and oats. Late frost retarded the ripening of the grain, and it was not until late October that all of the grain was harvested. Grain and beans were very dirty due to late growth of weeds and wet conditions during harvesting. We realized the first good all-around fruit crops this year, although due to climactic conditions, apples and other fruits were below normal in size. Although the hay crop was heavy and above normal in poundage, large amounts were subnormal as far as quality was concerned due to rains during harvesting season.

INSPECTION OF RESERVOIRS

Approximately 75% of the reservoirs were inspected this year. Due to wet conditions and a very slippery Mancos shale soil, some of the reservoirs in District Sixty-nine were not inspected. The spillway on the new Echo Dam showed some sign of ravelling, and the level of the water was ordered dropped until repairs were made. These repairs were made in September and by October 15th, the water in Echo Lake had risen five feet and was again going over the spillway. The outlet gate and control device on the Lone Pine Reservoir are inoperative again, due to a "haywire" repair job done last year. Most reservoirs were in good condition relative to storage this fall.

ADJUDICATIONS - NEW WATER LAW

At the present time, we are going through the process of "growing pains" due to our new water law. We do not have any appreciable number of wells, and especially irrigation wells, in the southwestern part of Colorado, which is also the better part of Colorado, and we have not experienced any serious difficulty in administration problems. The Water Clerk, Water Judge, and the Division Engineer enjoy good relations. There has been a trickling of new filings under the new water laws so far this year.

COMPACTS

Long distance calls were at a minimum between the State of New Mexico and Colorado relative to the administration of the La Plata Compact. Due to heavy,early runoff, nearly all of the water owed to New Mexico was supplied from these runoffs in Cherry Creek and Long Hollow. Most of the early runoff from the La Plata proper was used by Colorado water users. New Mexico was able to supply a goodly amount of

water to all of their water users, even those holding junior rights. Colorado was able to furnish water to many of her "junior ditches" which have been dry for the last several years. For two months this fall, water has gone through to the San Juan River without sufficient call from Colorado and New Mexico, to use all of the available water.

STOCK TANKS

We were again confronted with the construction of a large number of stock tanks. Some of these were controversial and needed close scrutiny. A large number of these tanks were located in the Dove Creek area where most of the drainage goes into the western side of the McElmo Drainage, or that drainage that flows into either Utah or north into the Dolores River. We can anticipate that we will be confronted by some water problems relative to new tanks being constructed upstream, depriving older tanks of water usage.

DAMS

Only one large dam was constructed in this Division last year, and that was the Turner Dam located on Fall Creek, a tributary to the Animas River. As this dam is located on a side stream, which drainage flows into a sub-division, we had numerous complaints or "worries" from residents below the dam, relative to its stability.

SAN JUAN-CHAMA PROJECT

It was our pleasure to be host to Division Engineer Crosby and his water commissioners; and also blessed with one of the few visits by the Denver "Gold" in the person of Bill Smith, who also accompanied this excursion.

BLANCO TUNNEL

This tunnel was completed and the head works all completed and ready for operation.

OZO TUNNEL

This tunnel has been completed and lined. The head works and diversion works from the Blanco Tunnel were nearing completion, and as far as I know, were actually completed in the latter part of October.

AZETEA TUNNEL

The invert has been placed on the entire tunnel. They are pouring the cap at the present time. Completion date for the tunnel calls for about March 1970. There is still some work to be done on the inlet to the Azetea Tunnel. This was not completed before freeze-up this fall, and will have to be completed sometime during the early spring or summer. Good progress is being made on the Heron Dam in New Mexico. This should be ready for water storage by the time Azetea Tunnel and other diversion works are completed. The last estimated time for diverting water to New Mexico is about July 15, 1970.

STRUCTURES - NEW

We have issued orders for head structures and Parshall Flumes for approximately one hundred and sixty ditches, in Old Water District 29. It will be necessary to have these in, especially on the Blanco, Navajo and Little Navajo Rivers, by the time water is diverted to New Mexico. We are requesting that the Parshall Flumes be

installed with wells for automatic recorders. As New Mexico is diverting this water and there will probably be calls upon water diverted in Colorado, we feel that the burden of expense of the purchase of automatic recorders, should be bourne by the water users of the state of New Mexico.

STRUCTURES - NEEDED

With the diversion of San Juan River water to New Mexico, it makes it necessary for us to establish gauging stations on the Navajo and Blanco Rivers. We feel that there is not enough water available on the Little Navajo during the summer or winter months. In fact, the only time that water could be diverted to New Mexico from this source of supply, would be during spring flows.

The U.S.G.S. Gauging Station at Edith on the Navajo, would be a good regulatory station. It is my recommendation that this station be taken over by the State of Colorado, as the way it is operated by the U.S.G.S., it could not be used as a check relative to flows on the Navajo River with respect to water rights. A gauging station will have to be set up on the Blanco River. It is suggested that it be set up probably just above the confluence of the Blanco and Little Blanco Rivers. To regulate this stream, it would be better that this station be established close to the mouth where the Blanco River runs into the San Juan, but due to the inaccessibility of the road down the Blanco, it may be necessary to set this station up close to Highway 550.

PUBLIC RELATIONS

During this year, I attended several ditch meetings, and also several meetings of the Southwest Conservancy Board. I also attended two meetings relative to the Legislative Council on Water Rights. During the year, I wrote seven articles relative to water rights; six of which were published by the Durango Herald. I also spoke on one of the radio stations three different times relative to the water rights and Legislative Council meetings to be held in this area.

PERSONNEL

There were no changes made in personnel this year, with one exception, and that was the addition of a clerk-stenographer. This has its advantages and disadvantages - mostly advantages - but some disadvantages as I have to account for my comings and goings all the time, as the office is now open every day to the public, whether I am there or not.

PROBLEMS

It has been very difficult this year "standing on the fence" - on one side being the home county of Senator Wayne Denny, one of the sponsors of Senate Bill 81; and the other side being a stronghold of antagonists of the Bill and followers of the opposition. In several instances, I have acted as a mediator between these two factions.

TABULATION OF WATER COMMISSIONERS ANNUAL RESERVOIR REPORTS

District Number	Number of Reservoir Reports	Area of High Water Line In Acres	Capacity In Acre Feet	Amount In Storage A.F. 5/1	Amount In Storage A.F. 11/1
29	28	5,210*	309,404	306,534	294,047
30	33	701	144,269	27,639	52,548
31	5	2,775	131,630	94,147	81,609
32	--	------	-------	-------	-------
33	1	50	1,200	1,200	400
34	11	2,162	53,599	45,888	24,477
46	--	------	-------	-------	-------
69	7	88	817	816	372
TOTALS	85	10,986	640,919	476,224	453,453

* Estimate Duty of water from storage 0.88 acre feet.

District Number	First Day Water Was Used From Storage	Last Day Water Was Used From Storage	Number of Days Water Was Used	Number of Acre Feet Water Was Used	Number of Acres Irrigated From Storage
29	5/1/69	10/31/69	184	5,059	1,655
30	4/26/69	10/4/69	163	14,112	21,610
31	8/19/69	10/18/69	93	46,171	40,550
32	------	-------	---	------	-------
33	6/7/69	9/29/69	114	1,136	480
34	5/1/69	10/13/69	102	27,321	42,100
46	------	--------	---	------	-------
69	6/2/69	9/14/69	60	442	192
TOTALS	4/26/69	10/31/69	184	94,241	106,587

TABULATION OF WATER COMMISSIONERS ANNUAL DITCH REPORTS

District	Amount In C.F.S.	Total Capacities Of Ditches	First Day Water Was Used	Last Day Water Was Used	Number Of Days Water Used	Average Daily Amount C.F.S.	Number Acre Ft. Used	Number Acres Irrigated
29	2,591.40	2,788	4/1/69	10/31/69	214	318	136,148	41,350
30	2,235.2	1,106	4/1/69	10/31/69	214	292	125,195	33,384
31	958.99	1,206	4/1/69	10/31/69	214	510	218,500	52,484
32	188.9	220	4/13/69	10/21/69	182	96	35,100	5,226
33	997.37	942	4/1/69	10/31/69	214	72	31,096	16,812
34	1,264.3	1,500	4/1/69	10/15/69	151	164	49,517	19,415
46	57.4	55	4/1/69	10/31/69	210	46	9,651	1,809
69	143.32	106	4/7/69	9/14/69	127	2	564	1,315
TOTALS	8,436.88	7,923	4/1/69	10/31/69	214	1,415	605,771	171,795

Duty of Water From Stream 3.267 Acre Feet.