November 30, 1960

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

Dear Sir:

In compliance with the provisions of law I transmit herewith my Annual Report as Division Engineer, Irrigation Division No. 5, for the year ending November 30, 1960.

On April 1 the snow-pack on the Colorado and Roaring Fork Rivers above Glenwood Springs, as reported by the Soil Conservation Service, was above normal at the higher elevations. Due to late fall rains soil moisture was excellent, which would tend to increase runoff and cut down on early season irrigation demands. Thus, prospects for irrigation water in the Colorado River Basin were very good; however, due to above-normal temperatures the first three weeks in April, the snow pack changed from above normal on April 1 to below normal on May 1. Following is a table showing the forecast flow and the actual flow at Glenwood Springs as predicted by the U.S. Weather Service and as measured by the U.S. Geological Survey:

	Water Year Flow Oct. 1959 thru Sept. 1960		% of 15-year Average	Actual Flow
	Forecast A.F.	15-yr. Average A.F.		
Colorado River-Glenwood Springs	1,880,000	1,900,000	99	1,500,000
Roaring Fork River-Glenwood Springs	950,000	958,000	99	772,400

The season began with a very early spring and ended in a very late fall. There were 123 frost-free days in the Rifle area, the last frost this spring

being on May 25, and the first this fall on September 25. Temperatures rose rapidly the beginning of April and remained above normal during the first three weeks. During the last week of April snow storms occurred and temperatures dropped below normal. Runoff which had been above normal during the first part of April fell to well below normal when temperatures dropped. Some streams had runoff the highest of record due to the high temperatures, then dropped to below normal, which condition caused the Water Commissioners and Deputies plenty of trouble in trying to keep up with the changing conditions.

Weather conditions during March were normal with chilly days and freezing nights which prevented premature budding and blossoming of fruit and early growth of alfalfa. Then April came in with 80-degree weather; fruit trees blossomed out, alfalfa and pasture grasses started to grow, then the temperatures dropped below freezing with resultant fruit crop failures throughout the valley. It was estimated that the Grand Valley area suffered a 25% loss of its peach crop; the Palisade area 50%. Apricots were almost a complete loss; the apple crop loss was very spotted with the loss not as great as other fruit crops. Alfalfa yield was much below normal due to the freezing weather; sugar beets, potatoes, and small grains did well with about a normal yield.

Streamflow at Shoshone had dropped to 1,250 second feet by August 9 and all transmountain diversions above Shoshone were closed excepting those of the City of Denver, the Colorado-Big Thompson Project, and the Grand River Ditch. The City of Denver started makin, replacement from their Williams Fork Reservoir and the Colorado-Big Thompson Project from its Green Mountain Reservoir. The Grand River Ditch was not required to make replacement as its priority is senior to ditches in the Colorado River Basin.

The City of Denver made a complaint at this time that a senior right to their Jones Pass Diversion was wasting water on the Williams Fork. After verification by Water Commissioner Bloye, the City was allowed to turn Jones Pass

Diversion back on.

On August 22 a shortage of irrigation water occurred in the Palisade and Grand Junction area and water was released from the 100,000 acre-foot power pool at Green Mountain Reservoir for use in Western Colorado. The Twin Lakes Diversion Tunnel was also closed at this time.

On August 24 Water Commissioner Bloye, Mr. Paterson, Engineer for the Denver Water Board, and I made a very careful investigation of the water waste on Williams Fork and found considerable water being wasted. When I discussed this with the owner he readily admitted that he was diverting more water than he could take care of and made no objection when I told him I was going to let Denver continue to divert at Jones Pass.

For the past several years, Bureau of Reclamation personnel, representatives of the Northern Colorado Conservancy District and I have met in the spring in order to discuss operation of the Western slope facilities of the Big Thompson Project for the coming season. These meetings have been very helpful and have solved many of our problems before they have occurred. The meeting this year was held at the Granby Pumping Plant on June 7, 1960.

The outlook for next year is not good at this time. The prolonged drouth this summer and storms this fall have not been adequate either to keep the flow of streams up to normal or to store adequate moisture in the ground for next year.

The Roaring Fork River at Glenwood Springs, checked each month by the U.S. Geological Survey as a sample stream to determine trends, was 83% of the median for the period 1931 to 1960. The flow of the stream during October totaled 29,750 acre-feet; the median total for the month is 35,800 acre-feet.

Storage in the three larger reservoirs as of September 30 was as follows:

	1960 A.F.	1959 A.F.
Granby Reservoir	436,139	408,300
Green Mountain Reservoir	127,962	131,000
Williams Fork Reservoir	85,731	49,900
	649,832 A.F.	589,200 A.F.

Much of the above water will be used to generate power this winter, and a considerable amount will be pumped to Shadow Mountain Reservoir and then to eastern slope reservoirs.

TRANS-MOUNTAIN DIVERSION

Following is a report of the Trans-Mountain Diversions from Division No. 5 to Division No. 1 and Division No. 2 for the irrigation season:

To Division No. 1

		Acre-feet
Adams Tunnel	-	
Grand River	-	
Berthoud	-	
Eureka	-	
Williams Fork Tunnel	-	
Moffat Tunnel	-	
Colo.Spgs.-Hoosier Pass	-	
Boreas Pass	-	
	Total Acre-Feet	332,274

To Division No. 2

Twin Lakes Tunnel	-	
Busk-Ivanhoe Tunnel	-	
Ewing Ditch	-	
Wurtz Ditch	-	
Columbine Ditch	-	
Fremount Pass Ditch	-	
	Total Acre-Feet	
	Grand Total Acre-Feet	

Yours Truly,

L. L. Finley

Irrigation Division Engineer
Irrigation Division No.5

District No.	No. of Ditches Reported	First Day Water Was Reported	Last Day Water Was Used	Average Daily Amount Diverted in Sec, Ft.	No. of Acres Feet Used From Stream	No. of Acres That are Irrigated
36	...	.....	.....	.....	.....	.....
37	220	5 -11-60	10- 8-60	557.1	157,840	22,541
38	72	5 -16-60	11- 1-60	476.0	144,204	20,575
39	125	4- 1-60	11- 1-60	362.5	153,726	23,039
45	125	4 -3 -60	11- 1-60	436.1	87,376	26,187
50	10	4 -20-60	8- 1-60	143.7	23,392	6,345
51	60	4 -20-60	11- 1-60	564.2	46,142	22,402
52	13	5 -1-60	11- 1-60	21.6	9,930	1,618
53	42	5 -1-60	11- 1-60	169.1	61,598	15,580
70	62	5 -28-60	11- 1-60	36.5	14,892	8,735
	729			2,766.7	699,100	147,022

30 January 1961

L. T. Burgess
Office of State Engineer
232 State Services Building
1525 Sherman Street
Denver 3, Colorado

Dear Roy:

I am sending my annual report, minus the amounts for trans-mountain diversions, to Mr. Whitten today.

Will you please fill in these amounts on the next to the last page of the report and send me a list of said diversions and amounts?

Thanks!

Very truly yours,

L. L. FINLEY

xc: w/annual report