November 30, 1959

Mr. J. E. Whitten
State Engineer
State Capitol
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, 1959.

On May 1 snow pack on the Colorado and Roaring Fork Rivers above Glenwood Springs was above normal for that date and summer streamflow was expected to be slightly less than normal. Weather Bureau forecast was that the Colorado River at Glenwood Springs would have a water-year flow of 1,730,000 acre-feet and that the Roaring Fork River would have a flow of 840,000 acre-feet.

Temperatures were below normal during most of the month of May and the first part of June. This retarded the snowmelt and kept streamflow from getting high, also kept streams up longer into the summer.

On August 17 streamflow at Shoshone had dropped to 1250 second-feet. All transmountain diversions above Shoshone were closed excepting those of the City of Denver and the Big Thompson. Denver had three courses of action available, those being (1) Cut off Moffat Tunnel diversions completely; (2) Cut Moffat Tunnel diversions down to a quantity that would equal the scheduled releases from the Williams Fork Reservoir minus the natural inflow into that Reservoir; and (3) make full replacement from Williams Fork Reservoir. They chose to make full replacement.

On September 9, although full replacement was being made by the City of Denver and the Big Thompson Project, streamflow at Shoshone again dropped below 1250 second-feet. This caused a shortage of irrigation water in the Palisade and Grand Junction areas and water was released from the 100,000 acre-foot Power Pool for use in Western Colorado.

The City of Denver completed the Enlarged Williams Fork Dam and Hydro-electric Plant early in July. Capacity of the Reservoir is 93,000 acre-feet, and the hydro-plant is 3,000 kilowatts, cost was about $5,200,000. Approximately 51,000 acre-feet of water was stored in the Reservoir this season. The original reservoir stored about 6,600 acre-feet. Water released from the reservoir, as well as generating power, enables the City to continue transmountain diversions from the Williams River and from the Fraser River and its tributaries through the Moffat Tunnel to the Eastern Slope.

The Public Service Company of Colorado, Bureau of Reclamation, City of Denver Water Board Personnel, and I held several meetings in order to work out procedures for coordinating operations of Denver's Williams Fork Power Plant with the Bureau of Reclamation Power Plant at Green Mountain and the Public Service Company's Plant at Shoshone and, at the same time, take care of the irrigation needs in the Palisade-Grand Junction area. The above agencies have all cooperated 100% and operations have worked out very well. The three agencies have been working closely with this office in operation of the power plants and release of water into the Colorado River and its tributaries so that the flow of the Colorado River is "ironed out" as much as possible. Without this cooperation there would be higher peaks and lower depressions in the flow pattern of the River.

A new gauging station has been constructed in the Williams Fork River near the outlet of the Williams Fork Reservoir and one has been completed

in the Blue River just downstream from where the outlet will be in the City of Denver's Dillon Reservoir when it is completed. Both these stations have artificial controls and will be used to measure releases from the above mentioned reservoirs.

The past several months during construction of its 23.3-mile Roberts Water Tunnel, the City of Denver has had a considerable amount of trouble with a large amount of underground water and bad rock, so that it now looks as though the tunnel will be holed through in March, 1960.

Irrigation Division No. 5 is starting the 1960 water year in good shape. The flow of the Roaring Fork River at Glenwood Springs in October was 124 percent of the 25-year median. Last year the Roaring Fork was only 85 percent of the October median.

Rain and snow storms of late September and late October in the mountainous areas were as much as 400 percent of normal in places, In the lower irrigated areas, precipitation was nearer normal, varying from 75 to 200 percent of normal.

Rains came too late to do many crops any good, especially those on farms and ranches depending upon water from small tributaries of the main streams.

The runoff at this time has enabled many reservoirs to store water as insurance against possible lack of snow during the winter and spring. Water in storage in Green Mountain Reservoir on September 30 totaled 131,000 acre-feet; capacity is 154,600 acre-feet.

Lake Granby, chief Western Colorado collection and storage reservoir of the Colorado-Big Thompson transmountain water diversion, had 408,300 acre-feet of water in storage on September 30; capacity is 539,800 acre-feet.

Denver's Williams Fork Reservoir had 49,900 acre-feet in storage on September 30, capacity is 84,500 acre-feet.

A total of 589,000 acre-feet was in storage in the above three reservoirs on September 30, 1959.

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

Adams Tunnel	-	272,900	acre-feet
Grand River	-	18,570	"
Berthoud	-	996	"
Eureka	-	0	"
Williams Fork Tunnel	-	(1040 included in Moffat Tunnel)	
Moffat Tunnel	-	58,810	"
Colorado Springs-Hoosier Pass Tunnel	-	8,450	"
Boreas Pass	-	197	"
	Total	359,923	acre-feet

To Division No. 2

Twin Lakes Tunnel	-	40,420	acre-feet
Busk-Ivanhoe Tunnel	-	5,180	"
Ewing Ditch	-	1,060	"
Wurtz Ditch	-	1,930	"
Columbine Ditch	-	1,330	"
Fremount Pass Ditch	-	0	"
	Total	49,920	acre-feet
	Grand Total	409,843	acre-feet

Yours very truly,

L. L. Tinsley

Division Engineer
Division No. 5

District No.	No. of Ditches Reported	First Day Water Was Used	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	210	5 - 8-59	10-23-59	558.7	160,196	22,276
38	67	4 0 7-59	10-14-59	354.6	85,889	16,220
39	127	11- 1-58	10-31-59	354.4	136,635	23,256
45	135	5 - 2-59	10-31-59	315.1	58,330	14,779
50	20	4 -20-59	8- 7-59	162.9	26,651	6,305
51	71	4 - 1-59	10-31-59	614.0	116,512	23,420
52	14	5- 1-59	10-31-59	25.8	9,118	1,280
53	71	5 - 1-59	10-31-59	170.5	51,136	14,490
70	*-63	3 - 7-59	10-31-59	72.5	13,588	8,927
Total	778			2,628.0	658,055	130,953

Acre FT.

272,900	[illegible]
18,570	Grand [illegible]
996	Berthoud
0	[illegible]
(2040) Included in Moffat Tunnel)	
58,810	Moffat
8450	Hoosier
197	Bureas
359,923 ✓	

40,420	Twin Lakes
5,180	Busk-Ivanhoe
1,060	Ewing
1,930	Wurtz
1,330	Columbine
0	[illegible]
49,920 ✓	

409,843 ✓