Glenwood Springs, Colorado
November 30, 1954

1954

J. E. Whitten
State Engineer
Denver, Colorado

Dear Sir:

In compliance with the provisions of law, I transmit herewith, my annual report as Division Engineer for Irrigation Division No. 5 for the year ending November 30, 1954.

The drought throughout this division has been much worse than in 1940, but not as bad as in 1934. Administration has been rather difficult at times. There have been numerous arguments and a few law suits. There has been considerable sharing and pooling of water. Many ditches did not have any water this season.

The apple crop was about 50 per cent of normal, due to the freezing temperatures during June. Prices were fair to a little higher than last year.

Peach harvest started about ten days earlier this season due to the early spring. An excellent crop was harvested. About 1,300,000 bushels were picked - about 200,000 over last year. Prices ranged from $2.75 to $3.25 per bushel and boxes $1.25 f.c.b. Palisade.

The potato crop was below normal with an increase in acreage. Prices were around $2.00 per Cwt., somewhat better than a year ago.

Alfalfa acreage was about normal, but yield was far below normal due to the June 2nd and 7th frost. Baled alfalfa at $30.00 per ton is from $10.00 to $15.00 more per ton this year than last season.

Due to good rains in September and October, together with high temperatures, fall pastures and meadows were very good. Livestock

generally were in very good condition. However, many stockmen were shipping more than last year because of shortage and high prices of feed.

Granby Reservoir had 480,978 acre feet in storage on September 30, 1953, had droped to 358,307 acre feet on May 9th and went back up to 376,106 acre feet on May 31st, and had 367,435 acre feet in storage on September 30th, 1954.

The Granby Pumping Plant pumped every day except 21 days between September 30, 1953 and September 30, 1954, during which time 258,301 acre feet were pumped from Granby Reservoir to Shadow Mountain Reservoir. 302,070 acre feet were taken through the Adams Tunnel during the same period of time.

The Willow Creek Reservoir and Pumping Plant, a part of the Big Thompson project, were completed and put into operation for the first time this season. A total of 13,158 acre feet was pumped from Willow Creek Reservoir into Granby Reservoir this season.

At a meeting on May 26th, held at the Granby Pumping Plant between Bureau of Reclamation personnel and myself, it was decided to store all water possible at Green Mountain Reservoir and not use any water for generation except when water was released for other purposes. Discharges were cut to about 50 second feet, which was the amount necessary to take care of irrigation requirements on the Blue River between Green Mountain Dam and Kremmling. On June 21st stream flow at Shoshone dropped below 1250 second feet, causing us to start replacement at Green Mountain Reservoir in order to keep stream flow of 1250 second feet at Shoshone.

On June 26th it was necessary to close the City of Denver's Jones Pass Diversion in order to supply senior irrigation rights on the Williams Fork River above the Williams Fork Reservoir.

By July 22nd irrigation requirements above the reservoir had dropped and the Jones Pass Tunnel was again turned on. It was turned off for the rest of the season on August 23rd.

On July 20th stream flow at Shoshone had dropped to 1250 second feet, although full replacement was being made at Green Mountain. The Public Service Company of Colorado informed me that due to the extreme shortage of domestic water for the Cities of Colorado Springs and Denver, they would not ask that Junior rights to their's be closed at this time. On August 2nd an irrigation shortage occured on the Colorado River at Palisade and releases from the Power Pool at Green Mountain Reservoir were started and all Trans-Mountain Diversions were closed except for the City of Denver. On Moffat Tunnel and Jones Pass diversions, however, daily charges against the City's Williams Fork Reservoir were begun.

Minimum storage of 43,767 acre feet was reached in Green Mountain Reservoir on April 23rd. Maximum storage of 105,974 acre feet was reached on July 4th. Storage allocations for 1954 were based on July 4th figures and were as follows:

Storage - acre feet	Remarks
7,757	Dead storage
52,000	Replacement storage
46,217	Power Pool storage
105,974	Total storage July 4, 1954

Withdrawals from the Power Pool in excess of Grand Valley irrigation requirements could legally have been made for power purposes. However, only replacement and irrigation releases have been made. On September 23rd irrigation requirements on the Colorado River had dropped to the point where

they were taken care of by the normal flow of the river and no further irrigation releases have been made from Green Mountain Reservoir. Strict replacements were continued however.

During the period August 3rd to September 23rd a total of 33,252 acre feet had been released for irrigation purposes from Green Mountain Reservoir. Power Pool totals remaining in Green Mountain Reservoir on September 30th were as follows:

Storage - acre feet	Remarks
7,757	Dead Storage
11,078	Remainder in the Power Pool
40,092	Remainder in the Replacement Pool
58,927	Total storage remaining in Green Mountain Reservoir on September 30

Full replacement from Green Mountain Reservoir will continue until the 1955 springrunoff reaches 1250 second feet at Shoshone.

Releases from the Williams Fork Reservoir were started on September 14th and ended on September 30th, a total of 4,478 acre feet having been released to the river and used for irrigation in the Grand Valley.

WEATHER

Irrigation Division No. 5 experienced a very early spring this season. The month of April had the least precipitation and the third highest temperature on record. Above normal temperatures and below normal precipitation continued throughout May. This condition together with a very mild winter caused vegetation to be advanced by June 1st. Heavy frosts on June 2nd and June 7th resulted in considerable damage to crops, especially alfalfa which had to be cut to give it a chance to produce another growth for cutting. This hot and dry weather continued throughout the summer. In September we had above normal precipitation

and continued above normal temperatures. Average rainfall for May through August, 1954 was 4.86 inches as compared to 6.39 for the same period in 1953.

	TEMPERATURE						PRECIPITATION				
					No. of Days				No. of Days		
MAY	ELEVATION	DEPARTURE FROM NORMAL	HIGHEST	LOWEST	90° or above	32° or below	TOTAL	DEPARTURE FROM NORMAL	.10 or more	.50 or more	1.00 or more
Green Mountain Dam	7760	4.1	80	20	0	0	1.78	.46	5	1	0
Eagle	6497	4.7	90	20	1	12	.83	-.23	3	0	0
Glenwood Springs	5823	3.2	89	19	0	4	93	-.38	4	0	0
JUNE											
Green Mountain Dam		5.5	95	26	4	6	.88	-.36	4	0	0
Eagle		3.1	99	23	8	7	.16	-.71	0	0	0
Glenwood Springs		1.9	102	27	11	2	.49	-.52	2	0	0
JULY											
Green Mountain Dam		6.8	97	44	5	0	2.39	1.23	8	1	0
Eagle		4.8	95	41	16	0	1.22	.22	4	0	0
Glenwood Springs		4.2	99	46	21	0	1.51	.11	6	0	0
AUGUST											
Green Mountain Dam		3.8	90	36	1	0	1.02	-.14	4	0	0
Eagle		1.0	94	33	8	0	1.36	.19	4	0	0
Glenwood Springs		0.6	96	43	10	0	2.03	.39	6	1	0
SEPTEMBER											
Green Mountain Dam		3.7	94	29	1	2	2.44	1.55	7	1	0
Eagle		1.7	92	23	2	7	1.67	.57	5	0	0
Glenwood Springs		2.1	94	35	2	0	1.60	.50	9	1	0

SNOW REPORT

On May 1 the snow coverage on the upper Colorado River and Roaring Fork River was about 40 per cent of normal and about 30 per cent of May 1, 1953, with very little snow between the 7,000 to 9,000 foot elevations. This resulted in about 40 per cent of normal water stored as snow on the Colorado and Roaring Fork River watersheds.

STREAM FLOW FORECASTS

May 1, 1954

	Acre Feet Forecast	April-Sept. Incl. Streamflow Measured Runoff Acre Feet	Forecast over by Acre Feet	10 year Avg. 1943 - 1953	Runoff in 1934
Colorado River at Glenwood	1,000,000	536,780	463,220	1,493,000	387,094
Roaring Fork at Glenwood	500,000	335,280	164,720	778,000	182,173
	1,500,000	872,060	627,940	2,271,000	569,267

The above table shows that the forecast runoff for the Colorado River at Glenwood Springs for 1954 was 463,220 acre feet more than the measured runoff. It also shows the forecast runoff for the Roaring Fork at Glenwood Springs for 1954 was 164,720 acre feet more than the measured runoff. The runoff for the year 1934 is also shown.

* Actual flow only.
Does not include diversions and storage.

Although above normal temperatures were recorded during April and May irrigation water from melting snow was in short supply. A comparison of stream flow in the Roaring Fork River at Glenwood Springs for the years 1954 and 1943 shows that for the months of March, April, May and the first half of June the daily discharge in cubic feet per second was less in 1954 than in 1934. This was also true of most streams in the Division, resulting in a very limited supply of irrigation water when it was mostly needed. Most reservoirs in the Division which normally fill during the spring runoff failed to fill this year.

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	302,070	Acre Feet
Grand River	12,740	" "
Berthoud Pass	217	" "
Eureka	27	" "
Williams Fork Tunnel	5,480	" "
Moffat Tunnel	19,540	" "
Colorado Springs Tunnel (HOOSIER PASS)	3,550	" "
Boreas Pass	136	" "
TOTAL	343,760	Acre Feet

TO DIVISION NO. 2

Twin Lakes Tunnel	27,470	Acre	Feet
Busk Ivanhoe Tunnel	3,200	"	"
Ewing Ditch	498	"	"
Wurtz Ditch	905	"	"
Columbine Ditch	844	"	"
Fremount Pass Ditch	0	"	"
Total	32,917	"	"
Grand Total	376,677	"	"

STATE IRRIGATION SERVICE

IRRIGATION DIVISION No. 5

L. C. FINLEY, Division Engineer

Glenwood Springs, Colorado

SUBJECT:

District No.	No. of Ditches Reported	First Day Water Was Used	Last Day Water Was Used	Average Daily Amt. Diverted in Sec. Ft.	No. of Acre Feet Used from Stream	No. of Acres That Are Irrigated
36	....	....	....	.....	.....	....
37	195	5-16-54	10-12-54	499	149,233	21,264
38	113	4-15-54	10-15-54	847	210,098	33,298
39	131	11- 1-53	10-31-54	484	143,623	33,439
45	108	4- 2-54	10-31-54	209	26,478	25,535
50	23	4-16-54	8-10-54	142	19,477	6,854
51	41	4-24-54	11-1 -54	369	69,752	19,454
52	8	4-10-54	10-31-54	15	4,960	846
53	32	5-1-54	10-31-54	83	25,810	7,135
70	59	4-1-54	10-31-54	152	43,637	9,088
TOTALS	710			2,800	692,068	156,913