

ANNUAL REPORT

1980 - Water Year

Irrigation Division No. 4



February 10, 1981

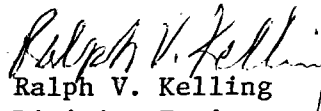
Jeris A. Danielson
State Engineer
Division of Water Resources
1313 Sherman Street
Denver, Colorado 80203

Dear Mr. Danielson:

On behalf of the office and field personnel of Irrigation Division Four, I submit herewith the Annual Report for 1980.

Special recognition is made for highly competent Division Four Staff from which the various responsibilities of water management have been attended to in a professional manner.

Respectfully submitted,


Ralph V. Kelling
Division Engineer

RVK:jd

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1980 ANNUAL REPORT
IRRIGATION DIVISION NUMBER FOUR
MONTROSE, COLORADO

I. INTRODUCTORY STATEMENT

Division Four is located in West Central Colorado and its boundaries include the following drainage basins: Gunnison River and its tributaries, San Miguel River, Little Dolores River, Coates Creek and the Dolores River in Montrose and Mesa Counties. Larger communities in the division are Gunnison, Montrose and Delta; and the smaller communities include Ouray, Norwood, Nucla, Naturita, Cedaredge, Hotchkiss, Paonia, Uravan and Crawford. The northern boundary of Water District 42 includes part of Grand Junction, Colorado which is the largest city in western Colorado. The total population for the division is approximately 78,000 people. The Gunnison River basin encompasses the largest portion of Division Four with a drainage area in excess of 8,000 square miles. The San Miguel River basin is the second largest with a drainage area of approximately 2,000 square miles. Several other small drainage basins make up the additional 2,000 square miles. A total of approximately 12,000 square miles (7,680,000 acres) of area make up Division Four. In 1980 405,346 acres were irrigated within the division and there are less than 3,000 dry land acres farmed in Division Four. The agricultural crop patterns are similar to the 1979 season. Lettuce was planted in some areas and a mobile lettuce processing plant was installed at Olathe. The bulk of the old sugar beet lands continue to be planted in corn and small grains.

Major crops are hay, corn, small grains, onions and various types of fruits (peaches, pears, plums, apricots, cherries and apples). Beef cattle, pork and sheep are the primary livestock products. Eleven water districts are located in Division Four: 28, 40, 41, 42, 59, 60, 61, 62, 63, 68 and 73.

Elevations range from 4,500 feet to over 14,000 feet in the San Juan mountain range. The overall climate is semi-arid with annual precipitation varying from eight to fifteen inches in much of the agricultural area. Throughout the division average or above average precipitation occurred in 1980; however, much of this came in the form of heavy snows on the high mountain snow ranges during the winter season. Summer moisture was limited throughout Division Four and there were no late summer rain storms to supplement the high snow runoff. Many tributaries were at flows equal to 1977 record lows by mid September. There has been some fall moisture and this helped to alleviate the low flow conditions at the beginning of the fall season; however, precipitation through December has been below normal and concern is now being voiced for the spring and summer water supply. The report year (January, 1980 through December, 1980) recorded total precipitation for Montrose at 9.17 inches which is .34 inches below normal.

Snow fell on the mountains of Division 4 the middle of November and early December of 1979. Depths ranging from one to three feet were recorded and the snow-pack outlooks for 1980 appear fair to good early in the season. Additional snow throughout the winter assured a good water supply.

In 1980 agriculture, stock production and mining were the main areas of

Division Four's economy. Lumber production continued at a reduced scale because of the curtailment of building throughout western Colorado and most of the western United States. Uranium mining was also reduced somewhat during 1980 with the exception of a very large project being developed by the Cotter Corporation in the east end of the Paradox valley. The Brown and Root Construction Company from Houston is engaged in a two-year project of uncovering an extremely large deposit of high grade uranium ore. Many millions of cubic yards of overburden are to be removed for this mining operation. The boom economy in the West End of Division Four has subsided considerably because of the depressed market in the uranium business. Drilling and exploration for uranium deposits have been cut drastically and many drilling rigs are standing idle. Union Carbide Corporation has announced plans for closing their Uravan plant for several months beginning spring of 1981 and also a 50 per cent reduction in mining operations has also been announced.

Mineral mining is now being done on a small scale individual exploration type of mining with all the large mining operations working only skeleton crews. Seismic exploration continues in some areas of western Division Four and some oil and gas drilling continues throughout the Division.

Tourism plays a large roll in Division Four's economy and 1980 was a good year for all aspects of this industry. Gasoline was in good supply and in spite of the high costs, the out-of-state visitors appear to come in record numbers.

The following activities continue to affect the Division's economy:

1. The production, processing and packaging of all types of agriculture;
2. Tourist recreation districts continue to grow;
3. Coal mining: Mine development and the many associated services are an ever increasing factor in the economy of Division Four. Acquisition and development of water supplies for the mining activities are having continued impact on the area's economy and development;
4. United States Water and Power Resource Services' activities remain active in Division Four. This includes the Currecanti power projects and the construction of the Dallas Dam. The Dallas Project has completed the construction of the relocation of U. S. Highway 550 around the reservoir site and is approximately 50 per cent complete in the first phase of the main dam construction;
5. Division population growth involves expansion of all services;
6. The ski area development at Crested Butte and Telluride continues to grow;
7. The development of mineral resources in Division Four including oil and gas exploration, exploration and development of uranium deposits, and mining and mineral exploration and development remain an economic factor throughout the Division;

(a) The Amax Corporation is continuing their development of the Mt. Emmons Project at Crested Butte. This, along with the Homestake Mining developments in the eastern edge of Gunnison County has contributed considerably to the economic conditions of this area.

8. Three major areas of employment in the Montrose area involve the Russell Stover Candies, Inc. which employs approximately 300 people, the Colorado-Ute Electric Association headquarters which employs several-hundred people and the Department of Energy headquarters of the Upper Colorado River Storage Project which employs over 100 people. These three employers have considerable impact on the entire division due to the various spin-off service needs. The high percentage of the employees of the Department of Energy and Colorado-Ute Electric Association are technical professional organizations with a large number of engineers, accountants and attorneys on the various payrolls. The Russell Stover Candy company maintains year-round employment for a large staff and also many seasonal employees for various holiday production schedules. Employees for all three of these organizations travel as much as 50 or 60 miles one way daily in order to work in the Montrose area. The economic impact of these three organizations is a significant part of the economic conditions of Division Four.

The economy is agriculturally dominated and because of this, the major water usage is for irrigation. Farms and ranches are oriented to the regional drainage systems and most water diversions are connected to the adjacent irrigable lands. Most of the large reservoirs are located on major rivers and long canals and tunnels are required to transport water to the point of use. The Currecanti Unit reservoirs of the Colorado Storage Project used approximately 3,837,726 acre feet of water in production of electric power in 1980. The hydro-power plants of the three reservoirs have a combined capacity of 208,000 kilowatts. These plants are Blue Mesa, Morrow Point and Crystal. The Currecanti Unit of the Upper Colorado River Storage Project is now officially complete.

Operating water resource projects within Division Four are the Uncompahgre Project which includes Taylor Park Reservoir and the Gunnison Tunnel, Fruit Growers Reservoir, Fruitland Mesa Project, Paonia Project, Crawford Project and the Bostwick Park Project which includes Silverjack Reservoir.

Blue Mesa, Morrow Point and Crystal Reservoirs of the Currecanti Unit are part of the Water and Power Resources Service projects. Additional Water and Power Resource Service projects that are in various study phases are Fruitland Mesa, San Miguel, Upper Gunnison and the Uncompahgre Extension. The Dallas Creek Project on the Uncompahgre River is now well into construction with more than 50 per cent of the first phase of the two-phase main dam construction program now completed. The first phase bids were awarded to Green Construction Company of Des Moines, Iowa at a contract price of \$15,000,000.

A statement by the manager of the Uncompahgre Project is included later in this report.

Land use planning is a subject of continued concern throughout the division. The extent of Division Four's involvement in land use planning has been to act as consultant to the Division of Water Resources planning section. Areas of greatest activity remain similar to those of last year's annual report. Subdivision development in Water Districts 59, 60, 62, 40 and 41 contain the bulk of land development activities. Development continues in the Gunnison-Crested Butte area. The Telluride area and along the San Miguel River are also active development areas. In both locations there is contact between local planning commissions and the Denver planning office.

The coal resource development along the North Fork of the Gunnison and Cedaredge area continues to increase land development in those parts of Water District 40. Housing is at a premium in most communities of the North Fork Valley and new development is planned for many locations in these areas. Surface flows in these locations are over-appropriated, producing many problems concerning water supplies as this land is developed. The towns of Hotchkiss, Cedaredge and Paonia are planning and developing additional supplies of water.

SPECIAL NOTE - Coal development--North Fork Valley: Seven mines are active in the North Fork of the Gunnison Valley. This year they will produce and ship more than 2,587,400 tons of coal. This coal is sent to various parts of the country and used primarily for power production.

Coal production does not require great quantities of water; however, they have a need for a continuous supply and, for the most part, these companies have marginal water rights. Two companies now have a reservoir augmentation supply plan and other applications are pending before the Division Four Water Court. The coal companies are purchasing ranches, orchards and some separate water rights in their expanding operations.

Land ownership by county is as follows:

*OWNERSHIP IN ACRES

<u>County</u>	<u>Private</u>	<u>Federal</u>	<u>State</u>	<u>County & Municipal</u>
Delta	759,989	863,995	3,800	2,395
Montrose	510,059	1,241,684	170,345	2,620
Mesa	554,310	1,561,735	414	3,861
Ouray	154,453	167,485	3,337	125
San Miguel	330,399	474,882	16,479	600
Gunnison	420,183	1,637,026	13,388	1,120
Hinsdale	28,999	645,178	9,377	765
Saguache	581,650	1,320,622	109,708	180

*Information derived from Forest Service, B.L.M., County Assessor, and Extension Service

NOTE: Not all of this land is located within the boundaries of Irrigation Division Four.

II. PERSONNEL

During 1980 personnel actions in Division 4 involve two employees. Tom Jones, Water Commissioner A resigned from Water District 40 to spend full time in the real estate business. Charles Stein from Cedaredge was appointed to take Mr. Jones' position and the area of responsibility for this job involves a lower section of the main stem of the Gunnison River to the boundary of Water District 42.

In this annual report it is important to recognize the outstanding staff of Division 4. Without their varied abilities, the responsibilities of Irrigation Division Four would not be so ably attended. The following is a list of personnel in the Division for the year 1980. This list also includes a breakdown of each individual position, responsible district, months actually worked and months budgeted, plus the total mileage driven.

PERSONNEL

Name	Position	District	Months Worked/ Budgeted		Mileage
			Budgeted	Worked	
Richard L. Belden	WCC	42, 63, 73	Annual		15,949
Willard N. Bull	WCA	40	7 mos.	6 3/4 mos.	4,552
Lyman D. Campbell	WCC	60	11 mos.	11 mos.	9,497
James E. Carr	WCA	40	7 mos.	8 1/4 mos.	8,713
Lloyd E. Connell	WCA	40	7 mos.	7 mos.	7,585
Charles G. David	Hydro	Staff	Annual		(16,588) State Vehicle
Richard L. Drexel	SRWC	40	Annual		8,171
Robert E. Drexel	WCB	59	6 mos.	7 1/4 mos.	8,056
L. Jean Duncan	S	Staff	Annual		--
John S. Garber	WCB	28	7 mos.	7 3/4 mos.	8,734
Mack A. Gorrod	WCB	40	7 mos.	7 1/4 mos.	4,275
James T. Hanrahan	WCA	40	6 mos.	6 1/4 mos.	3,126
Edwin S. Hofmann	WCB	59,62	Annual		7,594
C. Crandall Howard	WCB	41	9 mos.	11 3/4 mos.	9,581
Ralph V. Kelling	SWRE	Staff	Annual		2,111
Thomas A. Kelly	SRWRE	Staff	Annual		10,304
Dwayne C. Mansker	WCB	1042	Annual		3,096
John L. McHugh	WCB	40	7 mos.	7 3/4 mos.	6,611
James A. Miller	WCA	40	7 mos.	6 1/4 mos.	8,485
H. Roger Noble	WCB	68	Annual		5,921
Clinton L. Oliver	WCB	61	7 mos.	9 mos.	5,740
Logan Gregg Scott	WCA	40	6 mos.	6 1/4 mos.	3,085

PERSONNEL

Name	Position	District	Months Worked/ Budgeted		Mileage
			Budgeted	Worked	
Robert H. Starr	WCC	40	Annual		2,942 11,848
Charles E. Stein	WCA	40	6 mos.	6 1/4 mos.	5,628
Stephen Tuck	WCB	40	7 mos.	6 3/4 mos.	5,929
Lester E. Whiting	WCB	42	7 mos.	7 3/4 mos.	8,657
Wayne Wiseman	WCA	40	7 mos.	7 1/2 mos.	3,266
Charley Woolley	WCB	40	7 mos.	6 1/2 mos.	5,588
David E. Woolley	WCA	40	6 mos.	7 1/2 mos.	7,075
TOTAL					189,177

(State Vehicle)

State Vehicle Mileage	14,085
State Vehicle - Hydro Truck	16,110
State Vehicle - Water District 40	2,942

This report is for the period January 1, 1980 through December 31, 1980.

PERSONNEL

Name	Position	District	Months Worked/ Budgeted		Mileage	
			Budgeted	Worked		
Richard L. Belden	WCC	42, 63, 73	Annual		15,531	
Willard N. Bull	WCA	40	7 mos.	8 mos.	4,564	
Lyman D. Campbell	WCB	60	11 mos.	11 mos.	9,633	
James E. Carr	WCA	40	7 mos.	8 mos.	9,849	
Lloyd E. Connell	WCA	40	7 mos.	6 3/4 mos.	7,204	
Charles G. David	Hydro	Staff	Annual		(17,163)	State Vehicle
Richard L. Drexel	SRWC	40	Annual		8,516	
Robert E. Drexel	WCB	59	6 mos.	6 3/4 mos.	7,319	
L. Jean Duncan	S	Staff	Annual		-	
John S. Garber	WCB	28	7 mos.	8 1/4 mos.	9,452	
Mack A. Gorrod	WCB	40	7 mos.	7 3/4 mos.	4,613	
*James T. Hanrahan	WCA	40	6 mos.	6 1/2 mos.	2,762	
Edwin S. Hofmann	WCB	59,62	Annual		8,843	
C. Crandall Howard	WCB	28,41	9 mos.	11 1/4 mos.	10,162	
**Thomas Jones	WCA	40	6 mos.	4 1/2 mos.	7,173	
Ralph V. Kelling	SWRE	Staff	Annual		2,728	
Thomas A. Kelly	SRWRE	Staff	Annual		9,175	
Dwayne C. Mansker	WCB	1042	Annual		2,697	
John L. McHugh	WCB	40	7 mos.	8 mos.	7,028	
James A. Miller	WCA	40	7 mos.	6 1/4 mos.	7,817	
H. Roger Noble	WCB	68	Annual		5,987	
Clinton L. Oliver	WCB	61	7 mos.	9 mos.	5,672	
*Logan Gregg Scott	WCA	40	6 mos.	6 3/4	2,758	

PERSONNEL

Name	Position	District	Months Worked/ Budgeted		Mileage
			Budgeted	Worked	
Robert H. Starr	WCC	40	Annual		16,765
*Charles E. Stein	WCA	40	6 mos.	2 1/4 mos.	2,057
Stephen Tuck	WCB	40	7 mos.	7 mos.	5,882
Lester E. Whiting	WCB	42	7 mos.	8 mos.	8,932
Wayne Wiseman	WCA	40	7 mos.	6 1/4 mos.	3,315
Charley Woolley	WCB	40	7 mos.	6 3/4 mos.	5,438
David E. Woolley	WCA	40	6 mos.	6 1/2 mos.	7,186
TOTAL			140 mos.	145 1/2 mos.	199,086

State Vehicle Mileage 13,997

State Vehicle Hydro Truck 17,163

* Temporary employees with Division 4 - Procedure to appoint regular employees is in process.

** Resigned

This report is for the period July 1, 1979 through June, 1980.

WATER COMMISSIONERS' ANNUAL MILEAGE REVIEW

Year	Total Annual Mileage
1969	149,862
1970	135,195
1971	143,852
1972	160,070
1973	157,709
1974	189,865
1975	194,997
1976	181,374
1977	209,517
1978	207,437
1979	193,271
1980	176,762

III. WATER SUPPLY

A. Snow-Pack

Water supply forecasts for the Gunnison and San Miguel watersheds were reported to be above average. An adequate water supply was forecast and all streams were expected to flow at an average or above average stage. Division Four's normal snow-pack areas were at 100 per cent cover during the 1980 snow season. Drainage areas throughout the Division recorded 120 to 140 per cent of average from the final S.C.S. Snow Survey. High water was predicted on each major drainage system and flood damage was expected at several locations.

Snow-pack at the major ski areas in Division Four was above average and the ski industry enjoyed a long season. Winter snow related recreation activities reported high revenues.

There were no weather modification programs or activities during the 1979-80 winter snow season. This was due in part to the above average precipitation on the various snowsheds and also the decision by the Grand Mesa Water Users Association and the Grand Mesa Conservancy District not to continue their program with weather modification because of all of the various governmental requirements. All snow course readings in Division Four show above average snow packs for the 1979-80 snow season. Copies of the May, 1980 Snow Survey are found at the end of this report.

*SUMMARY OF SNOW MEASUREMENT - May 1, 1980

<u>Basin or Watershed</u>	<u>Number of Courses Averaged</u>	<u>This year's snow water as per cent of:</u>	
		<u>Last Year</u>	<u>Average</u>
Gunnison	13	105	171
Surface Creek	3	100	149
Uncompahgre	3	85	132

*STREAMFLOW FORECASTS (1000 A.F. - Apr-Sep):

<u>Forecast Point</u>	<u>Forecast</u>	<u>% of Avg.</u>	<u>1963-77 Average</u>
Gunnison River in- flow to Blue Mesa	1200	159	754
Gunnison River near Grand Junction	1800	157	1150
Surface Creek near Cedaredge	23	151	15.2
Uncompahgre River at Colona	170	132	129

Soil Moisture - May 1, 1980

Rated as fair-good.

*U.S.D.A. - Water Supply Outlook

B. Precipitation - Summer

The 1980 irrigation year began with above average precipitation throughout all areas of Division Four. The mountain snow ranges experienced as much as 140 per cent of average and the lowlands in Division 4 also received near average precipitation. During the summer months, there were few summer rains throughout the entire Division. The majority of

summer water useage came from snow runoff and reservoir storage supplies. Because of the extra dry summer season, more than average reservoir storage was used to mature the various agricultural crops; however, in spite of these conditions, storage carryover for 1981 is at least average in most all instances. The generally dry warm fall allowed good conditions for crop harvesting. The 1980-81 winter season has begun without winter storms and it is anticipated that above average precipitation is needed for the remainder of the 1981 snow season for a favorable water supply outlook. There was no hail suppression work in Division Four during the 1980 season.

*CLIMATOLOGICAL DATA 1980

<u>County</u>	<u>Avg. Annual Temp., F^o</u>	<u>Depar- ture</u>	<u>Total Precip- itation, In.</u>	<u>Depar- ture</u>
Delta	46.3	-	7.26	.63
Mesa	50.8	1.9	8.90	-.49
Montrose	48.2	.9	8.72	.79
Ouray	42.8	-	22.37	1.99
San Miguel	43.5	.7	20.21	-3.20
Gunnison	35.0	2.7	7.55	-3.69
Hinsdale	38.0	-	11.24	-
Saguache	40.5	-2.6	7.40	1.09

*Climatological Data Annual Summary - 1980

C. Floods

Flows in all areas of the Division were expected to be high and in some instances flooding was anticipated. The only location where flood damage was reported was along the East River upstream from Gunnison, Colorado. There the Roaring Judy Fish Hatchery rearing ponds were overtopped by high waters and several hundred-thousand small fish were lost to the river. Several diversion headgates along the East River were also damaged due to high spring flows.

SPECIAL NOTE: The Delta County Commissioners have decided to rebuild the Paonia bridge across the North Fork of the Gunnison River which was washed away in June of 1979 due to flooding.

The following are selected peak flows from various gaging stations located in Irrigation Division Four:

<u>Stream</u>	<u>Amount cfs</u>	<u>Date</u>	<u>Amount cfs</u>	<u>Date</u>
Anthracite Ck. nr Somerset	2,400	5/27/79	1,940	6/11/80
N.F. Gunnison R. nr Somerset	6,720	5/28/79	4,700	5/23/80
Gunnison R. nr Gunnison	5,640	5/28/79	5,000	5/24/80
Gunnison R. at Delta	10,400	5/28/79	4,980	6/11/80
Gunnison R. nr Grd. Jct.	13,500	5/29/79	14,600	5/23/80
Uncompahgre R. at Colona	1,810	6/15/79	1,270	6/12/80
San Miguel R. at Naturita	5,360	4/18/79	3,220	4/23/80

D. Water Budget

Average annual flow on the Gunnison River at Grand Junction is 1,825,000 acre feet. Throughout Division Four all types of direct flow diversions

total 2,725,597 acre feet with approximately 1,830 acre feet being diverted and used in other drainages. The beneficial use of the water resources in Division Four would exceed more than three times the total supply. The two major uses and reuses are for agriculture and power production. The Gunnison River contributes approximately 44.5 per cent of the total Colorado River discharges into Utah.

E. Underground Water

There is limited information relative to the underground water supply in Division Four. Ground water studies and literature are limited to a minimum number of bulletins and reports. A few deep water wells exist; however, the bulk of the ground water activity is concerned with domestic and household-use-only wells. Potentially, all formations may prove productive with the shale section having minimal water content and sands, especially of the Dakota and Entrada formations, capable of containing large volumes of water. A number of water wells in the Grand Junction area produce from the Morrison sands. During 1979, the U.S.G.S. conducted studies of potential water bearing formations in areas of Grand Mesa. Limited testings were said to indicate considerable amounts of water for municipal use during times of shortage, and with the possibility of the use of this water, lower valley water users have expressed concern on how such pumping would effect their surface and storage water rights. This office is unaware of an official report concerning these activities.

Registered wells in Division Four, calculated from the latest print-out and a count of permits, breakdown as follows:

<u>*Type of Wells</u>	<u>Number of Wells</u>	<u>GPM</u>	<u>CFS</u>
0 - Household Only	247	3,705	8.23
1 - Domestic	1,573	25,602	56.89
2 - Livestock	134	2,010	4.46
3 - Domestic & Stock	134	2,010	4.46
4 - Commercial	125	3,994	8.87
5 - Industrial	15	600	1.33
6 - Irrigation	85	21,600	48.00
7 - Stock & Irrigation	7	1,215	2.70
8 - Municipal	33	990	2.20
9 - Other	9	180	.40

Total Registered Wells 2,347

*Tabulated printout of November 19, 1980

F. Transmountain and Transbasin Diversions - 1980

Transmountain Diversions:

<u>Name</u>	<u>Source</u>	<u>Recipient and/ or Claimant</u>	<u>Amount A.F.</u>
Red Mountain Ditch	Mineral Creek	Ouray Ditch Co. Montrose, Colorado	228.
Carbon Lake Ditch	Mineral Creek	Pinon Ditch Co. Colona, Colorado	84.
St. John Ditch	E. Fk. Animas River	Charles, Gunn & Worley % W. Worley Olathe, Colorado	No Diversion Structure Not Usable
Mineral Pt. Ditch	Burrows Creek, tr. N. Fk. Animas River	W. Gibbs Ouray, Colorado	No Diversion Structure Not Usable
Larkspur Ditch	Tr. Tomichi Creek Marshall Creek	Catlin Canal Co.	444.
Tabor	Tr. Cebolla Cr.	Colo. Div. of Wildlife Alamosa, Colorado	894.
Tarbell	Cochetopa	Cochetopa Land & Wtr. Co Saguache, Colorado	542.
Divide Cr. Highline Feeder Ditch	Clear Fk. Muddy Cr.	F. M. Starbuck, Mgr. Silt, Colorado	1,226.
Leon Lake	Leon Creek	Sam Oaks Eckert, Colorado	411.

Transbasin Diversions:

Leopard Cr. Ditch	Leopard Creek	Harry McClure (irr.) Ridgway, Colorado	1,200.
N. Fk. of Paxton D.	Cottonwood and Horsefly Creeks	William Hofmann Durango, Colorado	47.
Cimarron Feeder of the Garnet Ditch	W. Fk. of Cimarron	Unc. Valley Water Users Association Montrose, Colorado	2,340.
Gunnison Tunnel	Gunnison River	Unc. Valley Water Users Association Montrose, Colorado	355,264.

Transbasin Diversions - continued

<u>Name</u>	<u>Source</u>	<u>Recipient and/ or Claimant</u>	<u>Amount A.F.</u>
Head & Ferrier	Currecanti Creek	H. Head & Ferrier	229.
Lake Brennand	Anthracite, a/k/a Lake Irwin	Town of Crested Butte, Colorado	190.
Meek Tunnel	Crystal Creek	Carton Meek Maher, Colorado	368.
Mesa Creek Ditch	Mesa Creek	Carton Meek Maher, Colorado	465.

G. Annual Diversion and Storage Records

The 1980 season completed the sixth year in which Division Four participated in the Computer Data Bank program in recording and summarizing annual diversion records. At this time, the 1975-79 records are complete. They have been signed and are on file at the various proper offices. In general, the quality of the records is very good.

The 1980 records were keypunched by the computer center at Valley Federal Savings and Loan Association in Grand Junction, Colorado. The cost again this year was 13.3 cents per card and this cost included keypunching, verifying and extensive editing and computation. This work greatly assisted in helping the field water commissioner in the compilation and processing of his field records. Monthly totals were computed, days used, visits made, acre feet diverted and an analysis of various types of water diverted was also included.

These various computer edits have been a great help in the preparation of the 1980 annual report and diversion records. Each year the quality of the work done by the Valley Federal Savings and Loan Computer Center has improved and we feel that this year's records are as nearly accurate as humanly possible.

It is Division Four's feeling that the computerized diversion record-keeping is of great assistance to the field commissioner in the overall performance of his responsibilities. We feel that local control over the basic data is important and are very pleased to be able to have a local organization to work with in the generating of the punch cards for our Denver A.D.P. section.

In most districts of Division Four the commissioner continues to use the field book for the recording of daily visits and diversion records. These field books are easily handled and afford an opportunity to have data to check in case of problems arising from diversion records. These field books are also helpful when special requests are made prior to the final computation of the yearly diversion records.

H. Reservoir Storage

Most all irrigation reservoirs in Division Four had slightly above average carry-over storage for the beginning of the 1979-80 storage season (November 1, 1979). Blue Mesa Reservoir of the Water and Power Resource Service Currecanti Project released high discharges during the entire winter season. However, the Water and Power Resource Service estimates the runoff above Blue Mesa was such that it was possible to draw the reservoir down by several hundred thousand acre feet and still have Blue Mesa Reservoir almost completely full by mid-July.

Due to the heavy snow-pack throughout Division Four, all reservoirs in the division that were able and wanted to, stored water and were able to fill prior to the beginning of the irrigation season. Blue Mesa Reservoir did not quite reach the spilling elevation, but all of the smaller Water and Power Resource Service reservoirs experienced spilling conditions for several weeks.

SPECIAL NOTE

The storage and diversion data presented in this report have been compiled from the water officials' field book notes, diaries and special edit listing of key punch cards for 1980. It is important to point out that in order to have accurate data for the 1980 irrigation season Annual Report, it is necessary that various sources of data be utilized. Even with these sources, all of the diversion and storage records noted in this report should be considered preliminary and subject to correction.

Listed below is a tabulation of storage in the Division for 1980:

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-79</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-80</u>
28	Hot Springs Reservoir	43.70	603.00	131.90
28	McDonough Reservoir #1	683.50	805.20	547.40
28	McDonough Reservoir #2	201.80	545.30	545.30
28	Needle Creek Reservoir	387.70	811.90	387.70
28	Upper Cochetopa Reservoir	441.68	441.60	276.46
28	Vouga Reservoir	128.00	910.00	80.00
40	Alexander Lake Reservoir	53.80	162.00	85.00
40	Arch Slough Reservoir	.00	.00	.00
40	Ault Reservoir	.00	96.80	.00
40	Bailey Reservoir	.00	434.00	.00
40	Bald Mountain Reservoir	.00	88.80	.00
40	Barren Lake Reservoir	309.50	800.00	302.00
40	Basin #1 Reservoir	.00	241.53	.00
40	Basin #2 Reservoir	.00	51.25	.00
40	Battlement #1 Reservoir	79.50	79.50	79.50
40	Battlement #2 Reservoir	870.20	913.90	913.90
40	Baxter Reservoir	318.00	318.00	318.00
40	Beaver Dam Res. (Esclanate)	.00	396.50	.00
40	Beaver Res. (Minnesota Creek)	.00	1,564.00	84.80
40	Bonita Reservoir	109.00	285.70	109.50
40	Bottle Stomp Reservoir	17.00	17.00	.00
40	Boulder Lake #1 Reservoir	.00	24.00	24.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-79</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31- 80</u>
40	Brockman #1 Reservoir	.00	16.00	.00
40	Brockman #2 Reservoir	.00	40.00	.00
40	Bruce Park Reservoir	.00	630.00	.00
40	Bull Finch #1 Reservoir	36.50	72.41	46.72
40	Bull Finch #2 Reservoir	.00	40.51	.00
40	Cabin Lake Reservoir	.00	34.60	.00
40	Calumet Reservoir	.00	16.80	16.80
40	Carbonate Camp Reservoir #3	.00	6.00	.00
40	Carbonate Camp Reservoir #6	26.50	112.70	15.85
40	Carbonate Camp Reservoir #7	.00	107.58	37.41
40	Carl Smith Reservoir	541.00	622.00	550.00
40	Cedar Mesa Reservoir	318.20	908.40	139.50
40	Clark Reservoir	.00	39.00	.00
40	Coalby Horse Park Reservoir	106.00	500.70	100.00
40	Cole #1 Reservoir	.00	26.70	.00
40	Cole #2 Reservoir	.00	55.00	.00
40	Cole #3 Reservoir (Cherry Lane)	.00	54.10	.00
40	Cole #4 Reservoir	.00	38.00	.00
40	Cole #5 Reservoir	.00	116.80	.00
40	Columbine #1 Res. (Reynolds)	.00	225.00	.00
40	Crawford Reservoir	4,771.00	13,972.00	4,254.00
40	Cyphers Reservoir	21.00	21.80	21.80

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-79</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-80</u>
40	Daniels Sl. Res. (Reed)	115.80	228.00	126.20
40	Davenport Reservoir	.00	20.00	.00
40	Deep Slough Reservoir	11.00	498.40	56.00
40	Deep Ward Reservoir	755.00	1,700.00	795.00
40	Delta City #1 Reservoir	14.00	14.00	14.00
40	Delta Control Reservoir	34.00	34.00	34.00
40	Deserted Park Reservoir	.00	35.90	.00
40	Dog Fish Lake Reservoir	.00	243.00	.00
40	Don Meek #1 Reservoir	.00	45.00	.00
40	Donnelly Slough Reservoir	121.90	276.90	178.90
40	Doughty #1 Res. (Chipmunk)	.00	50.10	50.10
40	Doughty #2 Res. (Sliderock)	.00	19.10	.00
40	Dowdy Reservoir	.00	264.00	.00
40	Dreyfus Reservoir	.00	44.00	.00
40	Dugger Reservoir	139.50	212.00	.00
40	East Beckwith #1 Reservoir	.00	400.00	.00
40	Eggleston Lake Reservoir	1,182.00	2,705.00	1,393.00
40	Elk Park Reservoir	46.00	95.20	38.40
40	Elk Wallows Reservoir	.00	218.00	.00
40	Ella Reservoir	.00	98.00	.00
40	Ellington & Cook Reservoir	.00	25.00	.00
40	Eureka Reservoir #2	.00	53.00	.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-79</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-80</u>
40	Fairmont Reservoir	.00	78.00	.00
40	Fairmount Park Reservoir	.00	30.00	.00
40	Fish Lake Reservoir	.00	78.00	.00
40	Fisher Reservoir	.00	10.00	.00
40	Forrest Res. (Finney)	.00	76.40	.00
40	Fruitgrowers Res.	1,558.00	4,312.40	2,164.40
40	G & M Volk Fish Pond #1	5.90	5.90	5.90
40	Goodenough Reservoir (Kiser)	31.30	148.80	63.90
40	Goodenough #2 Res. (Leroux)	125.00	872.00	80.00
40	Granby #6 Reservoir	.00	45.90	.00
40	Granby #7 Reservoir	29.40	76.00	30.30
40	Granby #8 Reservoir	.00	13.30	6.70
40	Granby #9 Reservoir	46.20	71.90	36.20
40	Granby #11 Reservoir	76.00	775.00	162.40
40	Granby #12 Reservoir	309.60	611.00	360.80
40	Gray Reservoir	.00	423.00	.00
40	Green Mountain Dam Reservoir	.00	9.00	9.00
40	Greenwood Reservoir	.00	56.00	17.00
40	Gregg #1 Reservoir	.00	5.00	.00
40	Gregg #2 Reservoir	.00	45.00	.00
40	Hale Reservoir	.00	34.80	.00
40	Hanson #2 Reservoir	.00	225.00	.00
40	Holly Terror Reservoir	.00	89.00	.00
40	Hotel Lake Reservoir	287.50	548.00	301.50

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-79</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-80</u>
40	Howard Lake Reservoir	44.10	75.85	55.50
40	Hunt Reservoir	.00	124.00	124.00
40	Island Lake Reservoir	322.10	1,593.00	498.10
40	Kehmeier Reservoir	.00	319.50	154.80
40	Kiser Slough Reservoir	94.00	512.00	69.20
40	Knox Reservoir	101.90	241.20	57.30
40	Kennicott Slough Reservoir	166.80	808.30	262.30
40	Lake Brennard Reservoir	367.00	367.00	367.00
40	Leon Lake Reservoir	854.50	2,131.00	1,011.80
40	Leon Park Reservoir	46.20	185.50	43.50
40	Lilly Pad Res. (Young Cr.)	.00	35.80	.00
40	Little Gem Reservoir	157.10	214.50	62.40
40	Little Giant #1 Reservoir	.00	29.50	29.50
40	Little Giant #2 Reservoir	.00	6.10	.00
40	Little Grouse Reservoir	6.60	52.50	2.40
40	Lone Cabin Reservoir	.00	163.00	.00
40	Lucky Find Reservoir	.00	32.00	.00
40	Marcott Park Reservoir	.00	447.90	.00
40	McKoon Reservoir (Blanchard)	44.00	148.00	75.10
40	Meek Reservoir	.00	29.30	.00
40	Military Reservoir	62.10	236.60	50.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-79</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-80</u>
40	Miller Reservoir	.00	20.00	.00
40	Monument Reservoir	.00	415.10	.00
40	Morris #2 Reservoir	16.00	16.00	16.00
40	New Pond Reservoir	.00	2.20	.00
40	Onion Valley Reservoir	1,564.00	8,825.00	192.40
40	Overland #1 Reservoir	.00	5,193.00	.00
40	Owens Reservoir	.00	92.00	.00
40	Paonia Reservoir	3,892.00	18,468.20	1,655.00
40	Park Reservoir	945.30	3,383.40	1,015.80
40	Patterson #1 Reservoir	.00	78.00	.00
40	Patterson #2 Reservoir	.00	151.00	.00
40	P.C. & G. #1 Res. (Muskrat)	.00	30.00	.00
40	Pedro Reservoir	145.90	194.90	113.10
40	Pine Reservoir	.00	.00	.00
40	Pine Cone Reservoir	.00	37.00	.00
40	Pitcarin Reservoir	7.10	100.00	.00
40	Poison Springs Reservoir	.00	123.00	80.00
40	Porter #1 Reservoir	134.80	201.00	121.50
40	Porter #4 Reservoir	38.00	38.00	38.00
40	Prebble Reservoir	71.20	180.00	69.60
40	Rex Reservoir	.00	24.00	.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-79</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-80</u>
40	Reynolds Res. (Reynolds Cr.)	.00	100.00	.00
40	Rim Rock Lake Reservoir	64.00	107.00	30.50
40	Rockland Reservoir	6.30	33.00	10.30
40	Rockwell Reservoir	.00	50.80	.00
40	Roeber #2 Reservoir	.00	44.00	.00
40	Round Lake Reservoir	.00	25.00	.00
40	Ryan Reservoir	.00	45.00	.00
40	Sackett Reservoir	57.80	108.00	41.20
40	Safety #1 & #2 Reservoir	.00	20.00	.00
40	Scotland Peak Reservoir	.00	81.20	.00
40	Sheep Lake Reservoir	81.50	153.00	88.00
40	Skim Milk Reservoir	.00	90.00	.00
40	Spatofore Reservoir	.00	100.00	.00
40	Stell Reservoir	26.50	65.00	48.50
40	Todd Reservoir	.00	150.00	.00
40	Tomahawk Reservoir	.00	87.00	.00
40	Trickle Reservoir	.00	33.90	.00
40	Trio Reservoir	87.10	164.30	80.30
40	Twin Lake Reservoir #1	.00	93.00	.00
40	Twin Lake Reservoir #2	.00	139.30	.00
40	Tyler Reservoir	.00	169.30	.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-79</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-80</u>
40	Upper Hotel Lake Reservoir	66.00	105.00	55.00
40	Van Den Berg #1 Reservoir	5.60	5.60	5.60
40	Vela Reservoir	206.00	437.00	177.00
40	Ward Creek Reservoir	72.40	284.40	27.30
40	Wash Tub Reservoir	.00	25.00	.00
40	Water Bug Reservoir	.00	57.00	.00
40	Weir & Johnson #2 Reservoir	434.00	628.70	336.00
40	Weir Park Reservoir	.00	40.70	.00
40	West #1 Reservoir	.00	454.50	.00
40	Williams Creek Reservoir	.00	96.00	.00
40	Willow Reservoir	.00	120.00	.00
40	Womack #1 Reservoir	66.70	184.00	.00
40	Womack #2 Reservoir & #3	.00	156.20	.00
40	Womack #5 Reservoir	.00	22.90	.00
40	Young Creek Reservoir #1 & #2	182.70	798.80	295.60
40	Young Creek Reservoir #3	102.90	193.40	111.50
40	Y & S Reservoir	100.00	189.00	85.30
41	Buckhorn Reservoir	131.00	140.00	92.00
41	Citizens Reservoir	110.00	118.00	241.00
41	Garnet Mesa (Sweitzer)	1,332.00	1,332.00	1,332.00
41	Wenger #1 Reservoir	0.00	0.00	0.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-79</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-80</u>
42	Anderson #1 Reservoir	.00	468.00	280.00
42	Anderson #2 Reservoir	.00	568.41	480.00
42	Anderson #6 Reservoir	.00	100.00	.00
42	Bolen Reservoir	.00	535.74	.00
42	Bolen Anderson Reservoir	.00	293.00	.00
42	Carson Reservoir	521.00	637.00	637.00
42	Deep Creek Reservoir #2	.00	350.00	.00
42	Dry Creek Res. (Chambers Res.)	.00	174.00	.00
42	Flowing Park Reservoir	.00	735.48	10.00
42	Grand Mesa #1 Reservoir	50.00	559.38	50.00
42	Grand Mesa #6 Reservoir	.00	171.00	.00
42	Grand Mesa #8 Reservoir	.00	378.93	.00
42	Grand Mesa #9 Reservoir	.00	153.32	.00
42	Hollenbeck #1 Reservoir	180.00	679.64	410.00
42	Hollenbeck #2 Reservoir	480.00	503.00	.00
42	Juniata Reservoir	3,540.00	6,270.00	6,035.00
42	Scales No. 1	.00	215.00	.00
42	Scales No. 3	.00	145.00	.00
59	Spring Creek	1,050.00	1,880.00	985.00
59	Taylor Reservoir	56,011.00	59,040.00	59,180.00
59	Kapushion Reservoir	.00	.00	.00
59	Cunningham Reservoir	60.00	55.00	.00
59	Ferris Creek Reservoir	.00	18.00	.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-79</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-80</u>
59	Rainbow Lake	.00	320.00	.00
59	Meridian Lake	320.00	430.00	315.00
60	Alexander Reservoir	.00	6.00	.00
60	Gurley Reservoir	903.00	8,971.00	793.00
60	Lilylands Reservoir	34.64	494.00	47.19
60	Lone Cone Reservoir	30.00	1,840.00	530.00
60	Miramonte Reservoir	5,792.00	5,792.00	5,792.00
60	Mosca Livestock Reservoir #2	.00	10.00	.00
60	Mosca Livestock Reservoir #3	.00	4.00	.00
60	Palmer Reservoir	.00	2.00	.00
60	Palmer Reservoir #2	.00	2.00	.00
60	Paxton Reservoir	362.00	898.00	487.00
60	Trout Lake Reservoir	2,028.00	3,245.00	2,850.00
61	Buckeye Reservoir	700.00	1,700.00	600.00
62	Blue Mesa	665,546.00	357,590.00	698,012.00
62	Cerro Reservoir	675.00	50.00	675.00
62	Crystal Reservoir	16,575.00	16,653.00	15,850.00
62	Fish Creek #1	100.00	143.00	100.00
62	Fish Creek #2	150.00	522.00	150.00
62	Lake San Cristobal	9,786.00	9,876.00	9,786.00
62	Morrow Point	115,736.00	113,540.00	114,008.00
62	Silverjack Reservoir	1,460.00	8,750.00	1,260.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-</u>
63	Big Creek Reservoir	. . .	NO RECORD	. . .
63	Burg Reservoir	.00	122.00	.00
63	Casement Reservoir	.00	155.00	.00
63	Casto Reservoir	.00	170.00	.00
63	Craig Reservoir	. . .	NO RECORD	. . .
68	Carrol Brown	1.50	25.00	30.00
68	Elephant Reservoir	.50	10.00	1.00
68	Jacques Reservoir	.50	45.00	2.00
68	Victor Reservoir	1.00	2.00	3.00
73	Fruita Reservoir #1	60.44	80.60	65.00
73	Fruita Reservoir #2	.00	.00	.00
73	Fruita Reservoir #3	NO RECORD	NO RECORD	NO RECORD
73	Mirror Lake	193.00	207.00	180.00

IV. AGRICULTURE

Because of the great diversity of agricultural lands throughout the division, almost every type of farming enterprise is found within the division. Various crops range from high mountain hay meadows and range lands to highly productive low valley grain farms. Overall crop production for the 1980 season can be estimated to be average or better. The water supply was adequate and good quality crops were grown. The Uncompahgre Project which irrigates 80,000 acres had sufficient water and was able to meet almost 100 per cent of demand. It was limited only by the various canal capacities. All reservoirs supplied their historic average, and agricultural areas dependent upon this storage produced normal production.

The upper Gunnison and Uncompahgre Valleys' hay producing lands along with the San Miguel Basin hay lands all experienced crop yields down from 1979 and somewhat below the long-term averages. Hay prices and demands are higher than last year with Division Four hay being sold to the Southeast, South and Southwest States. Two factors contribute to the increased price and demand for Division Four hay:

1. Late frost and a long cold spring retarded the early growth of hay and grasses throughout the Division and the absence of summer and fall rains had some effect on the production levels.
2. The extensive drought throughout the Southern States has helped to create an active market for Colorado hay. Small grains grown along the lower Gunnison Valley recorded average yields and the other miscellaneous crops such as onions, lettuce and some

vegetables also had average production. Prices paid for these commodities were good and farm income should be higher again this year.

The fruit ranches along the North Fork Valley and the lower Uncompahgre Valley produced varied crops. Weather conditions again had a significant influence on the produce levels of peaches, pears, cherries, apricots and apples. The apple crop was only 60 to 70 per cent of normal due to a late freeze. The hot dry summer caused most of the apples to be small and of poor quality at picking time. Many cherries were left unpicked because of twig borers which are small worms that ruin the fruit. The fresh fruit market was higher than 1979; however, apples for canning were sold at less than cost due to a surplus stock from last year's bumper crop at the Skyland food processing plant in Delta, Colorado. Harvesting labor did not pose too great a problem during the various harvesting seasons.

Livestock production in Division Four was slightly above last year's level and cattle and sheep prices remain high. 1980 is the third year of good livestock prices and the cattle ranchers are slowly recovering and rebuilding herds from several years of marginal production. Hog production is up slightly from 1979 in Division Four and pork prices are somewhat higher than 1979. Farmland in Division Four continues to be sold at premium prices; however, with the high interest rates, farm real estate activities are still depressed from the mid 1970's. Prices paid for irrigated agricultural land continue to exceed the rate of inflation and marginal tracts of farm land are still reported being sold.

Presented below is a brief agricultural resume for 1980 by counties:

<u>County</u>	<u>Average Growing Season in Days</u>	<u>Crop Production*</u> <u>Irrigated Land</u>				<u>Livestock**</u>		
		<u>Barley</u> <u>(Bu)</u>	<u>Beans</u> <u>(Lbs)</u>	<u>Corn</u>		<u>Cattle</u> <u>Calves</u>	<u>Stock</u> <u>Sheep</u>	<u>Hogs</u>
				<u>Silage</u> <u>(T)</u>	<u>Feed</u> <u>(Bu)</u>			
Delta	146	93.0	1,510	22.0	106.0	58,000	26,000	8,200
Montrose	153	90.0	1,500	16.5	115.0	44,500	49,000	9,800
Mesa	188	90.0	1,470	20.0	115.0	61,500	44,000	18,500
Ouray	88	76.5	--	--	--	24,500	900	100
San Miguel	85	--	--	--	--	5,000	15,000	--
Gunnison	79	--	--	--	--	36,000	100	100
Hinsdale	65	--	--	--	--	900	--	--
Saguache	105	95.5	--	--	--	19,000	10,500	5,000

*1979 Colorado Agriculture Statistics, Published July, 1980; in bu./ac., lbs./ac. or T./ac.

**Number of head, 1979

Crop dollar values for 1979 are as follows:

<u>County</u>	<u>Corn, Beans Grain & Silage</u>	<u>Hay*</u>	<u>Other Crops*</u>	<u>All Crops*</u>
Delta	3,052,500	4,584,000	5,505,400	13,155,900
Montrose	6,643,000	3,994,000	2,863,200	13,556,200
Mesa	4,292,000	4,861,000	2,437,000	11,604,000
Ouray	53,500	1,242,000	17,000	1,312,500
San Miguel	317,000	671,000	151,500	1,003,500
Gunnison	26,000	2,364,000	2,160,000	2,390,000
Hinsdale	--	153,000	8,000	161,000
Saguache	4,967,000	1,903,000	2,856,100	14,544,100

The above production data has been extracted from the 1980 Colorado Agriculture Statistics - Colorado Department of Agriculture.

*Value of production by Colorado Counties for 1978.

The following special report is presented concerning the specific conditions that were experienced in irrigation District 40. This report has been prepared by Mr. Richard Drexel, Supervising Water Commissioner of Water District 40, and Mr. Robert Starr, Water Commissioner C, Water District 40 and we consider this an important addition to Division Four's Annual Report.

The coal reserves in the area are still studied as to potential production and two local coal companies have sold out to larger firms. The market is scarce for large volumes of coal, and both Grand Mesa Coal Company and Tomahawk report large stockpiles of coal on their property waiting to be shipped. Both companies are reducing their work force a considerable amount.

Atlantic Richfield Coal Company is close to getting a contract with an American utility company for the sale of a minimum of 250,000 tons of power plant coal annually. The coal will come from the company's Mount Gunnison Mine and be built in early 1981. It will be located above the Bear Coal Company Mine. The Mount Gunnison mine helps to increase production to 2.8 million tons in the next 10 years. The North Fork Mine, which is owned and operated by Coors is not mining but is processing and selling coal from Hawks Nest and Blue Ribbon.

The town of Delta as well as outlying areas switched to Project 7 late this summer, causing the need of their Grand Mesa water to be reduced. Delta will continue to bring a minimum amount from Grand Mesa for emergency purposes. The potential for a good water year in 1981 is average

based on a large carryover in reservoirs and adequate soil moisture.

Four high schools and two grammar schools are being built in the county.

While better education and learning conditions are expected, this has also caused a hardship on many people because of higher property taxes.

Special Report from Water District 40

Richard L. Drexel, Senior Water Commissioner

Robert H. Starr, Water Commissioner C

V. COMPACTS AND COURT STIPULATIONS

The Colorado River Compact of 1922 and the Upper Colorado River Basin Compact of 1948 apply to all waters in Division Four. The lower basin states can put a call on any series of water-short years based on the long-term average flow at Lee Ferry. This year there was no occasion that involved administration of water in Division Four relating to these compacts.

VI. DAMS

With a good snow-pack and above average carry-over storage levels, reservoir problems were anticipated in the spring and summer of 1980. However, only a few minor problems occurred. The various reservoirs that have been involved in special repairs maintenance programs and official restrictions have changed some but for the most part, remain the same as 1979. The Vouga Reservoir located in Water District 28 experienced several washouts on the spillway canal system again this year. The Reservoir in Water District 40 experienced heavy erosion on the downstream section of the spillway. This was due to sudden high flows from upstream reservoirs during the early spring and the erosion occurred through natural ground almost completely back to the high water line. Many reservoirs in Division Four were inspected by the Denver dam inspection unit and several structures were inspected and identified as high hazard structures by private consultants under contract through the National Dam Safety Program.

Of the several hundred reservoirs and dams in Division Four, most are regulated and inspected by field water commissioners many times during

the irrigation season. These men begin to make their observations before the snow leaves the reservoir areas and are involved in the administration with these reservoirs until late fall. They are alert to possible trouble-spots and continued communication between the Montrose office and field commissioners keep all the necessary personnel of Division of Water Resources current on the conditions of most reservoirs. There were no failures of dam structures during the 1980 season. The following table lists the various structures that are involved in official restrictions as of the date of this report.

Reservoir restriction orders are in effect as follows:

<u>Name</u>	<u>Water District</u>	<u>Date</u>	<u>Restrictions</u>
Lone Cabin	40	8-9-72	5' below lowest embankment
Waterbug	40	8-9-72	5' below embankment. Repairs made; no notice of restriction being lifted.
Beaver	40	Verbal, fall '73	Not over 75' without permission on gage; may fill late; were allowed to fill and spill if seepage did not exceed 3.00 cfs
Granby No. 12	40	10-25-76	7' below lowest point on crest of dam
Carl Smith	40	3-27-80	5' below lowest point in crest
Holy Terror	40	3-12-80	5' below lowest point in crest
Monument	40	3-25-80	10' below lowest point in crest
Meridian Lake Park Dam	59	6-18-79	Not accepted for storage
Hidden Treasure	61	Verbal, fall '73	Enlarge channel opening at base of dam
Fullmoon	68	10-22-79	Storage restriction to 5' below lowest point in crest

Livestock Water Tanks - Permits Issued 1980:

<u>Name</u>	<u>Stream</u>	<u>Height</u>	<u>Cap,A.F.</u>	<u>Permit #</u>
Geirhart #1	Sec34-15S-86W-6thPM	12.0	2.00	15812
Holding Pasture #1	Sec11-43N-14W-NMPM	14.0	2.00	15787
Maurer #1	Sec3-47N-5W-NMPM	19.0	3.00	15752
Maurer #3	Sec3-47N-5W-NMPM	12.0	3.00	15753
Ronald Brown #1	Sec6-46N-9W-NMPM	9.3	1.00	15785
Traci #1	Sec9-47N-2E-NMPM	10.0	less than 1.00	15756

Inspections were made of several livestock water tanks during the 1980 season. There were no problems of any consequence concerning stock water tanks for this season.

VII. WATER RIGHTS

A. Tabulation

Errors are still being identified in the 1978 Water Rights Tabulation and corrections are made as time becomes available. Approximately 40 formal protests were received by Division Four to the 1978 tabulation before the deadline of July 1, 1980. Each protest has been formally acknowledged by this office and research is now in progress to determine what course of action will be taken.

B. Referee Findings and Decrees

<u>Type of Application</u>	<u>No. Received Jan., 1980 thru Dec., 1980</u>
Underground Water Rights	31
Change of Water Rights	30
Plan for Augmentation	3
Water Rights (Surface)	216
Diligence (Conditional)	104
To Make Absolute	77
Water Storage Rights	13
Applications Received in Water Court	468
Structures filed on	528
*Number of Referee Consultations	All Cases

*Division Four's Division Engineer submits monthly recommendations to the Water Court on all published resume water cases. Formal, verbal or written consultations by the Water Referee are not made in Irrigation Division Four.

"W" decrees for 1979 and part of 1980 have been keypunched and edited and sent to the Denver office of the Division of Water Resources for tabulation update. Corrections are also being processed in anticipation of the publication of the next tabulation for Division Four.

1980 concludes the second year of the Honorable Robert A. Brown serving as Water Judge for Division Four. Judge Brown has been involved in numerous water hearings and in some instances, has disqualified himself because of conflicts of interest. The Honorable Donald A. Carpenter, retired Water Judge from Division One, has heard these particular cases. Mr. Elra L. Wilson continues to serve as Water Referee for Irrigation Division Four.

VII. ORGANIZATION

A. Water Conservation and Conservancy Districts:

Upper Gunnison River Water Conservancy District, % Rial Lake, Chairman, Gunnison, Colorado 81230.

Tri-County Water Conservancy District, % C. A. Cannon, Manager, 601 North Park, Montrose, Colorado 81401.

Crawford Water Conservancy District, Don Little, Manager, Crawford, Colorado 81415.

Southwest Colorado Water Conservancy District, % Fred Kroeger, La Plata County Courthouse, Durango, Colorado 81301.

Bostwick Park Water Conservancy District, % Frank Woodrow, Attorney, 144 South Uncompahgre St., Montrose, Colorado 81401.

Grand Mesa Water Conservancy District, % Bud Burgess, Cedaredge, Colorado 81413.

North Fork Water Conservancy District, % John Neill, Secretary, Hotchkiss, Colorado 81419.

Fruitland Mesa Water Conservancy District, % Carton Meek, President, Maher, Colorado 81421.

Colorado River Water Conservation District, % Roland Fisher, Secretary, Glenwood Springs, Colorado 81601.

B. Water Related Organizations

Big Ditch Co., % Barbara Hood, Secretary, Cedaredge, Colorado 81413.

Grand Mesa Water Users Association, % Barbara Hood, Secretary, Cedaredge, Colorado 81413.

Gunnison River Water Users Association, % Jerry Goldsmith, Cedaredge, Colorado 81413.

North Fork Conservancy District, % John Neil, Secretary, Hotchkiss, Colorado 81419.

W.D. 28

Arch Ditch Co., % Deno Piloni, Gunnison, Colorado 81230

Hot Springs Reservoir Co., % W. M. Bauer, Gunnison, Colorado 81230

Needle Creek Reservoir Co., % Ty Watson, Gunnison, Colorado 81230.

Vouga Reservoir Co., % Geo. Steenbergen, Gunnison, Colorado 81230.

W.D. 40

Alfalfa Ditch Co., % Gary Volk, President, Eckert, Colorado 81418.

Big Ditch Co., % Steve Palmer, President, Cedaredge, Colorado 81413.

Bonafide Ditch Co., % Alvin Pfifer, Delta, Colorado 81416.

Bone Mesa Domestic Water Co., % Warren Cockroft, Paonia, Colorado 81419.

Cattlemans Ditch Co., % George Tracy, Maher, Colorado 81421

Cedar Mesa Ditch & Reservoir Co., % Bob Phillips, Secretary, Cedar-
edge, Colorado 81413.

Childs Ditch Co., Clarence Fogg, Cedaredge, Colorado 81413.

Coalby Domestic Pipeline, Archie Peterson, President, Cedaredge, Colo-
rado 81413.

Crawford Clipper Ditch Co., % Bill Linman, President, Crawford, Colo-
rado 81415.

Crawford Conservancy District, % Don Little, Manager, Crawford, Colo-
rado 81415.

Crawford Pipeline, % Town of Crawford, Crawford, Colorado 81428.

Fire Mountain Canal Co., % Mrs. Ora N. Housewert, Secretary, Hotchkiss,
Colorado 81419.

Fruitland Irrigation Co., % Wm. Mugford, Secretary, Crawford, Colo-
rado 81415.

Fruitland Mesa Conservancy District, % Carton Meek, Maher, Colorado
81421.

Grand View Canal Irrigation Co., % Don Reed, President, Crawford, Colo-
rado 81415.

Hartland Canal Co., % Kenneth Johnson, Secretary, Delta, Colorado 81416.

Hotchkiss Pipeline, % Town of Hotchkiss, Hotchkiss, Colorado 81415

W.D. 40 - continued

Leroux Creek Water Users Association, % John Neil, Secretary, Hotchkiss, Colorado 81419.

Lone Cabin Ditch & Reservoir Co., % Clarence Achziger, Paonia, Colorado 81428.

Lone Pine Ditch Co., % Emil Cozzeto, Secretary, Cedaredge, Colorado 81413.

Minnesota Ditch & Reservoir Co., % Grant Farnsworth, Paonia, Colorado 81428.

Needle Rock Ditch Co., % Harold Cunningham, Crawford, Colorado 81415.

North Delta Canal Co., % Wm. McClendon, President, Delta, Colorado 81416.

North Fork Farmer Ditch Co., % Jess Campbell, Paonia, Colorado 81428.

Orchard City Irrigation District, % Mrs. Russel England, Secretary, Austin, Colorado 81410.

Orchard City Municipal Water Co., Wesley England, Manager, Austin, Colorado 81410.

Overland Ditch Co., % Billy Varner, President, Hotchkiss, Colorado 81419.

Paonia Ditch Co., % Merle Lund, Paonia, Colorado 81428.

Paonia Pipeline, % Town of Paonia, Paonia, Colorado 81428.

Relief Ditch Co., % Keith M. Bond, Delta, Colorado 81416.

W.D. 40 - continued

Saddle Mountain Ditch Co., % James Ayer, Crawford, Colorado 81415.

Shepherd-Wilmot Ditch Co., % Jess Campbell, Paonia, Colorado 81428.

Short Ditch Co., % Warren Cockroft, Hotchkiss, Colorado 81419.

Sunshine Mesa Domestic Water Co., % Helen Quain, Secretary, Route 1,
Hotchkiss, Colorado 81419.

Surface Creek Ditch & Reservoir Co., % Jene Young, President, Cedaredge,
Colorado 81413.

Terror Ditch & Reservoir Co., % William O'Bannon, Paonia, Colorado 81428.

Grand Mesa Water Users Association, % Lester Womack, President, Eckert,
Colorado 81418.

W.D. 41

Chipeta Water Co., % Jim Roberts, Manager, Montrose, Colorado 81401.

Menoken Water Co., % Ray Weaver, President, Montrose, Colorado 81401.

Uncompahgre Valley Water Users Association, % John Bigham, Manager,
Montrose, Colorado 81401.

W.D. 42

Grand Mesa Reservoir Co., % John Whiting, President, Whitewater, Colo-
rado 81527.

W.D. 42 - continued

Kannah Creek Water Users Association, % W. D. Bradbury, President, White-water, Colorado 81527.

Redlands Water & Power Co., % Jim Rankin, Secretary, 768 North Avenue, Grand Junction, Colorado 81501.

W. D. 60

Colorado Cooperative Ditch Co., % Roy Knickerbocker, Secretary, Nucla, Colorado 81424.

Farmers Water Development Co., Ivan McKinny, President, Norwood, Colorado 81423.

Lilylands Canal & Reservoir Co., % Marshall Hughes, President, Norwood, Colorado 81423.

Lone Cone Ditch & Reservoir Co., % Raymond Snyder, Secretary-Treasurer, Norwood, Colorado 81423.

San Miguel Conservancy District, % Bill Bray, Redvale, Colorado 81431

Wrights Mesa Conservancy District, % Steve Herndon, Norwood, Colorado 81423

W. D. 61

Paradox Valley Canal & Reservoir Co., % Wyvonna Irish, Secretary, Paradox, Colorado 81429.

Ray Ditch Co., % Bruce Phippeny, Secretary, Paradox, Colorado 81429.

W.D. 62

Big Cimarron Canal & Reservoir Co., % Frank Woodrow, Attorney, 144
South Uncompahgre St., Montrose, Colorado 81401.

Bostwick Park Water Conservancy District, % Edwin S. Hofmann, Chairman,
P. O. Box 1607, Montrose, Colorado 81401

W.D. 68

Alkali No. 1 Ditch Co., Inc., % Earl Wick, Secretary, Ridgway, Colorado
81432.

Alkali No. 2 Ditch Co., Inc., % Dick Barker, Secretary, Ridgway, Colo-
rado 81432

Dallas Ditch Co., Inc., % Peter Decker, Secretary, Ridgway, Colorado
81432.

IX. WATER COMMISSIONER'S SUMMARY - 1980

Division 4

Direct flow diversions (A.F.)	2,725,597
Reservoir storage (A.F.)	611,151
Amount delivered from storage	3,941,457
Acres Irrigated	405,346
Number of ditches	2,607
Standard administration	1,956
Semi-standard administration	634
Number of daily ditch reports	38,466
Number of reservoirs served	224
Power diversions (A.F.)	4,314,210

District 28

Direct flow diversions (A.F.)	195,800
Flow diverted to reservoir storage (A.F.) .	2,232
Amount delivered from storage	2,249
Acres irrigated	33,897
Number of ditches	219
Standard administration	198
Semi-standard administration	21
Number of daily ditch reports	1,943
Number of reservoirs served	6
Average demand (flow & reservoir) AF/AC ...	5.84
Power diversions	0

NOTE: Average demand AF/AC is adjusted to include only that water that has been used for irrigation.

District 40

Direct flow diversions (A.F.)	467,682
Flow directed to reservoir storage (A.F.)..	66,743
Amount delivered from storage (A.F.)	62,633
Municipal and other - Domestic (A.F.)	7,055
Acres irrigated	137,050
Number of ditches	796
Standard administration	723
Semi-standard administration	73
Number of daily ditch reports	23,992
Number of reservoirs served	164
Average demand (flow & reservoir) AF/AC ...	3.87
Power diversions (A.F.)	0

NOTE: Average demand AF/AC is adjusted to include only that water that has been used for irrigation.

District 41

Direct flow diversions (A.F.)	918,108
Flow diverted to reservoir storage (A.F.) .	140
Amount delivered from storage (A.F.)	2,222
Acres irrigated	88,646
Number of ditches	79
Standard administration	73
Semi-standard administration	6
Number of daily ditch reports	946
Number of reservoirs served	4
Average demand (flow & reservoir) AF/AC ...	10.3
Power diversions (A.F.)	6,093

NOTE: Average demand AF/AC is adjusted to include only that water that has been used for irrigation.

District 42

Direct flow diversions (A.F.)	507,957
Flow diverted to reservoir storage (A.F.) .	8,164
Amount delivered from storage (A.F.).....	2,074
Acres irrigated	10,259
Number of ditches	58
Standard administration	41
Semi-standard administration	17
Number of daily ditch reports	4,151
Number of reservoirs served	19
Average demand (flow & reservoir) AF/AC ...	4.87
Power diversions (A.F.)	460,169

NOTE: Average demand AF/AC is adjusted to include only that water that has been used for irrigation.

District 59

Direct flow diversions (A.F.)	263,293
Flow diverted to reservoir storage (A.F.) .	48,759
Amount delivered from storage (A.F.).....	0
Acres irrigated	35,220
Number of ditches	262
Standard administration	180
Semi-standard administration	82
Number of daily ditch reports	1,617
Number of reservoirs served	4
Average demand (flow & reservoir) AF/AC ...	7.47
Power diversions (A.F.)	0

NOTE: Average demand AF/AC is adjusted to include only that water that has been used for irrigation.

District 60

Direct flow diversions (A.F.)	130,508
Flow diverted to reservoir storage (A.F.) .	14,114
Amount delivered from storage (A.F.).....	13,096
Acres irrigated	29,070
Number of ditches	332
Standard administration	223
Semi-standard administration	109
Number of daily ditch reports	1,516
Number of reservoirs served	10
Average demand (flow & reservoir) AF/AC ...	4.93
Power diversions (A.F.)	10,228

NOTE: Average demand AF/AC is adjusted to include only that water that has been used for irrigation.

District 61

Direct flow diversions (A.F.)	13,676
Flow diverted to reservoir storage (A.F.) .	1,628
Amount delivered from storage (A.F.).....	1,004
Acres irrigated	3,282
Number of ditches	83
Standard administration	53
Semi-standard administration	30
Number of daily ditch reports	1,197
Number of reservoirs served	1
Average demand (flow & reservoir) AF/AC ...	4.25
Power diversions (A.F.)	0
Storage to municipal	15

NOTE: Average demand AF/AC is adjusted to include only that water that has been used for irrigation.

District 62

Direct flow diversions (A.F.)	98,150
Reservoir storage (A.F.)	462,250
*Amount delivered from storage (A.F.)	4,007,106
Acres irrigated	38,000
Number of ditches	308
Standard administration	243
Semi-standard administration	65
Number of daily ditch reports	799
Number of reservoirs served	8
**Average demand (flow & reservoir) AF/AC	2.58
Power diversions (A.F.) ..	3,837,720

*Includes delivered from the Currecanti system.

*Includes 169,380 A.F. thru Taylor Reservoir.

**Adjusted to not include Taylor Reservoir and Currecanti System releases.

SPECIAL NOTE FOR DISTRICT 62 ONLY:

Water used by Uncompahgre Project from Gunnison River and Reservoirs	355,264 A.F.
Silverjack Reservoir storage: Irrigation	10,234
Fish & river -	<u>6,418</u>
TOTAL	16,652

NOTE: Average demand AF/AC is adjusted to include only that water that has been used for irrigation.

District 63

Direct flow diversions (A.F.)	15,981
Flow diverted to reservoir storage (A.F.) .	448
Amount delivered from storage (A.F.).....	543
Acres irrigated	3,450
Number of ditches	82
Standard administration	53
Semi-standard administration	19
Number of daily ditch reports	679
Number of reservoirs served	0
Average demand (flow & reservoir) AF/AC ...	4.78
Power diversions (A.F.)	0

NOTE: Average demand AF/AC is adjusted to include only that water that has been used for irrigation.

District 68

Direct flow diversions (A.F.)	105,731
Stock water	6,673
Flow diverted to reservoir storage (A.F.)	125
Amount delivered from storage	80
Acres irrigated	22,340
Number of ditches	352
Standard administration	142
Semi-standard administration	203
Number of daily ditch reports	1,296
Number of reservoirs served	5
Average demand (flow & reservoir) AF/AC ...	4.73
Power diversions (A.F.)	0

NOTE: Average demand AF/AC is adjusted to include only that water that has been used for irrigation.

District 73

Direct flow diversions (A.F.)	8,711
Flow diverted to reservoir storage (A.F.) .	0
Amount delivered from storage (A.F.)	0
Acres irrigated	4,152
Number of ditches	36
Standard administration	27
Semi-standard administration	9
Number of daily ditch reports	330
Number of reservoirs served	3
Average demand (flow & reservoir) AF/AC ...	2.09
Power diversions (A.F.)	0

NOTE: Average demand AF/AC is adjusted to include only that water that has been used for irrigation.

1980

ANNUAL SUMMARY - DIVISIONS
ACRE FEET (11-1- thru 10-31-)

Divisions	Non-Exempt Wells #	Ditch Structures Reported #	IRRIGATION			CURRENT YEAR		TRANS-MOUNTAIN	
			Direct Diversions To Irrigation	Diversions To Storage	Storage To Irrigation	Acres Irrigated	Export	Div. to Div. Import	
1									
2									
3									
4	173	2,607	2,725,597	604,473	93,503	405,346	1,880	723	
5									
6									
7									
TOTAL									

Divisions	MUNICIPAL			INDUSTRIAL		RECREATION Storage-Wildlife Parks	ACTUAL STORAGE For Year All Reservoirs	# Decree Applications	# Water Court Applications
	Direct Diversions	Diversions To Storage	Storage Releases	Direct Diversions	Diversions To Storage				
1									
2									
3									
4	28,850	15,994	15,994	4,342,975	3,847,954	1,192,816	1,192,816	528	468
5									
6									
7									
TOTAL									

NA - No water available

NU - Non use

NR - No record

TABLE A

DIVISION SUMMARY - DIVISION NO. 4

Direct Flow Diversions

1980

Water District	Total Ditches Reported			Irrigation Diversions Ac. Ft.	No. of Acres Irrigated	Ac. Ft. Per Acres	Industrial, Fish Use Diversions A.F.	Dom. & Mun. Use Diversions A.F.	Recreation Use Diversions A.F.	Trans-Mtn. Diversions A. F.	Total Diversions A. F.	No. of Daily Ditch Rpts.	Delivered to Compact Cmtmt.A.F.
	Active	Inactive	NA										
28	198	0	0	21	33,897	5.77	442	0	1,343	986	198,572	1,943	0
40	796	0	45	47	137,050	3.14	11,305	7,055	0	1,637	468,273	23,992	0
41	73	0	0	6	88,646	10.20	7,425	6,093	274	0	931,560	946	0
42	41	0	3	7	10,239	4.10	460,169	5,775	0	0	507,957	4,151	0
59	180	11	41	30	35,220	7.37	1,471	2,145	0	0	263,293	1,617	0
60	223	0	18	2	29,070	3.67	15,419	1,284	18,008	0	142,052	1,516	0
61	53	1	25	7	3,282	3.77	0	573	0	0	14,678	1,197	0
62	243	20	45	0	38,000	2.58	3,844,144	4,585	0	0	3,946,879	799	0
63	53	0	4	5	3,450	4.30	0	1,127	0	0	15,981	679	0
68	149	0	68	105	22,340	4.73	2,600	213	134	312	115,663	1,296	0
73	25	0	5	4	4,152	2.09	0	0	0	0	8,711	330	0
Total	2,034	32	254	234	405,346	5.36	4,342,975	28,850	19,759	2,935	6,613,619	38,466	0

TABLE B
 DIVISION SUMMARY - DIVISION NO. 4
 Storage Report - Acre Feet

1980

Water District	Amount in Storage Acre Feet		Actual Amt. Diverted to Storage During Season	Delivered from Storage to Irrigation	Storage to Industrial/Power Use	Storage for Municipal Use	Storage for Recreation Use	Storage to Projects
	11-1-79	6-1-80						
28	1,886	4,148	1,969	2,228	2,148	0	1,343	0
40	23,295	90,038	20,570	66,743	61,620	0	90,038	29,669
41	1,210	1,690	1,664	140	2,223	0	1,332	0
42	4,771	12,935	7,902	8,164	2,074	0	0	0
59	57,441	61,743	60,480	48,759	172	0	106,200	0
60	9,140	21,280	10,012	14,114	13,096	10,228	21,280	15,160
61	700	1,700	600	1,628	988	0	1,700	0
62	810,028	645,772	829,130	462,250	10,655	3,837,726	970,771	10,234
63	0	447	0	447	447	0	0	0
68	1,715	1,832	1,750	125	80	0	152	0
73	253	287	245	0	0	0	0	0
Total	910,439	841,872	934,322	604,473	93,503	3,847,954	1,192,816	55,063

WORKLOAD AND STATISTICAL INDICATORS

- Statistics -

<u>Description</u>	<u>1979,80</u>
Acre Feet Water Used	6,516,373
Acre Feet Diverted for Agricultural Use	2,173,398
Acre Feet Diverted for Industrial Use	4,342,975
Acre Feet Diverted for Recreational Use	19,759
Acre Feet Diverted for Urban Use (Municipal)	28,850
Acre Feet Delivered to Compact Commitment	None
Acre Feet Water Stored (Maximum)	1,192,816
Acre Feet Water Divisions Transbasin Diversion	2,603
Acres Irrigated	405,346
Ditches, Wells & Reservoirs Administered (No Wells)	2,554
Daily Ditch Reports	38,466
Acre Feet Water Delivered from Storage	93,503

UNCOMPAHGRE PROJECT

1980 Report

Under the terms of the contract between the Water and Power Resources Services and the Uncompahgre Valley Water Users Association, approved August 4, 1931, the operation and maintenance of the Uncompahgre Project was taken over by the Association on January 1, 1932.

The Project irrigation system includes 575 miles of irrigation canals and laterals, including 7.2 miles of tunnels and 5.1 miles of open drains.

The water content of the snow on the Uncompahgre River watershed measured at the Ironton Park snow course was 149% of normal on May 1, 1980. Readings of 11.9 inches of moisture vs a normal of 8.0 inches were taken.

Adequate water supplies were available throughout the early irrigation season, April through July. Due to very dry weather conditions, August had about 70% water delivery.

Taylor Dam filled and spilled on June 30, 1980. Spilling continued for the next 35 days. Maximum spill of 652 S.F. Storage on November 1, 1980 was 59,320 A.F.

Some major problems this season were a break in the West Canal at station B 10.80 which took approximately 2,000 yards of fill to repair. Again the M & D Canal at 4.30 required approximately 450 yards of material for bank repair plus cleaning a number of toe drains. The South Canal was repaired from station 0.00 to 0.34 by replacing 145 feet of sidewall and shot cret was applied to the remainder. Also 1,045 feet of floor was replaced.

During the winter of 1979-80, we did a major cleaning on the M & D Canal from mile 7.40 to 14.90. To date, 42 concrete structures have been placed on the project.

UNCOMPAHGRE VALLEY WATER USERS ASSOCIATION






James Hokit, Manager

FOR THE SOIL CONSERVATION DISTRICTS IN THE SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN WATERSHEDS IN COLORADO AND NEW MEXICO

AS OF
MAY 1, 1980

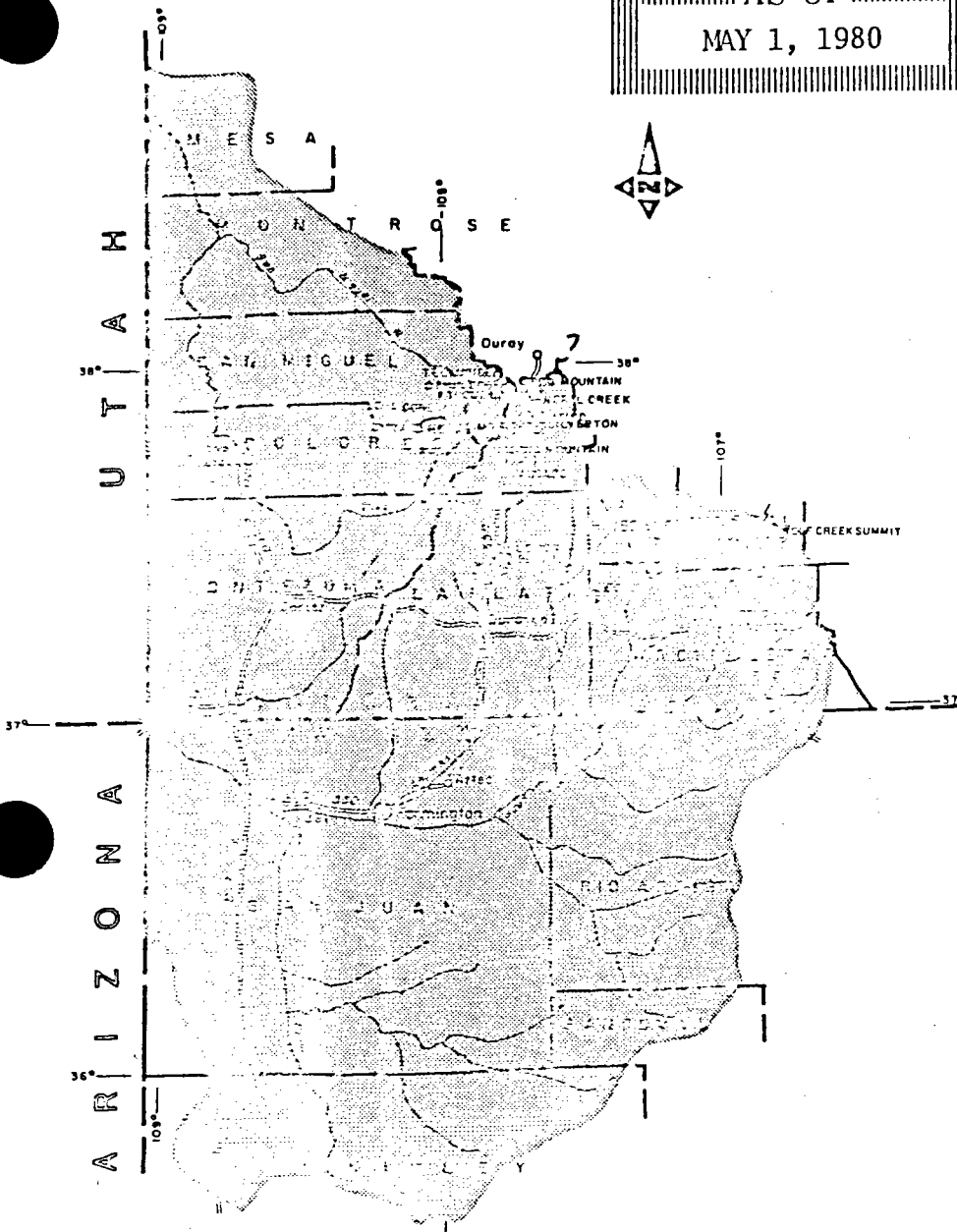
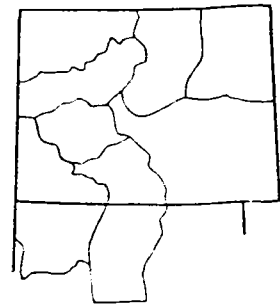
LEGEND
 ▲ Forecast Point
 ● Snow Course
 ● SNOTEL Site

STREAMFLOW FORECASTS
 Percent of 1963-77 Average

-  Over 130%
-  110-130%
-  90-110%
-  70- 90%
-  Under 70%

0 10 20 30 40
 SCALE IN MILES

COLORADO



YOUR WATER SUPPLY

PROSPECTS OF HIGH FLOWS REMAIN NEARLY THE SAME AS A MONTH AGO. STREAMFLOWS ARE EXPECTED TO RANGE FROM 53% ABOVE NORMAL ON THE SAN MIGUEL RIVER TO NEARLY TWICE NORMAL ON THE PIEDRA RIVER. THE MOUNTAIN SNOWPACK REMAINS 70-80% ABOVE NORMAL FOR THIS TIME OF YEAR. SOME LOCALIZED FLOODING IN LOW-LYING AREAS ADJACENT TO STREAMS CAN BE EXPECTED WHEN STREAMS PEAK IN LATE MAY AND EARLY JUNE. STREAMS WILL REMAIN HIGH LATER THAN NORMAL INTO THE SUMMER AS A RESULT OF THE ABNORMALLY HIGH SNOWPACK.

STREAM FLOW FORECASTS (1000 Ac. Ft.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Animas River at Durango	670	158	425.0
Dolores River at Dolores	390	167	233.0
La Plata River at Hesperus	45	191	23.5
Los Pinos River at Bayfield (1)	335	164	204.0
Mancos River near Towac (2)	38	174	21.9
Inflow to Navajo River (1 & 3)	1150	189	608.0
Piedra Creek at Arboles	400	199	201.0
San Juan River at Carracas	660	178	370.0
San Miguel River at Placerville	190	153	124.0

(1) Observed flow plus water in storage in Vallecito Reservoir. (2) March-July. (3) April-July.

WATER SUPPLY OUTLOOK Expressed as "Poor, Fair, Average, Excellent" With Respect to Usual Supply.

STREAM or AREA	Flow Period	
	Spring Season	Late Season
Florida River	Exc.	Exc.
Hermosa Creek	Exc.	Exc.
West Dolores River	Exc.	Exc.
Williams Creek	Exc.	Exc.

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

Basin or Stream and or RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	1963-77 Average
Groundhog	22	10	9	12
Jackson Gulch	10	4	3	7
Lemon	40	17	9	23
Navajo	1696	1181	1260	741
Vallecito	126	42	33	66

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	1963-77 Average
Animas	8	79	171
Dolores	5	110	211
San Juan	4	83	179

Report prepared by

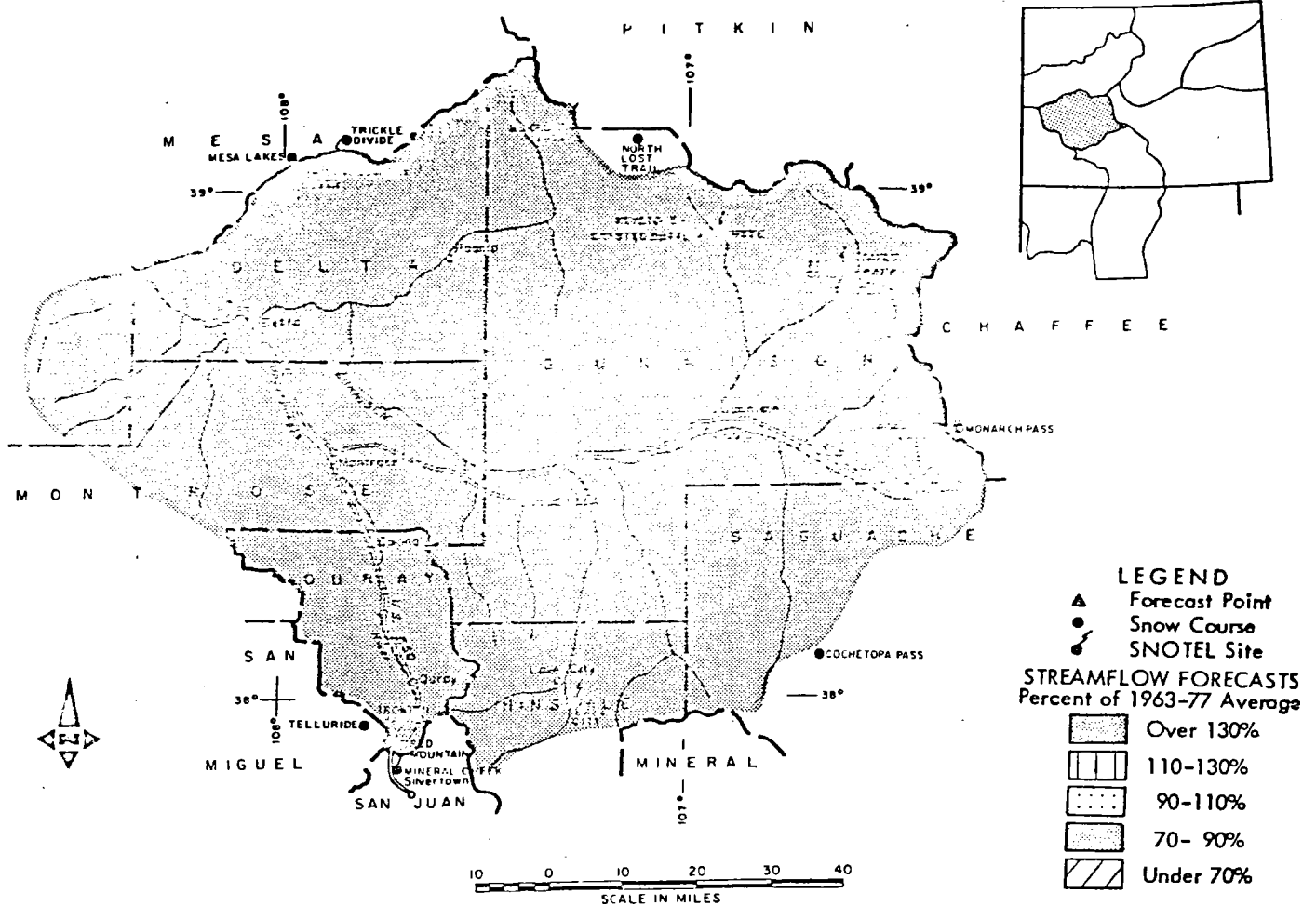
BERNARD A. SHAFER,
JAMES K. MARRON,
JUDY RAYE TEILBORG,
JOHN L. SPRAGUE,

Snow Survey Supervisor
Assistant Snow Survey Supervisor
Statistical Assistant
Hydrologic Technician

SOIL CONSERVATION SERVICE
SNOW SURVEY UNIT
P.O. BOX 17107
DENVER, COLORADO 80217

WATER SUPPLY OUTLOOK FOR THE SOIL CONSERVATION DISTRICTS IN THE GUNNISON RIVER WATERSHED IN COLORADO

AS OF
MAY 1, 1980



YOUR WATER SUPPLY

SNOWPACK IN THE GUNNISON BASIN HAS RISEN FROM 153% OF NORMAL TO 159% OF NORMAL. THIS IS A CONSEQUENCE OF NEAR AVERAGE PRECIPITATION BUT BELOW NORMAL MELT DURING APRIL. MUCH OF THE 2-4 INCHES OF MELT PRODUCED ABOVE 9000 FEET WENT INTO THE GROUND AND PRODUCED LITTLE RUNOFF. POTENTIAL FOR FLOODING IN LOW-LYING AREAS ALONG SNOWFED STREAMS REMAINS HIGH PARTICULARLY IN THE NORTH FORK OF THE GUNNISON AND ABOVE CRESTED BUTTE. STREAMFLOW SHOULD REMAIN HIGH LATER THAN NORMAL THIS SPRING.

STREAMFLOW FORECASTS (1000 Ac. Ft.) April - September

FORECAST POINT	Forecast	% of Average	1963-77 Average
Gunnison River inflow to Blue Mesa Reservoir (1)	1200	159	754.0
Gunnison River near Grand Junction (2)	1800	157	1150.0
North Fork of Gunnison (3)	450	191	262.0
Surface Creek near Cedaredge	23	151	15.2
Uncompahgre River at Colona	170	132	129.0

(1) Observed flow plus change in storage in Taylor Reservoir. (2) Observed flow plus change in storage in Blue Mesa, Morrow Point and Taylor Reservoirs.
 (3) Observed flow plus change in storage in Paonia Reservoir.

WATER SUPPLY OUTLOOK

Expressed as "Poor, Fair, Average, Excellent" with Respect to Usual Supply

STREAM or AREA	Flow Period	
	Spring Season	Late Season
Ohio Creek	Exc.	Exc.
Slate River	Exc.	Exc.
Taylor River	Exc.	Exc.
Tomichi Creek	Exc.	Exc.

RESERVOIR STORAGE (Thousand Ac. Ft.) END OF MONTH

Basin or Stream and or RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	1963-77 Average
Blue Mesa	830	347	274	320
Morrow Point	121	117	115	105
Taylor	106	48	43	60

SUMMARY of SNOW MEASUREMENTS

(COMPARISON WITH PREVIOUS YEARS)

RIVER BASIN and or SUB-WATERSHED	Number of Courses Averaged	THIS YEAR'S SNOW WATER AS PERCENT OF	
		Last Year	1963-77 Average
Gunnison	13	105	171
Surface Creek	3	100	149
Uncompahgre	3	85	132

Report prepared by

BERNARD A. SHAFER,
 JAMES K. MARRON,
 JUDY RAYE TEILBORG,
 JOHN L. SPRAGUE,

Snow Survey Supervisor
 Assistant Snow Survey Supervisor
 Statistical Assistant
 Hydrologic Technician

SOIL CONSERVATION SERVICE
 SNOW SURVEY UNIT
 P.O. BOX 17107
 DENVER, COLORADO 80217

TABLE OF ORGANIZATION - PERSONNEL

IRRIGATION DIVISION NO. 4

Division Engineer - Ralph V. Kelling

Assistant Division Engineer - Thomas A. Kelly

Secretary - Jean Duncan

Hydrographer - Charles G. David

Water District 28

WATER COMMISSIONER B
John S. Garber

Water District 40

PRIN. WATER COMMISSIONER
Richard L. Drexel*

Water District 41

WATER COMMISSIONER B
Crandall Howard

WATER COMMISSIONER C
Robert H. Starr*

WATER COMMISSIONER B
James E. Carr

Water District 42

WATER COMMISSIONER C
Richard Belden*

Mack Gorrod
John McHugh
James Miller
Stephen Tuck
Charley Woolley

Water District 59

WATER COMMISSIONER B
Edwin S. Hofmann*

WATER COMMISSIONER B
Lester Whiting

WATER COMMISSIONER A
Willard Bull
Lloyd Connell
James T. Hanrahan
Logan Gregg Scott
Charles E. Stein
Wayne Wiseman
David Woolley

WATER COMMISSIONER B
Robert Drexel

Water District 60

WATER COMMISSIONER C
Lyman D. Campbell

Water District 61

WATER COMMISSIONER B
Clinton L. Oliver

Water District 62

WATER COMMISSIONER B
Edwin S. Hofmann*

Water District 63

WATER COMMISSIONER C
Richard Belden*

Water District 68

WATER COMMISSIONER B
H. Roger Noble*

Water District 73

WATER COMMISSIONER C
Richard Belden*

WELL COMMISSIONER
Dwayne Mansker*

*Annual

AREAS OF RESPONSIBILITY OF WATER COMMISSIONERS

IRRIGATION DIVISION NO. 4

WELL COMMISSIONER

Dwayne Mansker - Division Wide

WATER DISTRICT 28

John S. Garber (WCB) - Tomichi and Cochetopa Creek

WATER DISTRICT 40

Richard Drexel (SRWC) - Overall administration and supervision of Water District 40

Robert H. Starr (WCC) - North Fork of the Gunnison River and Smith Fork

WATER COMMISSIONERS A:

Willard Bull - Upper Surface Creek

James Carr (WCB) - Leroux Creek

Lloyd Connell - Minnesota Creek and Stewart Mesa

Mack Gorrod (WCB) - Ward, Kiser and Youngs Creek Reservoirs

Charles E. Stein - Gunnison River and Escalante Creek

Jack McHugh (WCB) - Youngs, Kiser and Ward Creeks

James Miller (WCB) - Muddy, Anthracite and Hubbard Creeks

Logan Gregg Scott - Park Basin

James T. Hanrahan - Leon Reservoirs

Stephen Tuck (WCB) - Forked Tongue

Wayne Wiseman - Granby and Battlement Reservoirs

Charley Woolley (WCB) - Lower Surface Creek

David Woolley - Dry Creek and Alfalfa Run

AREAS OF RESPONSIBILITY OF WATER COMMISSIONERS (cont'd)

WATER DISTRICT 41

Crandall Howard
(WCB)

- Uncompahgre River from Colona to Delta

WATER DISTRICT 42

Richard Belden
(WCC)

- Gunnison River below Mesa County line and its tributaries

Lester Whiting
(WCB)

- Same area

WATER DISTRICT 59

Robert Drexel
(WCB)

- Gunnison River above Gunnison and tributaries on north side of the Gunnison River from Gunnison to Mesa Creek

WATER DISTRICT 60

Lyman Campbell
(WCE)

- San Miguel River

WATER DISTRICT 61

Clinton Oliver
(WCB)

- Dolores River below the San Miguel County line to confluence with San Miguel River (Paradox Valley)

WATER DISTRICT 62

E. S. Hofmann
(WCB)

- Cimarron River, Lake Fork of Gunnison and Cebolla Creek

WATER DISTRICT 63

Richard Belden
(WCC)

- Dolores River below confluence of San Miguel River

WATER DISTRICT 68

H. Roger Noble
(WCB)

- Uncompahgre River above Colona

WATER DISTRICT 73

Richard Belden
(WCC)

- Little Dolores River

HYDROMETEOROLOGICAL DATA - BLUE MESA RESERVOIR (From U.S. Bureau of Reclamation, CRSP Power Operations, Monthly Reports)

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<u>1978</u>												
Precip. (In.)	1.42	.89	.42	.40	.55	.40	.50	.35	.27	.94	.80	.80
Avg. Max. Temp.	26.00	28.00	42.00	58.00	65.00	79.00	85.00	83.00	75.00	63.00	48.00	48.00
Avg. Min. Temp.	3.00	1.00	23.00	28.00	34.00	39.00	47.00	45.00	39.00	26.00	22.00	22.00
Total Mo. Precip.	1.42 In.	2.31	2.73	3.13	3.68	4.09	4.59	4.94	5.21	6.15	6.95	7.75
Total Mo. Dischg.	136,177 A.F.	157,337	181,311	220,191	246,319	280,259	364,289	445,749	529,129	595,774	644,629	693,484
<u>1979</u>												
Precip. (In.)	1.65	1.65	.66	.53	0.00	.24	.48	.30	.87	.01	0.48	.13
Avg. Max. Temp.	19.00	19.00	23.00	36.00	55.00	67.00	78.00	84.00	80.00	79.00	35.00	31.00
Avg. Min. Temp.	-3.00	-3.00	-4.00	11.00	23.00	35.00	39.00	47.00	47.00	39.00	13.00	3.00
Total Mo. Precip.	1.65 In.	3.30	3.96	4.49	4.49	4.73	5.21	5.51	6.38	6.39	6.87	.13
Total Mo. Dischg.	92,470 A.F.	92,470	116,510	144,752	131,010	79,200	45,140	112,510	109,670	108,360	45,390	99,960
<u>1980</u>												
Precip. (In.)	.13	1.61	1.61	0.58	.71	.55	.03	.45	.29	.20	.56	
Avg. Max. Temp.	31.00	33.00	33.00	36.00	54.00	64.00	81.00	86.00	82.00	65.00	50.00	
Avg. Min. Temp.	3.00	4.00	4.00	9.00	20.00	32.00	40.00	49.00	48.00	34.00	18.00	
Total Mo. Precip.	1.18 In.	2.79	3.37	4.08	4.63	4.66	5.06	5.35	5.55	5.65	6.21	
Total Mo. Dischg.	99,960 A.F.	90,380	90,380	109,890	99,640	128,200	109,440	112,140	103,550	79,815	95,456	