ANNUAL REPORT

1981 - Water Year

Irrigation Division No. 4

January 26, 1982

Mr. Jeris A. Danielson, P. E.
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 1981.

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

TABLE OF CONTENTS

1981 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 80,000 people. The Gunnison River basin encompasses the largest portion of Division Four with a drainage area of approximately 7,600 square miles. The San Miguel River basin is the second largest with a drainage area of approximately 1,600 square miles. Several other small drainage basins make up the additional 1,800 square miles. A total of approximately 11,000 square miles (7,040,000 acres) of area make up Division Four. In 1981 406,136 acres were irrigated within the division and agricultural crop patterns are similar to the 1980 season.

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 near average precipitation occurred in 1981. Much of this precipitation came in the form of frequent summer rains. The winter snow season was considerably below average; however, summer moisture made up for the limited winter snow-pack. Fall and early winter storms were near average, but below normal precipitation fell throughout the remainder of the winter snow season. The report year January, 1981 through December, 1981 recorded total precipitation for Montrose at 9.05 inches which is -.25 inches below normal.

The irrigation water supply for 1981 was such that average or better growing conditions occurred and the summer rains and mountain storage reservoirs contributed greatly to this condition. Snow conditions during the latter part of 1981 are below average and much above average snow is needed to insure a good irrigation season for 1982. Reservoir storage is also considerably below average and this may have serious consequences during the 1982 season.

In 1981, agriculture, stock production and tourism were the main areas of Division Four's economy. Lumber production continues at a reduced scale because of the curtailment of building throughout western Colorado and most of the western United States. Some expensive resort housing is being built, especially in the Crested Butte and Telluride ski areas.

Uranium mining is at a standstill in western Division Four. The large open-pit uranium mine being developed by the Kotter Corporation has closed their operations indefinitely. The AMAX Company has curtailed their developments at the Crested Butte area and the Homestake Mining Company is operating under a skeleton force near the Monarch Pass area. Union Carbide Corporation closed their Uravan plant for several months and has just recently opened on a much reduced scale with rumors of an additional closing by spring of 1982, and perhaps a complete close-down of their Uravan facilities. The economy in the West End of Division Four is an almost depression status with competition for employment very active among the many unemployed.

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 continues to play a large roll in Division Four's economy and 1981 was a bumper year in all aspects of this industry. The summer tourist business was better than previous years and the high cost of gasoline and lodging did not seem to curtail visitors from all over the United States. Last year's skiing season could be characterized as poor. Early snows promised good skiing conditions, but ultimately the snow melted and during the majority of the ski season, marginal conditions existed in the major ski areas. The following activities continue to effect 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. The United States Bureau of Reclamation activities remain a part of Division Four's economy. This includes the Wayne N. Aspinall Storage Unit of the Colorado Storage Project and the construction of the Dallas Dam. The first phase of the Dallas project is complete and funding has been indicated for the second phase which involves the main embankment of the structure;

5. Division population growth involves expansion of all services;

6. The ski area development at Crested Butte and Telluride continues to grow;

7. Mineral resource development in Division Four including oil and gas exploration work continues to hold its own or increase somewhat and all other aspects of mineral resources is at a standstill.

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 over 1,000 people (several hundred of these employees are working in the Craig-Hayden area); 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 employees 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 Wayne N. Aspinall Storage Unit reservoirs of the Colorado Storage Project used approximately 2,700,409 acre feet of water in production of electric power in 1981. The hydropower plants of the three reservoirs have a combined capacity of 208,000 kilowatts. These plants are Blue Mesa, Morrow Point and Crystal. The Wayne N. Aspinall Storage 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 Wayne N. Aspinall Storage Unit are part of the Bureau of Reclamation's projects. Additional Bureau of Reclamation 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 approximately 50 per cent complete. The first phase of the two-phase main dam construction program is finished and they are now waiting for funding and bids for the second phase of this project. Some concern has been expressed by local

water users as to the change in government policy concerning major reclamation projects. At the writing of this report, money has been appropriated but funding is not complete concerning the second phase of the Dallas Project.

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 3,054,874 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

County	Private	Federal	State	County & Municipal
Delta	759,729	863,995	3,800	2,655
Montrose	508,879	1,241,684	170,345	2,808
Mesa	554,150	1,561,735	414	4,021
Ouray	154,453	167,485	3,337	125
San Miguel	330,399	474,882	16,479	600
Gunnison	420,103	1,637,026	13,388	1,200
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 1981 personnel actions in Division Four did not involve any changes. All of the staff that began the irrigation season completed their assigned responsibilities and three Water Commissioners in Division Four were promoted to higher grade commission jobs.

In this annual report it is important to recognize the outstanding staff of Division Four. 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 1981. This list also includes a breakdown of each individual position, responsible district, months actually worked and months budgeted, plus the total mileage driven.

Division Four is pleased to report at this writing, the promotion of Mr. Richard Belden and Robert Starr from Water Commissioner C to Senior Water Commissioner. Mr. Belden is responsible for Water Districts 42, 63 and 73, and within his areas of responsibility oversees one deputy and the major water supplies of the City of Grand Junction and all the various administration of the other various water responsibilities in a diverse area with a very limited water supply. Mr. Starr is responsible for the administration in the eastern part of Water District 40. His responsibilities include the supervision of three Water Commissioners and the oversite of many reservoirs with complex water exchanges and augmentation plans.

PERSONNEL

Name	Position	District	Months Worked/ Budgeted		Mileage
			Budgeted	Worked	
Richard L. Belden	WCC	42, 63, 73	Annual		15,874
Willard N. Bull	WCA	40	6½ mos.	7 mos.	5,434
Lyman D. Campbell	WCC	60	11 mos.	11 mos.	9,659
James E. Carr	WCA	40	7 mos.	7 mos.	7,124
Lloyd E. Connell	WCA	40	6 mos.	6½ mos.	6,420
Charles G. David	Hydro	Staff	Annual		16,842
Richard L. Drexel	SRWC	40	Annual		7,269
Robert E. Drexel	WCB	59	6½ mos.	7 mos.	6,995
L. Jean Duncan	SS	Staff	Annual		--
John S. Garber	WCB	28	7½ mos.	7½ mos.	9,762
Mack A. Gorrod	WCB	40	7 mos.	7 mos.	4,273
James T. Hanrahan	WCA	40	6 mos.	6½ mos.	2,978
Edwin S. Hofmann	WCB	59,62	Annual		6,875
C. Crandall Howard	WCB	41	10 mos.	11½ mos.	10,055
Ralph V. Kelling	SWRE	Staff	Annual		3,912
Thomas A. Kelly	SRWRE	Staff	Annual		10,273
Dwayne C. Mansker	WCC	1042	Annual		5,280
John L. McHugh	WCB	40	7 mos.	7¼ mos.	6,469
James A. Miller	WCA	40	6½ mos.	6¼ mos.	7,661
H. Roger Noble	WCB	68	Annual		5,819
Clinton L. Oliver	WCB	61	7½ mos.	8½ mos.	6,692
Logan Gregg Scott	WCA	40	6 mos.	6¼ mos.	3,260

PERSONNEL

Name	Position	District	Months Worked/ Budgeted Budgeted	Worked	Mileage
Robert H. Starr	WCC	40	Annual		15,663 (State Vehicle) 1,972
Charles E. Stein	WCA	40	6 mos.	6¼ mos.	5,288
Stephen Tuck	WCB	40	7 mos.	7¼ mos.	6,131
Lester E. Whiting	WCB	42	7½ mos.	7¼ mos.	8,105
Wayne Wiseman	WCA	40	6 mos.	6½ mos.	3,500
Charley Woolley	WCB	40	7 mos.	7 mos.	6,969
David E. Woolley	WCA	40	7 mos.	6½ mos.	7,820
TOTAL					181,869

State Vehicle Mileage (#5457) 11,373

State Vehicle - Hydro Truck (#5764) 16,842

State Vehicle - WD-40 (#6193) 15,663

This report is for the period January 1, 1981 through December 31, 1980.

WATER COMMISSIONERS' ANNUAL MILEAGE REVIEW

Year	Total Annual Mileage
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
1981	169,684

III. WATER SUPPLY

A. Snow-Pack

Water supply forecasts for the Gunnison and San Miguel watersheds were reported to be much below average. As of May first, the Gunnison River basin contained only 26 per cent of average snow-pack. Precipitation for the entire season was at less than 75 per cent of average. Some reservoir storage, was near average at the beginning of the irrigation season; however, this is a misleading indicator because the runoff and water supply to fill the various reservoirs was much below average for the season, and peak storage was below long term levels. High water was not expected nor did occur in any location during the runoff season. Snow-pack at the major ski areas in Division Four was greatly below average and the ski industry had a marginal season with many cancellations.

There were no weather modification programs or activities during the 1980-81 winter snow season. This was due to 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 indicated below-average snow-packs for the 1980-81 snow season. Copies of the May, 1981 Snow Survey are found at the end of this report.

*SUMMARY OF SNOW MEASUREMENT - May 1, 1981

Basin or Watershed	Number of Courses Averaged	This year's snow water as per cent of: Last Year	Average
Gunnison	14	14	26
Surface Creek	3	30	47
Uncompahgre	3	33	43

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

Forecast Point	Forecast	% of Avg.	1963-77 Average
Gunnison River inflow to Blue Mesa	345	46	754
Gunnison River near Grand Junction	380	33	1150
Surface Creek near Cedaredge	10	66	15.2
Uncompahgre River at Colona	65	50	129
North Fork of the Gunnison	135	52	262

Soil Moisture - May 1, 1981

Rated as poor-fair.

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

B. Precipitation - Summer

The 1981 irrigation season began with much below average precipitation throughout all of Division 4. The mountain snow ranges experienced as little as 60 per cent of average and the lowlands in Division 4 recorded near record low precipitation. During the summer months, there were many summer rains throughout the entire division. The majority of summer water useage came from rains and reservoir storage supplies. Because of the limited snow runoff and the abnormal dry spring, more than average reservoir storage was used throughout the summer to grow and mature various agricultural crops. Storage carry-over for Division 4 for 1982 is below average and in most all locations, the generally wet fall allowed fair conditions for crop harvesting. The numerous hay harvestings were long and drawn out with some deteriation of the quality of the hay crop. The 1981-82 winter season has begun with some limited snow storms and it is anticipated that average or better precipitation is needed for the remainder of the 1982 snow season for a favorable water supply outlook. There was no hail suppression work activities in Division 4 during the 1981 season.

*CLIMATOLOGICAL DATA 1980-81

County	Avg. Annual Temp., F°	Departure	Total Precipitation, In.	Departure
Delta	52.4	1.8	8.89	1.00
Mesa	54.6	-	10.14	1.75
Montrose	50.9	1.8	9.17	- .50
Ouray	45.0	-	18.17	1.99
San Miguel	42.2	2.4	22.97	- .44
Gunnison	39.0	1.3	7.15	-4.09
Hinsdale	40.6	-	15.16	-
Saguache	43.5	.4	7.62	- .87

*Climatological Data Annual Summary - 198

C. Floods

Flows in all areas of Division 4 were expected to be normal or less and no flooding was anticipated throughout the Division. Several locations experienced local flooding conditions during late summer thunder storms. Most of the damage occurring in Ouray, Colorado was due to almost a week of steady rain with intense afternoon downpours. The damage to Ouray consisted of the filling of their major drainage flumes and the washing out of seven street bridges in town. Three weeks of work by the city maintenance crews were necessary to restore the drainage flumes to useful conditions. The other area of localized flooding occurred in the Kannah Creek and Whitewater area near Grand Junction in the northern section of Division 4 in Water District 42. Flash floods occurred on July 11

flooding West Creek and washing rocks and mud across the highway in a number of locations. Several headgates were washed out and ditches were filled during this high water. At the same time, heavy rains fell on the Kannah Creek drainage area with high flows causing some damage to county roads, adjacent ditches and one small campground area. Tents and camp supplies were washed away. Fortunately no one was injured. Estimated flows on tributaries in Kannah Creek were as high as 1,800 c.f.s. A similar storm pattern crossed the same area six days later causing damage much like the earlier flood damage of July 11.

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

Stream	Amount cfs	Date	Amount cfs	Date
Anthracite Ck. nr Somerset	1,940	6/11/80	1,090	5/3/81
N.F. Gunnison R. nr Somerset	4,700	5/23/80	2,110	5/3/81
Gunnison R. nr Gunnison	5,000	5/24/80	1,680	6/8/81
Gunnison R. at Delta	4,980	6/11/80	3,260	5/3/81
Gunnison R. nr Grd. Jct.	14,600	5/23/80	4,140	5/4/81
Uncompahgre R. at Colona	1,270	6/12/80	1,140	6/11/81
San Miguel R. at Naturita	3,220	4/23/80	1,130	6/10/81

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 2,213,581 acre feet with approximately 1,474 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.

All available Division Four full-time water officials are now involved in an irrigation-acreage mapping program to begin to develop the necessary data so that a meaningful water budget and consumptive use study can be calculated. It is anticipated that this mapping and preliminary work will take several winter seasons, but at this point the Division Four office is very optimistic about the progress and potential of this study. Seven Water Commissioners are working on this project and Chuck David, Division Hydrographer is overseeing the day-by-day details of this work.

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, break down as follows:

*Type of Wells	Number of Wells	GPM	CFS
0 - Household Only	318	4,770	10.60
1 - Domestic	2,638	27,667	59.24
2 - Livestock	140	2,100	4.66
3 - Domestic & Stock	158	2,370	5.25
4 - Commercial	125	3,994	8.87
5 - Industrial	16	650	1.44
6 - Irrigation	85	21,600	48.00
7 - Stock & Irrigation	7	1,215	2.70
8 - Municipal	33	990	2.20
9 - Other	10	195	.73

Total Registered Wells 3,530

*Tabulated print-out of December 31, 1981

F. Transmountain and Transbasin Diversions - 1979

Transmountain Diversions:

Name	Source	Recipient and/ or Claimant	Amount A.F.
Red Mountain Ditch	Mineral Creek	Ouray Ditch Co. Montrose, Colorado	No Diversion Structure Not Usable
Carbon Lake Ditch	Mineral Creek	Pinon Ditch Co. Colona, Colorado	414.
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.	25.
Tabor	Tr. Cebolla Cr.	Colo. Div. of Wildlife Monte Vista, Colorado	667.
Tarbell	Cochetopa	Cochetopa Land & Wtr.Co Saguache, Colorado	286.
Divide Cr. Highline Feeder Ditch	Clear Fk. Muddy Cr.	F. M. Starbuck, Mgr. Silt, Colorado	1,448.
Leon Lake	Leon Creek	Sam Oaks Eckert, Colorado	1,060.

Transbasin Diversions:

Leopard Cr. Ditch	Leopard Creek	Harry McClure (irr.) Ridgway, Colorado	1,100.
N. Fk. of Paxton D.	Cottonwood and Horsefly Creeks	William Hofmann Montrose, Colorado	No Diversion
Cimarron Feeder of the Garnet Ditch	W. Fk. of Cimarron	Unc. Valley Water Users Association Montrose, Colorado	3,310.
Gunnison Tunnel	Gunnison River	Montrose, Colorado	345,934.

Transbasin Diversions - continued

Name	Source	Recipient and/ or Claimant	Amount A.F.
Head & Ferrier	Currecanti Creek	H. Head & Ferrier	184.
Lake Brennan	Anthracite, a/k/a Lake Irwin	Town of Crested Butte, Colorado	168.
Meek Tunnel	Crystal Creek	Carton Meek Maher, Colorado	575.
Mesa Creek Ditch	Mesa Creek	Carton Meek Maher, Colorado	132.

G. Annual Diversion and Storage Records

The 1981 season completed the seventh year in which Division Four participated in the Computer Data Bank program in recording and summarizing annual diversion records. At this time, the 1975-80 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 1981 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 1981 annual report and diversion records.

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 Irrigation Division Four contained average carry-over storage for the beginning of 1980-81 storage season (November 1, 1980). Blue Mesa Reservoir of the Bureau of Reclamation Wayne N. Aspinall Storage Project released heavy discharges during most of the winter season. These releases were curtailed somewhat when the U. S. Bureau of Reclamation determined winter snow would not be sufficient to fill or even partly fill these reservoirs. Blue Mesa Reservoir began its filling season with the storage level of approximately 380,690 acre feet. Storage in 1981 for Blue Mesa was 55,890 acre feet and on November 1, 1981 the storage level was down to 356,990 acre feet. Power demands during the winter months will create great stress upon the stored water in the Blue Mesa Reservoir.

Because of light snow-pack throughout Division Four, almost all reservoirs in the division were only able to partially store their maximum storage right. Senior calls went on the various drainage systems early and in many instances only the most senior storage rights were filled. Almost all available reservoir water was used by early fall; however, with the regular and heavy rains, a number of reservoirs were able to begin storage by mid fall and have gone into the winter with a moderate storage level. Very few reservoirs experienced spilling conditions during the 1981 irrigation season.

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 1981. It is important to point out that in order to have accurate data for the 1981 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:

Water District	Name of Reservoir	Amt.,A.F. 11-1-80	Amt.,A.F. Start of Irr.Season	Amt.,A.F. 10-31-81
28	Hot Springs Reservoir	131.90	603.00	119.80
28	McDonough Reservoir #1	547.40	805.20	654.80
28	McDonough Reservoir #2	545.30	486.00	201.80
28	Needle Creek Reservoir	387.70	579.90	340.00
28	Upper Cochetopa Reservoir	276.46	276.46	243.30
28	Vouga Reservoir	80.00	530.00	.00
40	Alexander Lake Reservoir	85.00	162.00	73.00
40	Arch Slough Reservoir	.00	.00	.00
40	Ault Reservoir	.00	112.00	.00
40	Bailey Reservoir	.00	470.00	168.00
40	Bald Mountain Reservoir	.00	70.00	.00
40	Barren Lake Reservoir	302.00	686.50	152.10
40	Basin #1 Reservoir	.00	.00	.00
40	Basin #2 Reservoir	.00	.00	.00
40	Battlement #1 Reservoir	79.50	79.50	79.50
40	Battlement #2 Reservoir	913.90	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)	84.80	1,351.30	36.70
40	Bonita Reservoir	109.50	217.70	82.00
40	Bottle Stomp Reservoir	.00	17.00	10.00
40	Boulder Lake #1 Reservoir	24.00	22.00	18.80

Division tabulation of storage - continued

Water District	Name of Reservoir	Amt.,A.F. 11-1-80	Amt., A.F. Start of Irr. Season	Amt.,A.F. 10-31-81
40	Brockman #1 Reservoir	.00	16.00	.00
40	Brockman #2 Reservoir	.00	41.00	.00
40	Bruce Park Reservoir	.00	710.00	.00
40	Bull Finch #1 Reservoir	46.70	71.90	2.00
40	Bull Finch #2 Reservoir	.00	9.40	.00
40	Cabin Lake Reservoir	.00	34.60	.00
40	Calumet Reservoir	16.80	16.84	.00
40	Carbonate Camp Reservoir #3	.00	5.00	.00
40	Carbonate Camp Reservoir #6	15.80	112.70	1.70
40	Carbonate Camp Reservoir #7	37.40	103.20	1.70
40	Carl Smith Reservoir	550.00	838.00	776.00
40	Cedar Mesa Reservoir	139.50	792.20	275.80
40	Clark Reservoir	.00	39.00	.00
40	Coalby Horse Park Reservoir	100.00	500.60	182.80
40	Cole #1 Reservoir	.00	13.10	.00
40	Cole #2 Reservoir	.00	35.60	.00
40	Cole #3 Reservoir (Cherry Lane)	.00	22.50	.00
40	Cole #4 Reservoir	.00	36.50	.00
40	Cole #5 Reservoir	.00	116.80	.00
40	Crawford Reservoir	4,254.00	11,818.00	2,506.00
40	Cyphers Reservoir	21.80	21.80	21.80

Division tabulation of storage - continued

Water District	Name of Reservoir	Amt.,A.F. 11-1-80	Amt., A.F. Start of Irr. Season	Amt.,A.F. 10-31-81
40	Daniels Sl. Res. (Reed)	126.20	185.60	54.90
40	Davenport Reservoir	.00	20.00	20.00
40	Deep Slough Reservoir	56.00	380.20	199.70
40	Deep Ward Reservoir	795.00	1,102.00	259.40
40	Delta City #1 Reservoir	14.00	14.00	14.00
40	Delta Control Reservoir	34.00	34.00	24.00
40	Deserted Park Reservoir	.00	19.90	.00
40	Dog Fish Lake Reservoir	.00	243.00	.00
40	Don Meek #1 Reservoir	.00	42.00	.00
40	Donnelly Slough Reservoir	178.90	276.90	131.80
40	Doughty #1 Res. (Chipmunk)	50.10	50.20	.00
40	Doughty #2 Res. (Sliderock)	.00	14.10	.00
40	Dowdy Reservoir	.00	264.00	.00
40	Dreyfus Reservoir	.00	44.20	.00
40	Dugger Reservoir	.00	147.00	.00
40	East Beckwith #1 Reservoir	.00	336.00	.00
40	Eggleston Lake Reservoir	1,393.00	2,054.00	622.50
40	Elk Park Reservoir	38.40	96.80	96.80
40	Elk Wallows Reservoir	.00	135.00	168.00
40	Ella Reservoir	.00	109.00	.00
40	Ellington & Cook Reservoir	.00	25.00	.00
40	Eureka Reservoir #2	.00	53.40	.00

Division tabulation of storage - continued

Water District	Name of Reservoir	Amt.,A.F. 11-1-80	Amt., A.F. Start of Irr. Season	Amt.,A.F. 10-31-81
40	Fairmont Reservoir	.00	78.00	.00
40	Fairmount Park Reservoir	.00	30.00	.00
40	Fish Lake Reservoir	.00	75.80	.00
40	Fisher Reservoir	.00	10.00	.00
40	Forrest Res. (Finney)	.00	33.00	.00
40	Fruitgrowers Res.	2,164.40	4,312.40	1,249.80
40	G & M Volk Fish Pond #1	5.90	5.90	5.90
40	Goodenough Reservoir (Kiser)	63.90	148.80	73.90
40	Goodenough #2 Res. (Leroux)	80.00	405.00	116.00
40	Granby #6 Reservoir	.00	45.90	.00
40	Granby #7 Reservoir	30.00	76.10	51.20
40	Granby #8 Reservoir	6.70	13.10	.00
40	Granby #9 Reservoir	36.20	23.30	.00
40	Granby #11 Reservoir	162.40	495.00	39.20
40	Granby #12 Reservoir	360.80	432.70	212.00
40	Gray Reservoir	.00	423.00	24.00
40	Green Mountain Dam Reservoir	9.00	9.00	9.00
40	Greenwood Reservoir	17.00	48.90	39.40
40	Gregg #1 Reservoir	.00	5.00	.00
40	Gregg #2 Reservoir	.00	45.00	.00
40	Hale Reservoir	.00	7.30	.00
40	Hanson #2 Reservoir	.00	225.00	.00
40	Holly Terror Reservoir	.00	146.00	.00
40	Hotel Lake Reservoir	301.50	507.30	177.40

Division tabulation of storage - continued

Water District	Name of Reservoir	Amt.,A.F. 11-1-80	Amt., A.F. Start of Irr. Season	Amt.,A.F. 10-31-81
40	Howard Lake Reservoir	55.50	51.90	4.60
40	Hunt Reservoir	124.00	124.00	.00
40	Island Lake Reservoir	498.10	1,303.80	380.70
40	Kehmeier Reservoir	154.80	319.50	51.22
40	Kiser Slough Reservoir	69.20	321.60	24.70
40	Knox Reservoir	57.30	153.90	88.50
40	Kennicott Slough Reservoir	262.30	223.00	10.90
40	Lake Brennard Reservoir	367.00	367.00	367.00
40	Leon Lake Reservoir	1,011.80	1,543.50	758.40
40	Leon Park Reservoir	43.50	68.30	.00
40	Lilly Pad Res. (Young Cr.)	.00	22.20	.00
40	Little Gem Reservoir	62.40	185.00	104.80
40	Little Giant #1 Reservoir	29.50	29.80	.00
40	Little Giant #2 Reservoir	.00	.90	.00
40	Little Grouse Reservoir	2.40	52.50	23.50
40	Lone Cabin Reservoir	.00	102.00	.00
40	Lucky Find Reservoir	.00	66.00	.00
40	Marcott Park Reservoir	.00	348.50	.00
40	McKoon Reservoir (Blanchard)	75.10	89.40	1.95
40	Meek Reservoir	.00	29.00	.00
40	Military Reservoir	50.00	236.60	48.80

Division tabulation of storage - continued

Water District	Name of Reservoir	Amt.,A.F. 11-1-80	Amt., A.F. Start of Irr. Season	Amt.,A.F. 10-31-81
40	Miller Reservoir	.00	20.00	.00
40	Monument Reservoir	.00	296.00	.00
40	Morris #2 Reservoir	16.00	16.00	16.00
40	New Pond Reservoir	.00	2.20	.00
40	Onion Valley Reservoir	192.40	3,841.00	.00
40	Overland #1 Reservoir	.00	4,150.00	.00
40	Owens Reservoir	.00	92.00	.00
40	Paonia Reservoir	1,655.00	18,431.00	2,037.00
40	Park Reservoir	1,015.80	2,578.70	413.50
40	Patterson #1 Reservoir	.00	78.00	.00
40	Patterson #2 Reservoir	.00	151.00	.00
40	P.C. & G. #1 Res. (Muskrat)	.00	14.23	.00
40	Pedro Reservoir	112.10	174.90	88.50
40	Pine Reservoir	.00	.00	.00
40	Pine Cone Reservoir	.00	22.00	.00
40	Pitcarin Reservoir	.00	80.00	.00
40	Poison Springs Reservoir	80.00	80.00	50.00
40	Porter #1 Reservoir	121.50	201.00	133.10
40	Porter #4 Reservoir	38.00	38.00	38.00
40	Prebble Reservoir	69.60	185.00	41.50
40	Rex Reservoir	.00	24.00	.00
40	Reynolds Res. (Columbine)	.00	176.00	.00

Division tabulation of storage - continued

Water District	Name of Reservoir	Amt.,A.F. 11-1-80	Amt., A.F. Start of Irr. Season	Amt.,A.F. 10-31-81
40	Reynolds Res. (Reynolds Cr.)	.00	100.00	.00
40	Rim Rock Lake Reservoir	30.50	107.00	64.00
40	Rockland Reservoir	10.30	21.00	.90
40	Rockwell Reservoir	.00	50.00	.00
40	Roeber #2 Reservoir	.00	45.00	.00
40	Round Lake Reservoir	.00	10.00	.00
40	Ryan Reservoir	.00	45.00	11.20
40	Sackett Reservoir	41.20	108.00	52.10
40	Safety #1 & #2 Reservoir	.00	15.00	.00
40	Scotland Peak Reservoir	.00	34.30	.00
40	Sheep Lake Reservoir	88.00	153.00	88.00
40	Skim Milk Reservoir	.00	63.00	.00
40	Spatofore Reservoir	.00	.00	.00
40	Stell Reservoir	48.50	47.10	.00
40	Todd Reservoir	.00	90.00	.00
40	Tomahawk Reservoir	.00	53.00	.00
40	Trickle Reservoir	.00	32.70	27.10
40	Trio Reservoir	80.30	164.30	79.30
40	Twin Lake Reservoir #1	.00	44.70	.00
40	Twin Lake Reservoir #2	.00	58.30	.00
40	Tyler Reservoir	.00	169.00	.00

Division tabulation of storage - continued

Water District	Name of Reservoir	Amt.,A.F. 11-1-80	Amt., A.F. Start of Irr. Season	Amt.,A.F. 10-31-81
40	Upper Hotel Lake Reservoir	55.00	98.00	.00
40	Van Den Berg #1 Reservoir	5.60	5.60	5.60
40	Vela Reservoir	177.00	437.00	225.00
40	Ward Creek Reservoir	26.30	284.40	94.70
40	Wash Tub Reservoir	.00	25.00	.00
40	Water Bug Reservoir	.00	78.00	.00
40	Weir & Johnson #2 Reservoir	336.00	497.00	269.60
40	Weir Park Reservoir	.00	40.70	.00
40	West #1 Reservoir	.00	216.00	.00
40	Williams Creek Reservoir	.00	87.00	34.00
40	Willow Reservoir	.00	77.00	.00
40	Womack #1 Reservoir	.00	163.00	25.20
40	Womack #2 Reservoir & #3	.00	156.30	28.60
40	Womack #5 Reservoir	.00	16.00	.00
40	Young Creek Reservoir #1 & #2	295.60	405.90	162.20
40	Young Creek Reservoir #3	111.50	193.00	101.20
40	Y & S Reservoir	85.30	138.50	54.30
41	Buckhorn Reservoir	92.00	140.00	122.00
41	Fairview Reservoir	241.00	400.00	149.00
41	Garnet Mesa (Sweitzer)	1,332.00	1,332.00	1,332.00
41	Wenger #1 Reservoir	.00	.00	.00

Division tabulation of storage - continued

Water District	Name of Reservoir	Amt.,A.F. 11-1-80	Amt., A.F. Start of Irr. Season	Amt.,A.F. 10-31-81
42	Anderson #1 Reservoir	280.00	466.00	285.00
42	Anderson #2 Reservoir	480.00	568.00	330.00
42	Anderson #6 Reservoir	.00	75.00	.00
42	Bolen Reservoir	.00	473.00	218.00
42	Bolen Anderson Reservoir	.00	293.00	96.00
42	Carson Reservoir	637.00	637.00	637.00
42	Deep Creek Reservoir #2	.00	350.00	.00
42	Dry Creek Res. (Chambers Res.)	.00	232.00	.00
42	Flowing Park Reservoir	10.00	460.00	50.00
42	Fruita Reservoir #1	65.00	80.00	30.00
42	Fruita Reservoir #2	.00	.00	.00
42	Fruita Reservoir #3	NO RECORD	NO RECORD	NO RECORD
42	Grand Mesa #1 Reservoir	50.00	348.00	6.00
42	Grand Mesa #6 Reservoir	.00	230.00	.00
42	Grand Mesa #8 Reservoir	.00	378.00	.00
42	Grand Mesa #9 Reservoir	.00	153.00	.00
42	Hollenbeck #1 Reservoir	410.00	675.00	640.00
42	Hollenbeck #2 Reservoir	.00	481.00	240.00
42	Juniata Reservoir	6,035.00	6,280.00	5,549.00
42	Mirror Lake	180.00	190.00	150.00
42	Scales No. 1	.00	130.00	.00
42	Scales No. 3	.00	101.00	.00
59	Cunningham Reservoir	.00	.00	.00

Division tabulation of storage - continued

Water District	Name of Reservoir	Amt.,A.F. 11-1-80	Amt., A.F. Start of Irr. Season	Amt.,A.F. 10-31-81
59	Ferris Creek Reservoir	.00	.00	.00
59	Kapushion Reservoir	.00	.00	.00
59	Meridian Lake	315.00	400.00	320.00
59	Rainbow Lake	.00	120.00	.00
59	Spring Creek	985.00	1,090.00	675.00
59	Taylor Reservoir	59,180.00	63,700.00	49,510.00
60	Alexander Reservoir	.00	6.00	.00
60	Gurley Reservoir	793.00	8,010.00	2,983.00
60	Lilylands Reservoir	47.19	392.00	54.19
60	Lone Cone Reservoir	5 30.00	1,600.00	760.00
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	487.00	898.00	423.00
60	Trout Lake Reservoir	2,850.00	3,245.00	3,111.00
61	Buckeye Reservoir	700.00	1,000.00	350.00
62	Blue Mesa	698,012.00	555,890.00	356,990.00
62	Cerro Reservoir	675.00	.00	.00
62	Crystal Reservoir	15,850.00	17,561.00	13,995.00
62	Fish Creek #1	100.00	125.00	100.00

Division tabulation of storage - continued

Water District	Name of Reservoir	Amt.,A.F. 11-1-80	Amt., A.F. Start of Irr. Season	Amt.,A.F. 10-31-81
62	Fish Creek #2	150.00	500.00	150.00
62	Lake San Cristobal	9,786.00	9,786.00	9,786.00
62	Morrow Point	114,008.00	115,790.00	113,120.00
62	Silverjack Reservoir	1,260.00	13,600.00	4,370.00
63	Big Creek Reservoir	. . .	NO RECORD	. . .
63	Burg Reservoir	.00	100.00	.00
63	Casement Reservoir	.00	110.00	.00
63	Casto Reservoir	.00	80.00	.00
63	Craig Reservoir	. . .	NO RECORD	. . .
68	Carrol Brown	30.00	30.00	30.00
68	Elephant Reservoir	1.00	10.00	1.00
68	Jacques Reservoir	2.00	45.00	1.00
68	Victor Reservoir	3.00	3.00	1.00

IV. AGRICULTURE

Because of the great diversity of agricultural lands throughout the division, almost every type of farming enterprise is found within Division Four. Various crops range from high mountain hay meadows and range lands to high productive low valley grain farms. Overall crop production for the 1981 season can be estimated to be average or better. The final water supply was adequate and average or better quality crops were grown. The Uncompahgre Project which irrigates approximately 80,000 acres had sufficient water and was able to meet 80 per cent of demand. This project is very often limited in diversion by the capacity of its various canals and laterals. Nearly all reservoirs supplied somewhat less than their historic averages and agricultural areas dependent upon this storage produced near normal production.

The upper Gunnison and Uncompahgre Valley hay producing lands along with the San Miguel Basin hay lands all experienced crop yields considerably better than 1980 and somewhat above the long-term averages for these areas. Hay prices are similar to 1980 and the demand for Division Four hay is down from 1980. Factors contributing to the demand for Division Four hay are reduction of cattle herds in adjacent states, production in dairy herds in southern states, and the excessive stress placed on all cattle ranches because of high interest rates and low market prices. An additional factor contributing to the lack of demand for Division Four hay concerns the much above-average fall range pasture for cattle throughout the southwest Colorado. Small grains grown along the lower Gunnison valley recorded above average yields and other miscellaneous crops such as onions and beans had average production. The experimental lettuce

crop in the Olathe area was not continued this season and initial evaluations did indicate that lettuce will not be a factor in the agricultural economy of Division Four. Prices paid for these various commodities were average and farm income should be somewhat less than last year.

The fruit ranches along the North Fork Valley in the lower Uncompahgre Valley produced average or better crops. Weather conditions as always, had a significant influence on the production of peaches, pears, cherries, apricots and apples. The apple crop produced approximately 70 per cent of normal due to late freezes and wide instances of summer hail. Much of the apple harvest had to be sold to the Skyland Food Processing Plant in Delta for applesauce and cooking apples. Most other fruit harvests were above average with good prices being paid for the various produce. Harvesting labor was not a significant problem during the various harvesting seasons.

Livestock production in Division Four was about the same as last year's level and cattle and sheep prices were considerably less than 1980. 1981 has shown a change in the upswing of good livestock prices and cattle ranchers are still rebuilding their herds, but are not realizing the same profits that they have the past three years. Hog production for 1981 in Division Four is about the same as 1980; however, prices received for pork are down from 1980. High interest rates have had a severe impact on the agricultural community in Division Four and have caused some operations to sell out and other ranchers to curtail enlarging and rebuilding farm herds, equipment and properties. Farm and ranch land in Division Four continues to be sold at premium prices; however, with the high interest rates, farm

real estate activities are greatly depressed from the activities of the mid 1970's. Prices paid for irrigated agricultural land continues to keep up with the rate of inflation and marginal tracts of farm land are still reported being sold for above their economical production value.

More and more, prime agricultural land is being bought and subdivided for expensive large tract home sites. This kind of activity makes it very difficult for the farmer and rancher to compete with the developer in the land market. This appears to be a long-term trend which may eventually involve many thousands of acres of prime agricultural land within Irrigation Division Four.

Presented below is a brief agricultural resume for 1981 by counties:

County	Average Growing Season in Days	Crop Production* Irrigated Land				Livestock**		
		Barley (Bu)	Beans (Lbs)	Corn Silage (T)	Corn Feed (Bu)	Cattle Calves	Stock Sheep	Hogs
Delta	146	80.0	1,770	19.0	116.0	44,000	26,000	5,700
Montrose	153	90.0	1,610	17.0	117.5	60,000	50,000	43,000
Mesa	188	105.0	1,730	18.5	113.0	76,000	42,000	13,000
Ouray	88	80.0	--	--	--	18,000	900	100
San Miguel	85	--	--	--	--	8,000	15,000	--
Gunnison	79	--	--	--	--	41,000	100	100
Hinsdale	65	--	--	--	--	1,100	--	--
Saguache	105	80.5	--	--	--	34,500	11,000	3,000

*1980 Colorado Agriculture Statistics, Published July, 1981; in bu/ac, lbs/ac or T/ac.

**Number of head, 1980

Crop dollar values for 1980 are as follows:

County	Corn, Beans Grain & Silage	Hay*	Other Crops*	All Crops*
Delta	4,148,000	4,380,000	13,399,900	18,574,900
Montrose	10,061,500	5,360,000	9,987,000	22,629,300
Mesa	10,951,000	5,863,000	11,382,000	22,333,000
Ouray	79,500	1,550,000	1,118,000	1,195,500
San Miguel	321,000	462,000	412,000	804,000
Gunnison	78,510	3,578,500	4,408,000	4,486,500
Hinsdale	--	40,500	48,500	1,521,500
Saguache	5,237,000	6,415,000	18,870,700	26,781,700

The above production data has been extracted from the 1981 Colorado Agriculture Statistics - Colorado Department of Agriculture.

*Value of production by Colorado Counties for 1980.

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, Senior Water Commissioner, Water District 40, and we consider this an important addition to Division Four's Annual Report.

The agricultural community as well as municipalities and other entities that depend upon the amount of snow-fall and rain were pleasantly surprised by the water available in the 1981 season. Though the year wasn't as productive as the preceding three, it was much better than expected. The winter snow-pack of 1980-81 was below normal and as spring approached, it appeared a very dry summer was ahead of us, but due to above normal rain during the summer months, it was a fairly good year for agriculture. The reservoirs in the area filled to about 75 per cent of their capacity and were drawn down lower than normal by fall.

Mother Nature again was the determining factor in apple production. Two or three early frosts were damaging to certain areas of apple orchards, some sustaining more damage than others. In the Surface Creek Valley overall production of apples were down 30 per cent while a few orchards claim the best apple crop for many years. Light hail was also responsible for some hail damage to the apples forcing some growers to send their apples to Skyland for applesauce and juice.

October was a very wet month causing the onion farmers to harvest their onions between rains in order not to have them rot in the fields; beans were also hard to harvest because of rains.

Vegetation in the foothills and on the higher elevation was very good this year and cattle came off fat. Predators were a problem as usual in the mountains. In one case a bear was suspected of killing at least five head of cattle. Game and Fish had a trapper hunt with dogs for the bear that was causing the damage.

Prices for all types of livestock are still depressed, not allowing the farmer a fair price for his products. Prices for most row crops look firm at least to start. The area still is considered a potential boom area with the coal fields lying underground; however, progress is slow because of continued soft coal prices. Colorado-Ute Electric Association has proposed a power line that would run through Delta County with the first public hearing being held in October. The usual pros and cons were presented at the meeting. Colorado-Ute also proposes a large reservoir above Austin on the Gunnison River which would impound 72,650 acre feet of water plus a coal-fired electric plant near Delta. Hearings on this phase of their expansion will come later. In District 40 alone, there are conditional decrees of storage rights which if all were built would total 468,561 acre feet of storage, so the growth potential is still here.

Early fall rains in October caused farmers to cut down considerably in their late irrigation allowing some filling of reservoirs before the flow freezes back which will help in the overall storage available next year. In the southern part of District 40 on Escalante Creek, there were numerous heavy rains that caused some flooding. Some farmers had to clean their ditches at least three times during the year because of mud filling them.

Much time is still being spent in the inspection, reporting and discussion of new decrees--some being approved without any problems, while others are protested and hearings before the Referee are held, and some go on to the Judge to be resolved. One case which went to the Supreme Court was returned to the local court for further action. As new people move into the area, and as large farms are broken up into smaller acreages, the administration of the water becomes more time consuming and difficult.

All things considered, 1981 was a good water year.

Special Report from Water District 40

Richard L. Drexel, Supervising Water Commissioner

Robert H. Starr, Senior Water Commissioner

In 1981 we have asked the Division Hydrographer Charles David to submit a brief narrative of his activities in Division Four. This is included in the 1981 report and is felt like it will be a helpful addition to this year's annual report.

The Hydrographer's job in Irrigation Division Four has been in a rather novel situation since its inception as a full-time position in July of 1977. This position has been funded under a contract with the U. S. Geological Surveys Water Resource Division for the operation and maintenance of six stream gaging stations within the division. During 1981, the operation of these six federal gages with the attendant stream measurements and preparation of records for publication was one of my prime responsibilities. Stream measurements were performed twice monthly.

In addition to the federal gages, I operated gaging stations equipped with continuous recorders on several major streams and canals. Stream measurements on these stations were made on a regular basis--normally monthly, except in times of high flows. All but one of these gages are closed during winter. Records, although non-published are worked up for use locally.

Another group of gages that I enjoyed working on were the transmountain and transbasin diversions. I have been involved in measuring and working the records on two transmountain diversions importing water from Division Seven and three transbasin diversions. These gages are located in beautiful and interesting country if the weather doesn't make access impossible. One of the most important aspects of the Hydrographer's job in this division is the making of administrative stream measurements for the Water

Commissioners of the various districts. The results of all measurements at regular stream gaging stations were left in the shelters for use by the Water Commissioners. In addition I have tried to respond to all Commissioner requests for special measurements in a timely manner. Another function performed for the Commissioners is the running of levels on various structures or in the calibration of reservoir gage rods.

During the early spring of 1981, with the shortage of snow-pack in mind, the drought study was re-instituted. After several months, this was restructured as the Water Supply Index Study and set up as a permanent feature. In Division Four this entailed regular (twice monthly) measurements on five (reduced to three) U.S.G.S. gages and preparing a preliminary monthly discharge figure for transmitting to Denver. The streamflow figures were required on a summer basis only while reservoir content figures are submitted year-round. We have received excellent cooperation from the U.S.G.S. W.R.D. personnel in this project.

During 1981, 266 streamflow measurements were made in Division Four. These break down as follows:

127 measurements on gages of published records

30 measurements on gages of non-published records

46 measurements on gages associated with W.S.I.

20 measurements on transmountain and transbasin diversions

70 measurements for administrative requests

While only 60 measurements were made per specific Commissioner requests, approximately 150 of the total measurements were made during the irrigation season at gages or points used for administration.

The character of the Hydrographer's position changed drastically on September 30, 1981. Due to federal cutbacks, the contract for operation of the six gaging stations mentioned was dropped. We assumed operation on two of these gages on our own to assure continuity of record for administrative use and to satisfy requests from water users. The records will be available locally, but will no longer be published. I am looking forward to having more timeavailable to help the Commissioners during the summer months. The dropping of field work during the winter months has created a lot of office time which is being profitably spent in coordinating the efforts of our commissioner staff in the consumptive use study which has just been started in this division.

Special Report from Division Hydrographer

Charles G. David

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 Farry. This year there was no occasion that involved administration of water in Division Four relating to these compacts.

VI. DAMS

Limited snow-pack and less than average carry-over storage levels reduced the overall concern for problem reservoirs in Division Four. There were a few minor incidences reported concerning reservoirs in Water District 40; however, no structure was considered to be critical in terms of the structural integrity and the season passed without any concern. Various dams throughout the Division are involved in special labor and maintenance programs. Formal restrictions remain nearly the same as in 1980 and in most cases, reservoirs did not spill throughout the irrigation season. Major enlargement plans are being made for Buckeye Reservoir in the western part of Water District 61. A review of the plans and specifications are in progress and, hopefully, by the beginning of next irrigation season, the work can begin on this project. Storage in this reservoir will almost double from this repair and enlargement project. Repair work has begun on Cedar Mesa Reservoir in Water District 40 to correct the erosion on the downstream section of the spillway. Many reservoirs in Division Four were inspected by the Denver Dam Inspection Section and letters relative to these inspections have been sent out to the owners involved.

Of the several hundred reservoirs and dams in Division 4, 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 1981 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:

Name	Water District	Date	Restrictions
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	7' below lowest point in crest
Meridian Lake Park	59	6-18-79	Not accepted for storage

Reservoir restrictions continued

Spring Creek	59	1-15-81	Under review; "Assessed unsafe"
Nucla Domestic	60	11-10-81	10' below lowest point in crest with provision storage above level not exceed 2 months
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 1981:

Name	Stream	Height	Cap,A.F.	Permit #
Browning #1	Sec2-45N-14W-NMPM	9.0	1.00	15874
Jessi #1	Sec16-46N-8W-NMPM	8.0	.70	15903
Syrup Jug #2	Sec24-47N-16W-NMPM	12.0	.25	15920
Wolf #2	Sec30-13S-93W-6thPM	10.2	1.25	15936
Snyder #1	Sec25-45N-13W-NMPM	14.0	2.50	15937

Inspections were made of several livestock water tanks during the 1981 season. There were no problems of any consequence concerning stock water tanks for this season.

VII. WATER RIGHTS

A. Tabulation

The Water Rights Tabulation of 1981 was prepared and printed. The Division was ready to distribute the official tabulation when House Bill #1504 was enacted and at that time, most activity was curtailed. All protests that were made to the 1978 Water Rights Tabulation were reviewed, corrections as necessary were made and each protestant was formally advised of the action of the Division Four office relative to the individual protest. It is estimated that perhaps approximately 300 water rights were protested. In many cases an explanation of the tabulation process format was sufficient to satisfy the protest. The tabulation protest also brought out a good many errors and the omission of some significant water rights. All of these corrections have been made and the Division Four office continues to update the tabulation as time and personnel is available. The Division plans to have all water rights decreed in 1981 keypunched and ready to be placed in the tabulation by mid spring of 1982. Corrections to the tabulation are made as the office becomes aware of them.

B. Referee Findings and Decrees

Type of Application	No. Received Jan., 1981 thru Dec., 1981
Underground Water Rights	24
Change of Water Rights	44
Plan for Augmentation	3
Water Rights (Surface)	174
Diligence (Conditional)	39

Referee Findings and Decrees continued

To Make Absolute	29
Water Storage Rights	17
Applications Received in Water Court	318
Structures Filed On	487
*Number of Referee Consultations	All Cases

The Honorable Robert A. Brown continues to serve as Water Judge for Irrigation Division Four. Judge Brown has been involved in numerous "Water Hearings" and in some instances has disqualified himself because of conflict of interest. Judge Donald A. Carpenter and Judge Jerry Lincoln have acted in his behalf in some cases where Judge Brown has felt that he should not participate. Mr. Elra Wilson continues to serve as Water Referee for Irrigation Division Four.

A case in Irrigation Division Four that was ruled on by the Colorado Supreme Court involved a decision by Judge Donald A. Carpenter, retired Water Judge from Division One. The case was returned to Judge Carpenter for revision of the original decree. A copy of the Supreme Court Order is included. Judge Carpenter has scheduled a hearing in 1982 to revise this decree.

*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.

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., % Buster Watson, 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, Cedaredge, Colorado 81413.

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

Coalby Domestic Pipeline, Archie Peterson, President, Cedaredge, Colorado 81413.

Crawford Clipper Ditch Co., % Bill Linman, President, Crawford, Colorado 81415.

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

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

Grand View Canal Irrigation Co., % Don Reed, President, Crawford, Colorado 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., % James R. Briscoe, Paonia, Colorado 81428.

Lone Pine Ditch Co., % Barbara Hood, 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., Bill Briscoe, 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, Colorado 81527.

W.D. 42 - continued

Kannah Creek Water Users Association, % W. D. Bradbury, President, Whitewater, 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., % Wilma Proctor, 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, Colorado 81432

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

Old Agency Homestretch Ditch, % Warren Comerer, Colona, Colorado 81401.

IX. WATER COMMISSIONER'S SUMMARY -

Division 4

Direct flow diversions (A.F.)	2,213,581
Flow diverted to reservoir storage (A.F.) .	149,292
Amount delivered from storage	2,766,145
Acres Irrigated	406,136
Number of ditches	2,652
Standard administration	2,067
Semi-standard administration	610
Number of daily ditch reports	40,063
Number of reservoirs served	226
Power diversions (A.F.)	3,753,048

District 28

Direct flow diversions (A.F.)	126,203
Flow diverted to reservoir storage (A.F.) .	1,260
Amount delivered from storage	1,772
Acres irrigated	34,057
Number of ditches	258
Standard administration	237
Semi-standard administration	21
Number of daily ditch reports	2,098
Number of reservoirs served	6
Average demand (flow & reservoir) AF/AC ...	3.76
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.)	387,990
Flow diverted to reservoir storage (A.F.)..	51,467
Amount delivered from storage (A.F.)	61,904
Municipal and other	5,942
Acres irrigated	139,769
Number of ditches	806
Standard administration	733
Semi-standard administration	73
Number of daily ditch reports	25,130
Number of reservoirs served	164
Average demand (flow & reservoir) AF/AC ...	2.95
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.)	514,218
Flow diverted to reservoir storage (A.F.) .	9
Amount delivered from storage (A.F.)	18
Acres irrigated	88,646
Number of ditches	79
Standard administration	75
Semi-standard administration	4
Number of daily ditch reports	1,576
Number of reservoirs served	4
Average demand (flow & reservoir) AF/AC ...	5.59
Power diversions (A.F.)	12,204

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

*4,584 A.F. diverted from WD-62 to municipal and domestic use, and total 345,934 A.F. diverted from WD-62 for irrigation and municipal use 28,366 from Taylor Park Reservoir.

District 42

*Direct flow diversions (A.F.)	536,151
Flow diverted to reservoir storage (A.F.)	5,524
Amount delivered from storage	2,390
Acres irrigated	10,852
Number of ditches	58
Standard administration	41
Semi-standard administration	17
Number of daily ditch reports	3,904
Number of reservoirs served	19
Average demand (flow & reservoir) AF/AC	4.07
Power diversions	489,036

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

*Redland Power Canal includes water diverted from Irrigation Division 4 used in Division 5.

District 59

Direct flow diversions (A.F.)	253,638
Flow diverted to reservoir storage (A.F.)	18,010
* Amount delivered from storage	28,360
Acres irrigated	35,220
Number of ditches	262
Standard administration	180
Semi-standard administration	82
Number of daily ditch reports	1,632
Number of reservoirs served	6
Average demand (flow & reservoir) AF/AC	7.91
Power diversions	0

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

*From Taylor Park Reservoir

District 60

Direct flow diversions (A.F.)	127,893
Flow diverted to reservoir storage (A.F.) .	19,068
Amount delivered from storage	21,838
Acres irrigated	29,070
Number of ditches	342
Standard administration	250
Semi-standard administration	92
Number of daily ditch reports	1,949
Number of reservoirs served	10
Average demand (flow & reservoir) AF/AC ...	5.15
Power diversions	15,779

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.)	10,711
Flow diverted to reservoir storage (A.F.) .	1,753
Amount delivered from storage	789
Acres irrigated	3,282
Number of ditches	101
Standard administration	71
Semi-standard administration	33
Number of daily ditch reports	1,495
Number of reservoirs served	1
Average demand (flow & reservoir) AF/AC ...	3.38
Power diversions	0
Storage to municipal.....	33

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.)	127,156
Flow diverted to reservoir storage (A.F.).....	51,665
*Amount delivered from storage	2,648,744
Acres irrigated	38,000
Number of ditches	308
Standard administration	243
Semi-standard administration	65
Number of daily ditch reports	402
Number of reservoirs served	8
**Average demand (flow & reservoir) AF/AC	3.34
Power diversions	2,636,029

*Includes delivered from the Currecanti system for power generation.

**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			345,934 A.F.
Silverjack Reservoir storage:	Irrigation	9,289	
	Fish & river -	5,340	
	TOTAL		14,629

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

District 63

Direct flow diversions (A.F.)	11,451
Flow diverted to reservoir storage (A.F.) .	336
Amount delivered from storage (A.F.).....	290
Acres irrigated	2,887
Number of ditches	82
Standard administration	53
Semi-standard administration	19
Number of daily ditch reports	694
Number of reservoirs served	0
Average demand (flow & reservoir) AF/AC ...	3.97
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.)	113,985
Stock water	6,560
Flow diverted to reservoir storage (A.F.)	200
Amount delivered from storage	40
Acres irrigated	21,800
Number of ditches	320
Standard administration	157
Semi-standard administration	195
Number of daily ditch reports	913
Number of reservoirs served	5
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 73

Direct flow diversions (A.F.)	4,185
Flow diverted to reservoir storage (A.F.) .	0
Amount delivered from storage	0
Acres irrigated	2,553
Number of ditches	36
Standard administration	27
Semi-standard administration	9
Number of daily ditch reports	270
Number of reservoirs served	3
Average demand (flow & reservoir) AF/AC ...	1.64
Power diversions	0

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

1981

ANNUAL SUMMARY - DIVISIONS Div 4

ACRE FEET (11-1- thru 10-31-)

Divisions	Non-Exempt Wells #	Ditch Structures Reported #	IRRIGATION Direct Diversions To Irrigation	IRRIGATION Diversions To Storage	IRRIGATION Storage To Irrigation	CURRENT YEAR Acres Irrigated	TRANS-MOUNTAIN Div. to Div. Export	TRANS-MOUNTAIN Div. to Div. Import
1								
2								
3								
4	173	2,652	2,213,581	149,292	111,251	406,130	1,474	2,426
5								
6								
7								
TOTAL								

Divisions	MUNICIPAL Direct Diversions	MUNICIPAL Diversions To Storage	MUNICIPAL Storage Releases	INDUSTRIAL Direct Diversions	INDUSTRIAL Diversions To Storage	INDUSTRIAL Hydro-Power	RECREATION Storage-Wildlife Parks	ACTUAL STORAGE For Year All Reservoirs	# Decree Applications	# Water Court Applications
1										
2										
3										
4	25,758	11,904	11,904	2,213,581	140,136	3,753,048	820,309	894,477	435	318
5										
6										
7										
TOTAL										

NA - No water available

NU - Non use

NR - No record

TABLE A

DIVISION SUMMARY - DIVISION NO. 4

Direct Flow Diversions

1981

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							Mun.	Stock					
		NA	NU	NR											
28	287	0	0	21	126,203	34,057	3.71	442	0		1,343	311	128,974	2,098	0
40	806	0	45	47	350,188	139,769	2.51	11,882	5,942	18,604	0	2,508	387,990	25,130	0
41	75	0	0	4	499,880	88,646	5.64	14,064	4,584		274	0	514,218	1,576	0
42	40	2	3	8	41,724	10,852	3.84	*489,036	5,391		0	0	536,151	3,904	0
59	180	22	21	39	251,580	35,220	7.14	535	1,523		0	0	253,638	1,632	0
60	250	30	28	6	88,900	29,070	3.06	17,611	2,206	1,168	0	0	109,885	1,949	0
61	71	1	25	7	10,362	3,282	3.16	0	Dom. 349	2,689	0	0	13,400	1,495	0
62	243	20	45	0	127,156	38,000	3.34	2,641,369	4,584		0	667	2,773,109	402	0
63	53	0	4	5	11,161	2,887	3.87	0	890		0	0	11,451	694	0
68	157	0	25	140	104,176	2,800	4.78	2,400	289	6,560	147	414	113,985	913	0
73	20	5	5	4	4,185	2,553	1.64	0	0		0	0	4,185	270	0
Total	2,182	80	201	281	1,615,515	387,136	3.98	3,177,339	25,758	29,021	1,764	3,900	4,846,986	40,063	0

*Diverted from WD-42, used in WD-72, Irrigation Division 5.

1981

TABLE B

DIVISION SUMMARY - DIVISION NO. 4

Storage Report - Acre Feet

Water District	Amount in Storage Acre Feet (Peak)			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- 80	6-1- 81	10-31- 81						
28	1,969	3,329	1,457	1,260	1,772	0	0	1,151	0
40	20,570	74,037	15,212	51,467	61,497	0	407	74,037	26,769
41	1,664	1,872	1,603	9	19	0	0	1,760	0
42	7,732	13,476	8,051	5,524	2,390	0	10,408	0	0
59	60,480	65,310	50,505	18,019	28,360	0	0	76,000	0
60	10,012	19,961	13,123	9,949	6,838	15,779	1,056	20,961	17,092
61	600	1,000	350	1,753	756	0	33	1,000	0
62	839,949	713,252	498,511	51,665	9,289	*2,700,409	0	712,627	9,289
63	0	290	0	290	290	0	0	0	0
68	1,750	1,950	1,910	200	40	0	25	173	0
73	0	0	0	0	0	0	0	0	0
Total	944,726	894,477	590,722	140,136	111,251	2,716,188	11,929	887,709	53,150

*U.S.B.R. Reservoirs Power Releases

WORKLOAD AND STATISTICAL INDICATORS

- Statistics -

Description	1980-81
Acre Feet Water Used (Direct Flow & Reservoir)	4,958,237
Acre Feet Diverted for Agricultural Use	1,615,515
Acre Feet Diverted for Industrial Use	3,177,339
Acre Feet Diverted for Recreational Use	1,764
Acre Feet Diverted for Urban Use (Municipal)	25,758
Acre Feet Delivered to Compact Commitment	None
Acre Feet Water Stored (Maximum)	894,477
Acre Feet Water Divisions Transbasin Diversion	3,900
Acres Irrigated	406,136
Ditches, Wells & Reservoirs Administered (No Wells)	2,652
Daily Ditch Reports	40,063
*Acre Feet Water Delivered from Storage	111,251

*Power releases not included.

December 14, 1981

UNCOMPAHGRE PROJECT

1981 REPORT

Under the terms of the contract between the Bureau of Reclamation and the Uncompahgre Valley Water Users Association, approved August 4, 1931, the operation and maintenance of the 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 217 miles of open drains, plus storage facilities at Taylor Dam.

The water content of the snow on the Uncompahgre River watershed measured at Ironton Park snow course, was 0% of normal on May 1, 1981. Readings of 0 inches of moisture compared to a normal of 8.0 inches were taken.

Expecting a short water year, the water users were ready to start early water into the canals to get early crops watered, and pre-irrigate ground for later crops. With spring rains and an early start, water supply was adequate through the early season into mid June, when we dropped to 60% delivery for a short period of time. We delivered from 60% to 100% in the months of June, July, and August.

Taylor Reservoir did not spill during the summer of 1981. It reached its maximum storage of 77,780 acre feet on July 2, 1981. Storage on November 1, 1981 was 49,285 acre feet.

Some of the major problems on the project were canal bank movement on the M & D at Station 4.30, requiring about 500 yards of material to build up. Also, on August 9, 1981, we had flash floods coming down from Bostwick Park. They caused damage to the AB lateral, the Loutzenhiser canal, and the Selig canal.

We poured 55 new concrete structures in 1981, and repaired 30 structures with gunnite.

UNCOMPAHGRE VALLEY WATER USERS ASSOCIATION

James Hokit, Manager

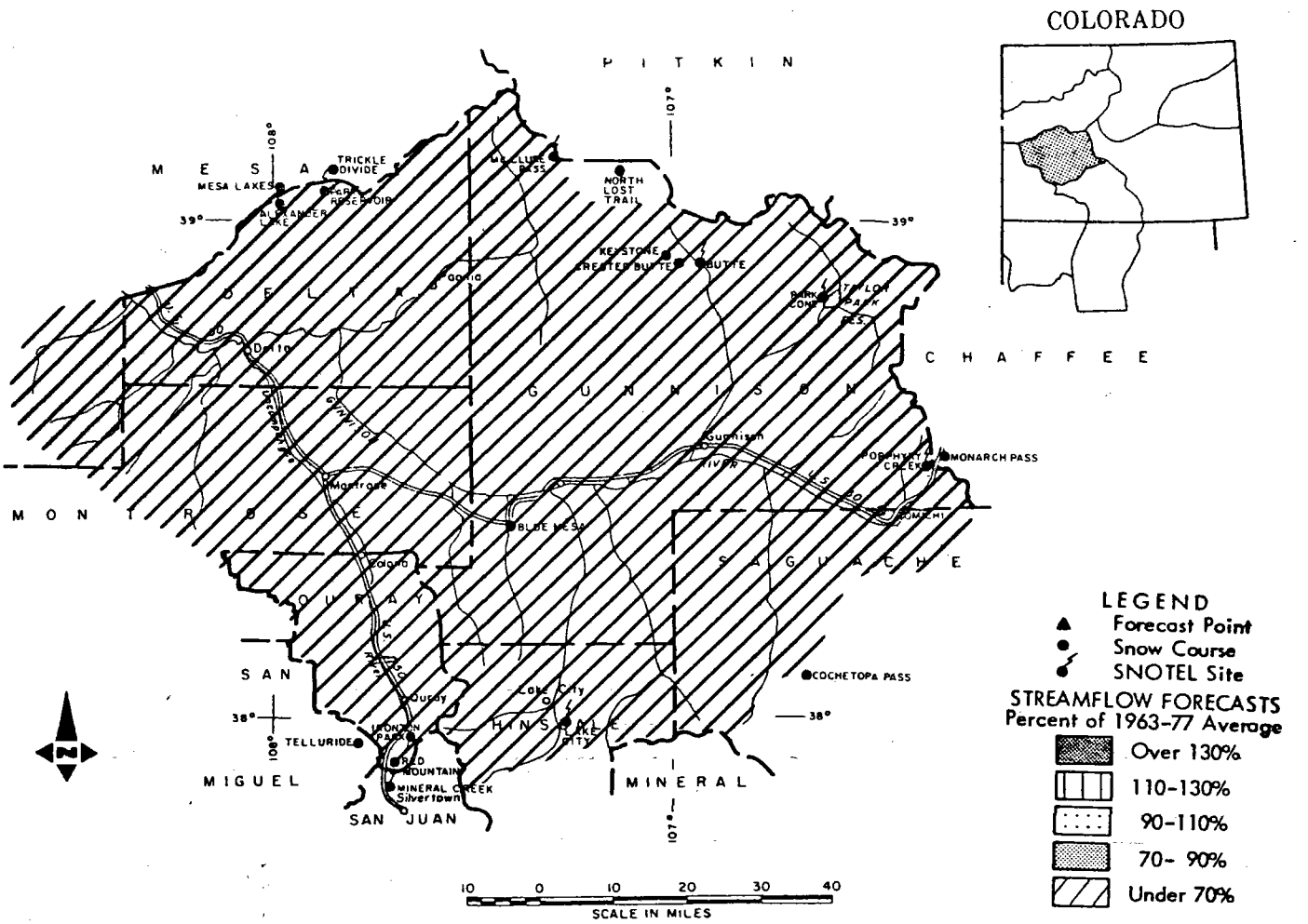
WATER SUPPLY OUTLOOK

FOR THE SOIL CONSERVATION DISTRICTS IN THE

GUNNISON RIVER WATERSHED IN COLORADO

AS OF

May 1, 1981



YOUR WATER SUPPLY

SNOW-COURSE MEASUREMENTS TAKEN NEAR MAY 1 INDICATE WELL BELOW AVERAGE SNOWPACK OVER THE ENTIRE BASIN. SURFACE CREEK WATERSHED IS NEAR 47% OF AVERAGE COMPARED TO 72% OF AVERAGE LAST MONTH. THE GUNNISON RIVER BASIN IS ONLY 26% OF AVERAGE COMPARED TO 64% OF AVERAGE LAST MONTH. PRECIPITATION OVER THE ENTIRE DRAINAGE BASIN WAS ONLY 54% OF AVERAGE FOR THE MONTH AND 75% OF AVERAGE FOR THE SEASON. BELOW AVERAGE PRECIPITATION HAS RESULTED IN STREAMFLOW FORECASTS BEING MUCH BELOW AVERAGE. RESERVOIR STORAGE WILL BE NEEDED TO SUPPLEMENT BELOW AVERAGE STREAMFLOWS FOR THE COMING SEASON.

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

FORECAST POINT	Forecast	% of Average	1963-77 Average
Gunnison River inflow to Blue Mesa Reservoir (1)	345	46	754.0
Gunnison River near Grand Junction (2)	380	33	1150.0
North Fork of Gunnison (3)	135	52	262.0
Surface Creek at Cedaredge	10	66	15.2
Uncompahgre River at Colona	65	50	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	Fair	Poor
Slate River	Fair	Poor
Taylor River	Fair	Poor
Tomichi Creek	Poor	Poor

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	390	347	320
Morrow Point	121	117	117	105
Taylor	106	56	48	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	14	26
Surface Creek	3	30	47
Uncompahgre	3	33	43

Report prepared by

BERNARD A. SHAFER, Snow Survey Supervisor
GARRY L. SCHAEFER, Assistant Snow Survey Supervisor
JOHN L. SPRAGUE, Hydrologic Technician

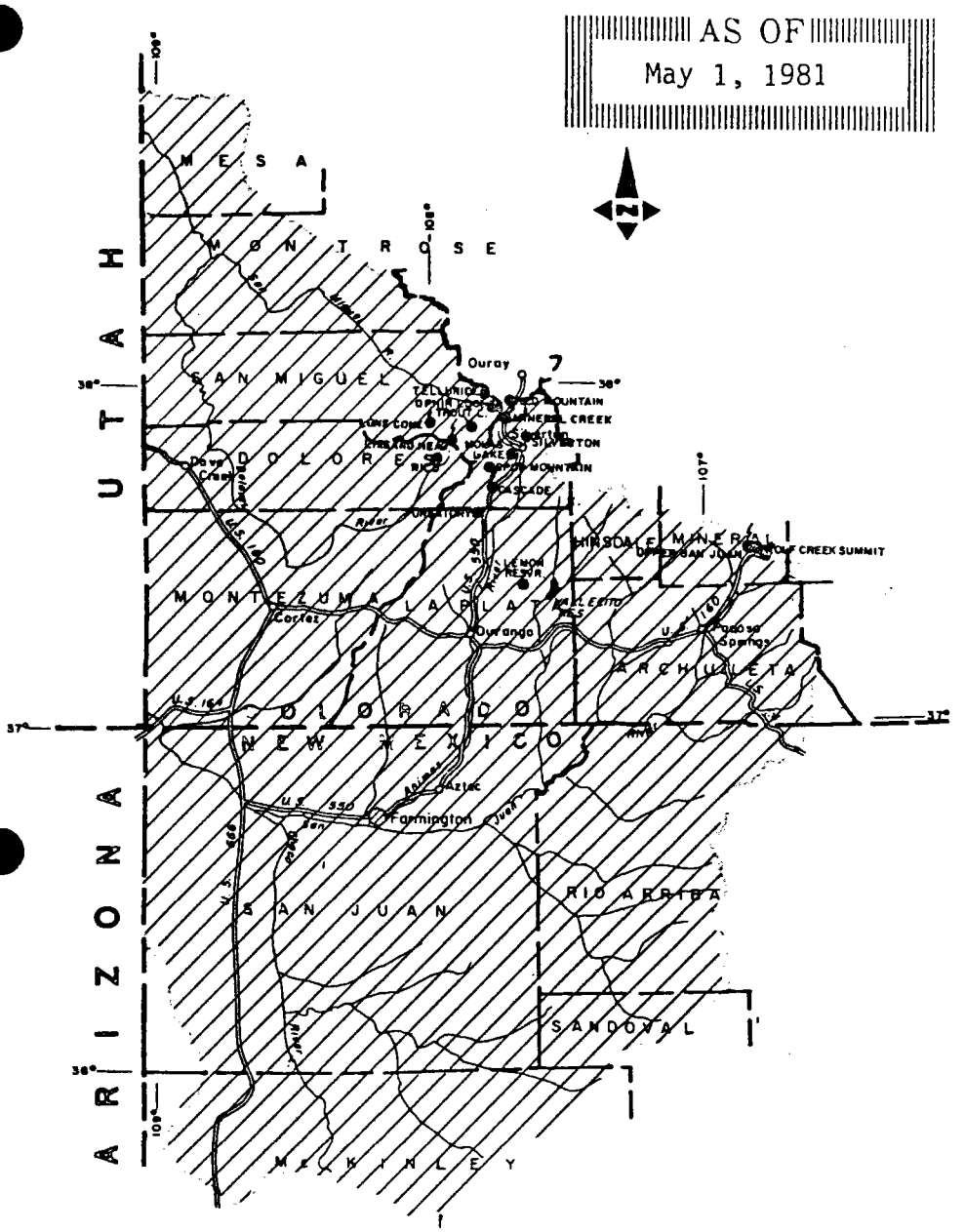
SOIL CONSERVATION SERVICE
SNOW SURVEY UNIT
P.O.BOX 17107
DENVER, COLORADO 80217

WATER SUPPLY OUTLOOK

FOR THE SOIL CONSERVATION DISTRICTS IN THE

SAN MIGUEL, DOLORES, ANIMAS, AND SAN JUAN
WATERSHEDS IN COLORADO AND NEW MEXICO

AS OF
May 1, 1981



YOUR WATER SUPPLY

SNOWPACK IN THE ANIMAS RIVER BASIN HAS DECREASED FROM 60% OF AVERAGE LAST MONTH TO 34% OF AVERAGE AS OF MAY 1. THE DOLORES RIVER WATERSHED HAS ONLY 22% OF AVERAGE THIS MONTH COMPARED TO 68% OF AVERAGE APRIL 1. PRECIPITATION FOR THE AREA WAS 74% OF AVERAGE FOR APRIL AND 66% OF AVERAGE FOR THE SEASON. STREAMFLOW FORECASTS GENERALLY RANGE FROM 1/4 TO 1/2 OF AVERAGE. RESERVOIR STORAGE IS NOW 158% OF AVERAGE. SOIL MOISTURE RANGES FROM FAIR TO POOR. ALL STREAMS WITH HIGH HEADWATERS ARE RISING RAPIDLY WITH THE EARLY MELT.

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

FORECAST POINT	Forecast	% of Average	1963-77 Average
Florida River at Bondad	15	42	31.0
Animas River at Durango	190	45	425.0
Dolores River at Dolores	100	43	233.0
La Plata River at Hesperus	10	42	23.5
Los Pinos River at Bayfield (1)	100	49	204.0
Mancos River near Towaoc	4	18	21.9
Inflow to Navajo River (1 & 3)	285	47	608.0
Piedra Creek at Arboles	70	35	201.0
San Juan River at Carracas	170	46	370.0
San Miguel River at Placerville	60	48	124.0

(1) Observed flow plus change 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
Hermosa Creek	Fair	Poor
West Dolores River	Fair	Poor
Williams Creek	Fair	Poor

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	1	10	12
Jackson Gulch	10	7	4	7
Lemon	40	24	17	23
Navajo	1696	1243	1181	741
Vallecito	126	67	42	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	20	33
Dolores	5	11	22
San Juan	6	23	38

Report prepared by

BERNARD A. SHAFER, Snow Survey Supervisor
GARRY L. SCHAEFER, Assistant Snow Survey Supervisor
JOHN L. SPRAGUE, 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

**SENIOR WATER COMMISSIONER
*Robert H. Starr

WATER COMMISSIONERS

Willard N. Bull	WCA
James E. Carr	WCB
Lloyd A. Connell	WCA
Mack Gorrod	WCB
James T. Hanrahan	WCA
John L. McHugh	WCB
James Miller	WCB
L. Gregg Scott	WCA
Charles E. Stein	WCA
Stephen W. Tuck	WCB
Wayne W. Wiseman	WCA
Charley E. Woolley	WCB
David E. Woolley	WCA

Water District 41

WATER COMMISSIONER B
Crandall Howard

Water District 42

**SENIOR WATER COMMISSIONER
*Richard Belden

WATER COMMISSIONER B
Lester Whiting

Water District 59

WATER COMMISSIONER B
*Edwin S. Hofmann

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

SENIOR WATER COMMISSIONER
Richard Belden

WELL COMMISSIONER
*Dwayne Mansker

Water District 68

WATER COMMISSIONER B
*H. Roger Noble

Water District 73

SENIOR WATER COMMISSIONER
Richard Belden

*Annual

**Reflects new title effective January 1, 1982.

AREAS OF RESPONSIBILITY OF WATER COMMISSIONERS

IRRIGATION DIVISION NO. 4

1042

WELL COMMISSIONER

Dwayne Mansker	WCC	Division Wide

WATER DISTRICT 28

John S. Garber	WCB	Tomichi and Cochetopa Creek

WATER DISTRICT 40

Richard Drexel	PRWC	Overall administration and supervision of Water District 40
Robert H. Starr	SRWC	North Fork of the Gunnison River and Smith Fork

WATER COMMISSIONERS

Willard Bull	WCA	Upper Surface Creek
James Carr	WCB	Leroux Creek
Lloyd Connell	WCA	Minnesota Creek and Stewart Mesa
Mack Gorrod	WCB	Ward, Kiser and Youngs Creek Reservoirs
Charles Stein	WCA	Gunnison River and Escalante Creek
Jack McHugh	WCB	Youngs, Kiser and Ward Creeks
James Miller	WCB	Muddy Anthracite and Hubbard Creeks
Logan Gregg Scott	WCA	Park Basin
James T. Hanrahan	WCA	Leon Reservoirs
Stephen Tuck	WCB	Forked Tongue
Wayne Wiseman	WCA	Granby and Battlement Reservoirs
Charley Woolley	WCB	Lower Surface Creek
David Woolley	WCA	Dry Creek and Alfalfa Run

WATER DISTRICT 41

Crandall Howard	WCB	Uncompahgre River from Colona to Delta

Areas of Responsibility of Water Commissioners (cont'd)

WATER DISTRICT 42		
Richard Belden	SRWC	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	WCC	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	SRWC	Dolores River below confluence of San Miguel River
WATER DISTRICT 68		
H. Roger Noble	WCB	Uncompahgre River above Colona
WATER DISTRICT 73		
Richard Belden	SRWC	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.
1979												
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
1980												
Precip. (In.)	.13	1.61	1.61	0.58	.71	.55	.03	.45	.29	.20	.10	.56
Avg. Max. Temp.	31.00	33.00	33.00	36.00	54.00	64.00	81.00	86.00	82.00	65.00	57.00	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	20.00	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	5.75	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	80,050	95,456
1981												
Precip. (In.)	.07	.23	.21	.64	.34	.61	.30	1.99	2.02	.80	.53	.04
Avg. Max. Temp.	42.00	38.00	44.00	48.00	64.00	62.00	82.00	83.00	81.00	73.00	53.00	53.00
Avg. Min. Temp.	17.00	8.00	12.00	20.00	29.00	35.00	45.00	52.00	50.00	43.00	27.00	20.00
Total Mo. Precip.	.07 In.	.30	.51	1.15	1.49	2.10	2.40	4.39	4.68	5.48	6.01	6.05
Total Mo. Dischg.	100,850 A.F.	96,500	60,105	59,440	56,350	65,120	56,190	68,350	70,660	53,640	49,100	31,170

IN THE SUPREME COURT OF COLORADO

No. 80SA129

IN THE MATTER OF THE APPLICATION FOR ADDITIONAL AND ALTERNATE POINT OF DIVERSION OF WATER RIGHTS OF ALBIN S.D. ROMINIECKI and JEAN D. SYLVESTER ROMINIECKI In Gunnison County, Colorado, Applicant-Appellant. v. McINTYRE LIVESTOCK CORPORATION and RAGGED MOUNTAIN WATER USERS ASSOCIATION, THE UNITED STATES OF AMERICA, and RALPH V. KELLING, JR., Division Engineer, Objectors-Appellees.	)	August 17, 1981

Appeal from the District Court of Gunnison County, Colorado

Water Division No. 4

Honorable Donald A. Carpenter, Water Judge

EN BANC

JUDGMENT REVERSED AND CAUSE REMANDED FOR FURTHER PROCEEDINGS

Brown and Brown
A. Allen Brown
Delta, Colorado
Attorneys for Applicant-Appellant.

Golden, Mumby, Summers and Livingston
James Golden
Grand Junction, Colorado
Attorneys for McIntyre Livestock Corporation and Ragged Mountain Water Users Association.

J.D. MacFarlane, Attorney General
Richard F. Hennessey, Deputy Attorney General
Mary J. Mullarkey, Solicitor General
Connie L. Peterson, Assistant Attorney General
Denver, Colorado
Attorneys for Ralph V. Kelling, Jr.

JUSTICE LOHR delivered the Opinion of the Court.

CHIEF JUSTICE HODGES does not participate.

Albin S. D. Rominiecki and Jean D. Sylvester Rominiecki (applicants) appeal from a judgment of the water court denying their application for an alternate point of diversion for two direct-flow water rights utilized to irrigate high mountain meadows owned by the applicants and located above the Paonia Reservoir in Gunnison County, Colorado. The trial court concluded that to grant the request would accomplish an impermissible substitution of one source of supply for another with resulting injury to others. Because it appears that the application can be granted without such injury if certain conditions are imposed, we reverse the judgment of the water court and remand this matter for further proceedings.

A description of the relevant water rights and lands owned by the parties will set the stage for our discussion of the issues in this case. Reference to Appendix A, a sketch of the creeks and properties involved here, will assist the reader in understanding the following descriptions.

The applicants own a water right for 1.25 c.f.s. decreed to Ditch No. 1, which was awarded priority A-47, with an appropriation date of June 17, 1897, by a decree dated June 23, 1914 (the 1.25 c.f.s. right). The decreed point of diversion is on Little Muddy Creek, a tributary of East Muddy Creek, which in turn is a tributary of the North Fork of the Gunnison River.

The applicants also own a water right for 0.5 c.f.s. decreed to Ditch No. 2, which was awarded priority A-102, with an appropriation date of June 17, 1908, by a decree dated June 23, 1914 (the 0.5 c.f.s. right). The decreed point of diversion is on East Muddy Creek, slightly below the confluence of Little

Muddy Creek and Clear Fork Creek, which form East Muddy Creek by their joinder.

Two adjoining placer mining claims are owned by the applicants. The St. Louis Placer (the "Upper Place") straddles Little Muddy Creek and extends downstream to a point slightly below its confluence with Clear Fork Creek. The Ouray Placer (the "Lower Place") straddles East Muddy Creek for a distance downstream from the lower boundary of the Upper Place.

The original decreed point of diversion of the 1.25 c.f.s. right is at the headgate of Ditch No. 1 on the Upper Place, and the water there diverted was used to irrigate meadows on the Upper Place. On November 17, 1972, a change of point of diversion of the 1.25 c.f.s. right was decreed by the District Court for Water Division Number 4, upon the request of the applicants' predecessors in interest. The newly decreed point of diversion is located at the headgate of Ditch No. 2 on East Muddy Creek. Water diverted at this new location on the basis of the 1.25 c.f.s. right has been used to irrigate meadows on the Lower Place, even though no application for a change of place of use has been granted or sought.

On January 31, 1964, before the change of point of diversion for the 1.25 c.f.s. right was requested, the applicants' predecessors in interest obtained a decree to Elks Beaver Ditch for 7.00 c.f.s., priority K-127, with an appropriation date of August 10, 1955. The decreed point of diversion is on Clear Fork Creek about a mile and a half above the headgate of Ditch No. 2.

The water right decreed to Elks Beaver Ditch is now used to irrigate the Upper Place. However, by late July

or August of each year the full supply of water in Clear Fork Creek is needed to satisfy the requirements of holders of senior water rights downstream. Consequently, the Elks Beaver Ditch headgate is closed during the latter part of each irrigating season. To obtain a late-season supply of water to finish the hay crop on the Upper Place, in the case now before us the applicants requested an alternate point of diversion for the 1.25 c.f.s. right and the 0.5 c.f.s. right[1] at the Elks Beaver Ditch headgate.

Statements of opposition to the application for an alternate point of diversion were filed by McIntyre Livestock Corporation (McIntyre) and Ragged Mountain Water Users Association (Ragged Mountain). McIntyre owns a water right for 4 c.f.s. decreed to Ditch No. 3, which has its headgate on East Muddy Creek about a mile downstream from the headgate of Ditch No. 2. The priority number, decree date and appropriation date for Ditch No. 3 are identical to those for Ditch No. 1. Ragged Mountain is an association of water users on tributaries of Muddy Creek. It was formed to purchase stored water in Paonia Reservoir to enable members to make out-of-priority diversions in exchange for release of compensatory amounts of water from the reservoir.[2] To the extent that any change in water usage upstream of the reservoir inhibits

---

1 The evidence does not establish whether the priority of the 0.5 c.f.s. right is early enough to support late-season diversions.

2 A statement of opposition was also filed by the United States of America. The United States and the applicants entered into a stipulation for withdrawal of the statement of opposition upon the inclusion of a provision in the referee's ruling and in the decree making the applicants' rights subject to all rights of the United States of America in the Gunnison River. The United States did not participate further. Pursuant to C.A.R. 1(e), however, the United States of America is designated as an appellee. The division engineer is designated as an appellee based on that same rule. He has entered an appearance and has joined in and supplemented the brief of McIntyre but has not participated further.

the filling of Paonia Reservoir, the rights of Ragged Mountain are adversely affected.

A hearing on the application was held before the water referee, who concluded that the combination of the requested alternate point of diversion and the previously decreed change of point of diversion would change the source of supply for the 1.25 c.f.s. right from Little Muddy Creek to Clear Fork Creek and "would definitely jeopardize other priorities on the stream." Accordingly, the referee ruled that the application should be denied. Although not the subject of separate discussion, denial of the portion of the application requesting an alternate point of diversion for the 0.5 c.f.s. right also resulted from this blanket ruling. The applicant protested the referee's ruling. After a hearing, the water court affirmed the referee's denial of the application. During that hearing the protestants McIntyre and Ragged Mountain also sought an order requiring that the applicants remove certain fallen trees from the channel of East Muddy Creek above the headgate of Ditch No. 2 because they were altering the stream flow at that headgate. The water court granted this relief in its decree affirming the referee's ruling. The applicants then appealed to this court.

The late-season flow in Clear Fork Creek is greater than that in Little Muddy Creek, at least during times when local rains do not augment the flow. Priority number A-47 assigned to the 1.25 c.f.s. right is an early priority on the stream system. Thus, at the core of the protestants' position is the contention that if the requested change of point of diversion is granted the applicants will be able to divert up to 1.25 c.f.s. from Clear Fork Creek in late season when the flow

in Little Muddy Creek at the original point of diversion is less than that amount. The result, the argument runs, will be less water in East Muddy Creek to satisfy the needs of appropriators on that stream. The applicants answer that the change of point of diversion from Little Muddy Creek to East Muddy Creek in 1972 enabled the applicants to divert from the full flow of East Muddy Creek at the new point of diversion based on the 1.25 c.f.s. right. Accordingly, the applicants claim that the injury now complained of was accomplished in 1972, and it is too late for the objectors to assert it now. For reasons explained below, we need not consider the merits of these competing contentions.

We first consider the application as it relates to the 1.25 c.f.s. right, and later give attention to the requested alternate point of diversion for the 0.5 c.f.s. right.

The 1.25 c.f.s. Right

An implied limitation is read into every decree adjudicating a water right that diversions are limited to an amount sufficient for the purpose for which the appropriation was made, even though such limitation may be less than the decreed rate of diversion. Weibert v. Rothe Brothers, Inc., ___Colo.___, 618 P.2d 1367 (1980); Hoehne Ditch Co. v. Martinez, 71 Colo. 428, 207 P. 859 (1922); Baca Ditch Co. v. Coulson, 70 Colo. 192, 198 P. 272 (1921). Thus, an appropriator has no right as against a junior appropriator to divert more water than can be used beneficially, Pulaski Irrigating Ditch Co. v. City of Trinidad, 70 Colo. 565, 203 P. 681 (1922); Baca Ditch Co. v. Coulson, supra; Ft. Lyon Canal Co. v. Chew, 33 Colo. 392, 81 P. 37 (1905), or to extend the time of diversion to irrigate lands other than those for which the appropriation was made, Enlarged Southside Irrigation Co. v.

Johns Flood Ditch Co., 116 Colo. 589, 183 P.2d 556 (1947); Baca Ditch Co. v. Coulson, supra; Ft. Lyon Canal Co. v. Chew, supra; Cache La Poudre Reservoir Co. v. Water Supply & Storage Co., 25 Colo. 161, 53 P. 331 (1898). Applying these rules to the instant case, the applicants' decree for the 1.25 c.f.s. right was subject to the implied limitation that diversions must be limited in quantity and time to those which could be put to beneficial use for irrigation purposes on the Upper Place, the land for which the evidence indicates the original decree was entered.[3] These limitations are fully consistent with the requested additional point of diversion, since the applicants seek to utilize the water on the same lands and for the same purposes for which the 1.25 c.f.s. right was originally decreed.

A change from a fixed point of diversion to an alternate point of diversion constitutes a change of water right. Section 37-92-103(5), C.R.S. 1973; Southeastern Colorado Water Conservancy District v. Rich, ____Colo.____, 625 P.2d 977 (1981). A proposed change of water right is to be evaluated under the following statutory criterion:

> "A change of water right...shall be approved if such change...will not injuriously affect the owner of or persons entitled to use water under a vested water right or a decreed conditional water right."

Section 37-92-305(3), C.R.S. 1973. Southeastern Colorado Water Conservancy District v. Rich, supra; see, e.g., Weibert v. Rothe Brothers, Inc., supra; Cline v. McDowell, 132 Colo. 37, 284 P.2d 1056 (1955). The burden of showing absence of injurious effect is upon the applicant. E.g., Trinchera Ranch Co. v. Trinchera Irrigation District, 83 Colo. 451, 266 P. 204 (1928).

---

[3] The original decree was not offered in evidence.

The protestants contend that they will be injured because the late-season flow in Clear Fork Creek is greater and more dependable than the flow in Little Muddy Creek. As a result, if the requested change is granted, the applicants will be physically able to divert water from Clear Fork Creek for irrigation on the Upper Place at times when such diversions could not be made at the original point of diversion of the 1.25 c.f.s. right because of the inadequate flow in Little Muddy Creek.

The question of injury is complicated by the possible res judicata or collateral estoppel effect of the 1972 decree changing the point of diversion of the 1.25 c.f.s. right upon the protestants' ability to complain of the alleged change in the source of water to satisfy the applicants' 1.25 c.f.s. right, and by the omission of any condition in the 1972 decree limiting diversions at the changed point of diversion to historical use. See Weibert v. Rothe Brothers, Inc., supra. We need not resolve the effect of the 1972 decree, however, in light of concessions made by counsel in oral argument before us.

During oral argument before this court, counsel for the applicants was asked if his clients would accept a condition on the requested alternate point of diversion limiting diversions at the headgate of Elks Beaver Ditch, based upon the 1.25 c.f.s. right, to the flow available at the original headgate of Ditch No. 1 on Little Muddy Creek at the time of diversion. He agreed that such a condition would be acceptable to his

clients.[4] Counsel for protestants McIntyre and Ragged Mountain indicated, without specifically agreeing, that such a condition would protect his clients' rights.[5] We con-

---

4 Counsel for the applicants responded to questions from the court as follows:

"Q: One more question. If the new change of point of diversion that...or alternate point of diversion that you're asking for were conditioned on the amount of water that you take being available at the headgate of Ditch Number 1 on Little Muddy Creek, why wouldn't that give you everything you're entitled to?

A: We're willing to put that condition in. I don't think Mr. McIntyre is though. We've had to close some of his ditches this summer.

Q: That condition would be acceptable to your client?

A: Yes sir."

5 Counsel for McIntyre and Ragged Mountain responded to questions from the court as follows:

"Q: In your view, would your client have been protected if this requested change of point of diversion or alternate point of diversion had been allowed with the condition that diversions could be made only when that much water is available at the original headgate of Ditch No. 1?

A: Well I...let me rephrase your question to see if I understand it. Are you referring to water available at the original Ditch No. 1 on the Muddy Creek?

Q: Yes sir. On Little Muddy Creek.

A: On the Little Muddy Creek. Well, I would...I haven't had a chance to consult with my client to answer that question...get his feelings on it. But I would...I guess I don't know that my client would have any strong objections to that. It's holding him down to what the historical source of supply is and that's one of our main arguments that they are improving their position in getting a better source. But I would hate to make a commitment statement without consulting with my client. I'm just giving you my reaction of what I think my client would say."

clude that if the proposed condition will permit the change to be accomplished without injuriously affecting the owner of or persons entitled to use water under a vested water right or decreed conditional water right, the change should be permitted on that condition. Section 37-92-305(3), C.R.S. 1973. Although not suggested before the trial court, we conclude that it is in the interest of justice to permit the change on the proposed condition if the trial court, on the basis of the existing record and any additional evidence which may be presented in the court's discretion, finds that imposition of the condition will prevent injury to others.

The 0.5 c.f.s. Right

Neither the referee's ruling nor the trial court's findings and conclusions reflects why the application for an additional point of diversion for the 0.5 c.f.s. right was denied. Different considerations than those involved in the application for the additional point of diversion for the 1.25 c.f.s. right are applicable in evaluating whether injury to others will result from such a change. No new source is involved with respect to the proposed alternate point of diversion for the 0.5 c.f.s. right, since the flow of Clear Fork Creek was available to satisfy the 0.5 c.f.s. right at its original point of diversion at the headgate of Ditch Number 2. However, the request for an alternate point of diversion for the 0.5 c.f.s. right implicitly involves as well a request for a change of place of use from the Lower Place to the Upper Place. A change of place of use is a change of water right. Section 37-92-103(5), C.R.S. 1973. The effect of such a change on the rights of others was not addressed by the trial court as required

by statute. See section 37-92-305(3), C.R.S. 1973. On remand, that court should consider whether the alternate point of diversion for the 0.5 c.f.s. right can be allowed without injury, applying the standards prescribed by statute and applied by us on other occasions. See section 37-92-305(3), C.R.S. 1973; see also, Southeastern Colorado Water Conservancy District v. Rich, supra; Weibert v. Rothe Brothers, Inc., supra.

Conditions Proposed by Applicants

During the course of the trial the applicants offered to forego all diversions at the Elks Beaver Ditch headgate in years when the Paonia Reservoir does not fill and to forego diversions at that headgate in all years until mid-July. On remand the trial court should consider these proposed conditions for inclusion in any decree granting the application for an alternate point of diversion for both the 1.25 c.f.s. and 0.5 c.f.s. rights. The trial court should also consider inclusion of any other conditions which the evidence shows to be necessary to prevent injury to others.

Removal of Trees From Stream

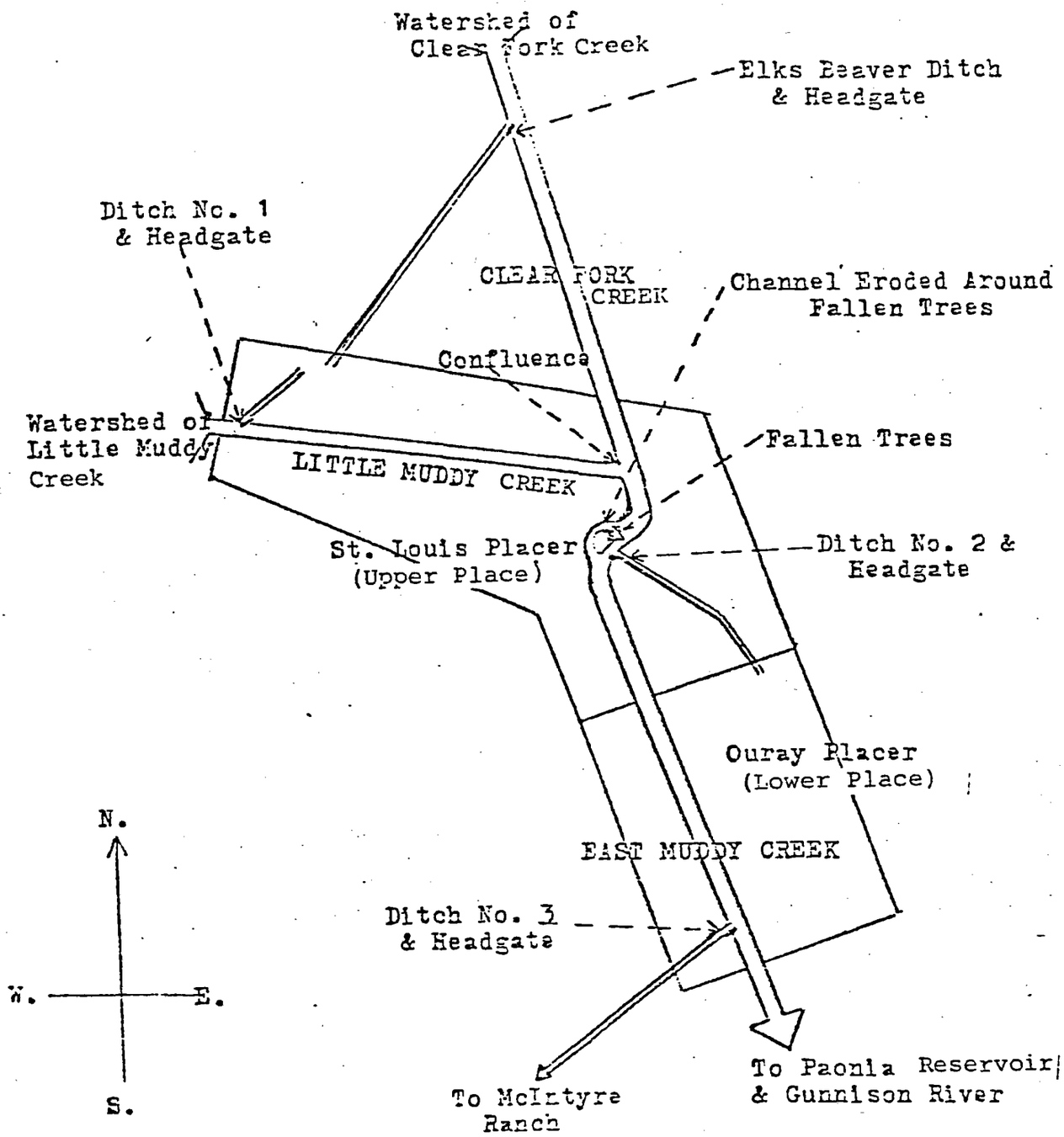
The applicants argue that the trial court lacked authority to require them to remove certain fallen trees which alter the course of the stream just above the headgate of Ditch No. 2. The basis for this contention is that the issue was not raised until trial and that in any event the evidence does not support the conclusion that the applicants are responsible for the location of the trees. On the contrary, our review of the record reflects that the issue was tried by consent, see C.R.C.P.

15(b), in that the applicants permitted evidence to be presented without objection, cross-examined witnesses on the point, and introduced evidence of their own relating to this issue. The ruling of the trial court is supported by the evidence and so will not be disturbed by us. E.g., Peterson v. Ground Water Commission, 195 Colo. 508, 579 P.2d 629 (1978).

The judgment of the trial court is reversed and the cause is remanded for further proceedings, including the taking of additional evidence in the discretion of the water judge, consistent with the views expressed in this opinion.

Chief Justice Hodges does not participate.

A P P E N D I X A



NOTE: This sketch is schematic; it is not to scale.