

ANNUAL REPORT

1978 - Water Year

Irrigation Division No. 4



January 11, 1979

Mr. C. J. Kuiper, State Engineer
Division of Water Resources
1313 Sherman Street
Denver, Colorado 80203

Dear Mr. Kuiper:

On behalf of the office and field personnel of Irrigation
Division Four, I submit herewith the Annual Report for 1978.

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

Respectfully submitted,


Ralph V. Kelling
Division Engineer

RVK:jd

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1978 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 total population for the division is approximately 70,000 people. The Gunnison River basin encompasses the largest portion of Division Four with a drainage area in excess of 8,000 square miles. The San Miguel River basin is the second largest with a drainage area of approximately 2,000 square miles. A total of 12,000 square miles (7,680,000 acres) of area make up Division Four. Several other small drainage basins make up the additional 2,000 square miles. In 1978 392,500 acres were irrigated within the division and there is less than 3,000 dry land acres farmed in Division Four. The agricultural crop patterns are similar to the 1977 season with some limited new types of planting being made in order to take the place of the former acreage planted in sugar beets. Lettuce and sunflowers were planted in some areas and a lettuce processing plant was constructed at Olathe. The bulk of the old sugar beet land was planted in corn and small grains.

SPECIAL NOTE - The Holly Sugar Company closed the Delta processing plant at the close of the 1976 campaign and this allowed several thousands of acres of prime land to be used for different crops.

Major crops are hay, corn, small grains and various types of fruits (peaches, pears, plums, apricots, cherries and apples). Beef cattle and sheep are the primary livestock products with pork production increasing each year. Many small farmers are now raising some commercial swine. 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 1978, however, much of this came in the form of heavy snows on the high mountain snow ranges during the winter season. Summer moisture was limited throughout Division Four and there were no late summer rain storms to supplement the high snow runoff. Many tributaries were at flows equal to last year's record lows by mid September. There was a general rain the middle of October and this did much to alleviate the critical flow conditions at the beginning of the fall season. This year's December, 1977-November, 1978 accumulative precipitation in Montrose was 7.66 inches which is 1.85 inches below normal.

Record snow fell throughout Division Four the first week of December, 1978. Depths ranging from one to five feet were recorded and at this time

snow-pack outlooks for 1979 appear very good.

Agriculture and ranching are the main industries of the division's economy with fruit ranching, lumbering and mining being important areas of employment. The largest mining operation in the division, Idarado Mining Company, closed their operation on November 1, 1978. This was after a continuous operation of almost 100 years. The mine and mill closing was necessitated by low metal prices and high production costs. This company operated at a loss for the past several years. The closing of the Idarado Mining Company will have considerable impact on the economy of the Ouray and Telluride areas. Other small metal mining companies are following the same pattern. Uranium exploration and development continues to boom with the ore buying station located at Vancorum near Naturita, Colorado keeping busy. The western section of the division is experiencing a boom economy due to uranium, oil and gas exploration. Uravan is similar to the times of the late forties and early fifties.

Coal, silver, copper, zinc and uranium are the major mineral resources, with oil and gas exploration continuing to be active. Heavy exploration drilling has taken place in several areas of the division and seismic exploration continues at an active pace in the western area of Division Four.

Tourism plays a large roll in the division's economy and 1978 was a record year for all aspects of this industry.

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

1. 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;

2. Continued operation of the Russell Stover Candies Company in Montrose;
3. Continued enlargement of the Colorado Ute Electrical Association in Montrose;
4. The processing and packaging of agricultural products;
5. Continued oil and gas exploration activities;
6. Exploration and development of uranium resources;
7. Mining and mineral exploration activities continue in the West End and Gunnison areas;
8. Tourist-recreation industries continue to grow;
9. U. S. Bureau of Reclamation activities include Currecanti projects and the Dallas Dam. (The Dallas Project has begun construction of the relocation of Highway 550 around the reservoir site);
10. Population growth involves expansion of all services;
11. The construction of a uranium processing mill near Naturita has significantly affected this area. The Ranchers Exploration Corporation of Albuquerque, New Mexico, has been reprocessing the old mill dump at Vancorum and local rumors are that they will recover eighty million dollars worth of uranium. This project should be finished in mid 1979.

The economy is agriculturally dominated and because of this, the major water usage is for irrigation. Farms and ranches are oriented to the regional drainage systems and most water diversions are connected to the adjacent irrigable lands. Most of the large reservoirs are located on major rivers and long canals and tunnels are required to transport water to the point of use. The Currecanti Unit reservoir of the Colorado Storage Project used approximately 1,844,000 acre feet of water in production of electric power in 1978. The hydro-power plants of the three reservoirs have a combined capacity of 200,000 kilowatts. Crystal Power Plant was completed in 1978 and is now operating as the third major unit of the Currecanti Project. The Currecanti Unit of the upper Colorado River Storage Project is now officially complete.

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

Blue Mesa, Morrow Point and Crystal Reservoirs of the Currecanti are part of the Bureau of Reclamation projects. Additional bureau projects that are in various study phases are Fruitland Mesa, Dallas Creek, San Miguel, upper Gunnison and the Uncompahgre extension. The Dallas Creek Project has finally begun with the contract for highway relocation construction. Neilson Construction Company of Dolores was the prime contractor. Field offices have been constructed and field personnel continue to increase their planning and pre-construction surveys.

A more comprehensive statement of the Uncompahgre Project is included 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: Five mines are active in the North Fork of the Gunnison Valley. This year they will produce and ship more than 2,000,000 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 4 Water Court.

Land ownership by county is as follows:

OWNERSHIP IN ACRES				
<u>County</u>	<u>Private</u>	<u>Federal</u>	<u>State</u>	<u>County and Municipal</u>
Delta	305,976	434,169	0	2,335
Montrose	434,246	995,740	474	2,500
Mesa	554,504	1,562,040	220	3,556
Ouray	182,711	160,920	1,920	49
San Miguel	302,672	497,994	19,854	600
Gunnison	420,553	1,640,757	13,388	750
Hinsdale	28,999	637,599	9,377	505
Saguache	581,650	1,320,622	109,708	180

NOTE: Not all of this land is located within the boundaries of Irrigation Division 4.

II. PERSONNEL

Various forms of personnel action involved fourteen employees of the Division 4 staff in 1978. Ralph Glendening and Woodrow Saunders retired after a total of over 60 years of combined service for the office of the State Engineer. Ralph Glendening had been full-time water commissioner in Water District 41 and Woodrow Saunders had served as a full time water commissioner in Water District 42, 63 and 73 and was also responsible for Water District 72 in irrigation Division 5. These men left with a great amount of personal experience and Division 4 acknowledges their significant contribution to water administration in their respective water districts.

Pat Archey resigned as Division 4 Hydrographer on July 1, 1978 and was replaced by Chuck David from the Denver office of the Division of Water Resources.

Ms. Melita Maten resigned May 30, 1978 as division secretary after seven years of service. Mrs. Shirley Brown resigned October 31, 1978 as a part-time typist B on the division office staff. Paul Stockemer, Water Commissioner A, District 40, left the state service before the beginning of this year's irrigation season.

Crandall Howard was transferred from Water District 28 to Water District 41 as a part-time Water Commissioner B. Richard Belden was transferred as part-time Water Commissioner A in Water District 40 to full-time Water Commissioner C for Water District 42, 63 and 73. Jack Raine was transferred from a part-time Water Commissioner A in Water District 42 to new responsibilities in irrigation Division 5.

New employees in Division 4 are John Garber, part-time Water Commissioner B, Water District 28; Tom Jones, part-time Water Commissioner A, Water District 40; Robert Starr, part-time Water Commissioner A, Water District 40; and Ms. L. Jean Duncan was appointed as Secretary 1A as the new Division 4 secretary.

In each annual report it is important to affirm the recognition of the outstanding staff of Division 4. Without their varied abilities, the responsibilities of irrigation Division 4 would not be so ably attended.

The following is a list of personnel in the division for the year 1978 with December being estimated on the basis of 1977.

PERSONNEL

Name	Position	District	Months Worked/ Budgeted		Mileage
			Budgeted	Worked	
*Patrick J. Archey	Hydro	Staff	Annual	(6 mos)	9,704
Richard L. Belden	WCA	42, 63, 73	Annual	(10 mos)	17,261
*Shirley L. Brown	TYP B	Staff	6 mos	4½ mos	-
Willard N. Bull	WCA	40	7 mos	7¼ mos	5,561
Lyman D. Campbell	WCB	60	11 mos	11 mos	10,965
James E. Carr	WCA	40	7 mos	7 mos	10,060
Lloyd E. Connell	WCA	40	7 mos	5 3/4 mos	7,626
**Charles G. David	Hydro	Staff	Annual	(6 mos)	8,637
Richard L. Drexel	SRWC	40	Annual		8,364
Robert E. Drexel	WCA	59	6 mos	6 3/4 mos	7,103
**L. Jean Duncan	SLA	Staff	Annual	(6½ mos)	-
**John S. Garber	WCB	28	7 mos	7 mos	12,433
*Ralph Glendening	WCB	41	Annual	(1 mos)	811
Mack A. Gorrod	WCB	40	7 mos	6 3/4 mos	4,284
Edwin S. Hofmann	WCB	59,62	Annual		8,536
C. Crandall Howard	WCB	28,41	10 mos	10½ mos	12,811
**Thomas Jones	WCA	40	6 mos	6 mos	10,974
Ralph V. Kelling	SWRE	Staff	Annual		1,931
Thomas A. Kelly	SRWRE	Staff	Annual		7,677
Dwayne C. Mansker	WCB	1042	Annual		4,553
*Melita Maten	SLA	Staff	Annual	(5 mos)	-
John L. McHugh	WCA	40	6 mos	7 mos	6,972
James A. Miller	WCA	40	7 mos	5½ mos	8,118

PERSONNEL

Name	Position	District	Months Worked/ Budgeted		Mileage
			Budgeted	Worked	
H. Roger Noble	WCB	68	Annual		8,636
Clinton L. Oliver	WCB	61	7 mos	8½ mos	10,323
*W. W. Saunders	SRWC	42,63,73	Contract	2 mos	1,058
**Robert Starr	WCA	40	6 mos	6½ mos	3,247
Marvin Stephens	WCA	40	6 mos	5¼ mos	2,244
Stephen Tuck	WCA	40	6 mos	7¼ mos	5,369
Elton J. Watson	WCC	40	Annual		15,250
Lester E. Whiting	WCA	42	6 mos	7¼ mos	7,948
Wayne Wiseman	WCA	40	7 mos	6¼ mos	3,201
***Charley Woolley	WCA	40	6 mos	10¼ mos	7,151
David E. Woolley	WCA	40	6 mos	7¼ mos	7,636
TOTAL					236,444

State Vehicle Mileage 17,104

* Resigned or retired employees with Division 4

** New employees with Division 4

*** 3¼ months of Charley Woolley's time was sick leave

This report is for the period January 1, 1978 through December, 1978.

WATER COMMISSIONERS' ANNUAL MILEAGE REVIEW

Year	Total Annual Mileage
1968	167,174
1969	149,862
1970	135,195
1971	143,852
1972	160,070
1973	157,709
1974	189,865
1975	194,997
1976	181,374
1977	209,517
*1978	207,437

*December 1978 mileage estimated from 1977.

III. WATER SUPPLY

A. Snow-Pack

Water supply forecasts for the Gunnison and San Miguel water sheds were reported from average to above average. An adequate water supply was forecasted and all streams were expected to flow at an average or above average stage. Division 4's normal snow-pack area was at 100% cover during the 1978 snow season. Drainage areas throughout the division recorded 117% to 130% of average for the final S.C.S. Snow Survey. High water was predicted on each major drainage system; however, no flooding was reported in the division.

Snow-pack at the major ski areas in Division 4 was adequate and the ski industries enjoyed a long season. Winter snow-related recreation activities were at a rapid pace with record revenues recorded. The snow-related businesses that were so adversely affected in 1977 were able to recover somewhat this season.

Grand Mesa Water Users Association and Grand Mesa Conservancy District continue to be involved in weather modification programs. There were many opportunities to seed clouds and the final snow surveys seem to support the position of the program of weather modification. We are not aware of any reports available on this project; however, it was in effect during the 1978 winter season. The success or failure of cloud seeding to help the snow-pack is a controversial subject in the Grand Mesa area and remains a topic of concern for conservationists in this location. Copies of the May, 1978 survey are found at the end of this report.

SUMMARY OF SNOW MEASUREMENT - May 1, 1978

<u>Basin or Watershed</u>	<u>Number of Courses Averaged</u>	<u>This year's snow water as per cent of:</u>	
		<u>Last Year</u>	<u>Average</u>
Gunnison	12	1059	152
Surface Creek	3	1717	167
Uncompahgre	3	399	129

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

<u>Forecast Point</u>	<u>Forecast</u>	<u>% of Avg.</u>	<u>Average</u>
Gunnison River in- flow to Blue Mesa	930	117	793
Gunnison River near Grand Junction	1500	127	1184
Surface Creek near Cedaredge	21	131	16
Uncompahgre River at Colona	175	130	134

Soil Moisture - May 1, 1978

Rated as fair-good.

B. Precipitation - Summer

The irrigation year began with above average precipitation through April of 1978 in the snow ranges of Division 4. Lowlands in Division 4 experienced below normal precipitation throughout the winter snow season and all of the irrigation season. Few thunder storms occurred throughout the division and the majority of summer water usage came from snow run-off and reservoir storage

supplies. The fall season in Division 4 has been generally dry with exceptionally good conditions for crop harvesting. Carry-over storage is near average and soil moisture is average or better. Again this 1978-1979 winter season, above normal precipitation will be needed if the water outlook for 1979 is to be favorable. No hail suppression work is being conducted in Division 4.

CLIMATOLOGICAL DATA 1978:

<u>County</u>	<u>Avg. Annual Temp., F^o</u>	<u>Departure</u>	<u>Total Precipitation, In.</u>	<u>Departure</u>
Delta	51.8	1.2	6.79	1.10
Mesa	55.2	2.5	5.68	2.79
Montrose	50.8	1.7	7.43	2.24
Ouray	48.7	-	18.35	-
San Miguel	46.4	2.2	13.62	-1.34
Gunnison	39.6	1.9	8.80	-2.44
Hinsdale	38.2	-	10.58	-
Saguache	41.3	-1.8	6.70	-1.79

C. Floods

Flows in all areas of the division were expected to be high and in some instances, flooding was anticipated. Most of the rivers had high stages for several weeks, however, there was no flood damage reported in Division 4 in 1978.

D. Water Budget

Average annual flow on the Gunnison River at Grand Junction

is 1,856,000 acre feet. Throughout Division 4, all types of direct flow diversions total 4,375,298 acre feet with approximately 185.00 acre feet being diverted and used in other drainages. The beneficial use of the water resources in Division 4 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% of the total Colorado River discharges into Utah.

E. Underground Water

There is limited information relative to the underground water supply in Division 4. 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.

Registered wells in Division 4, calculated from the latest print-out and a count of permits, break down as follows:

<u>Type of Wells</u>	<u>Number of Wells</u>	<u>GPM</u>	<u>CFS</u>
0 - Household Only	378	5,600	12.44
1 - Domestic	1,533	21,365	47.47

Registered wells - continued

<u>Type of Wells</u>	<u>Number of Wells</u>	<u>GPM</u>	<u>CFS</u>
2 - Livestock	856	5,505	12.23
3 - Domestic & Stock	171	2,469	5.49
4 - Commercial	144	6,640	14.75
5 - Industrial	47	8,450	18.77
6 - Irrigation	138	33,220	73.82
7 - Stock & Irrigation	51	10,755	23.90
8 - Municipal	45	10,790	23.97
9 - Other	59	2,365	5.25

Total Registered Wells 3,422

F. Transmountain and Transbasin Diversions - 1978

Transmountain Diversions:

<u>Name</u>	<u>Source</u>	<u>Recipient and/ or Claimant</u>	<u>Amount A.F.</u>
Red Mountain Ditch	Mineral Creek	Ouray Ditch Co. Montrose, Colorado	130.14
Carbon Lake Ditch	Mineral Creek	Pinon Ditch Co. Colona, Colorado	21.5
St. John Ditch	E. Fk. Animas River	Charles, Gunn & Worley %W. Worley Olathe, Colorado	No Diversion
Mineral Pt. Ditch	Burrows Creek, tr. N. Fk. Animas River	W. Gibbs Ouray, Colorado	No Diversion
Larkspur Ditch	Tr. Tomichi Creek Marshall Creek	Catlin Canal Co.	82
Tabor	Tr. Cebolla Cr.	Colo. Div. of Wildlife Alamosa, Colorado	792
Tarbell	Cochetopa	Saguache Land & Wtr. Co. Saguache, Colorado	503
Divide Cr. Highline Feeder Ditch	Divide Creek	F. M. Starbuck, Mgr. Silt, Colorado	967
Leon Lake	Leon Creek	Sam Oaks Eckert, Colorado	1,267

Transbasin Diversions:

Leopard Cr. Ditch	Leopard Creek	Harry McClure (Irr.) Ridgway, CO (Stock)	1,576 690
N. Fk. of Paxton D.	Cottonwood and Horsefly Creeks	William Hofmann Montrose, Colorado	No Record
Cimarron Feeder of the Garnet Ditch	W. Fk. of Cimarron	Unc. Valley Water Users Association Montrose, Colorado	2,511
Gunnison Tunnel	Gunnison River	Montrose Colorado	328,444
Head & Ferrier	Soap Creek	H. Head & Ferrier	8

Transbasin Diversions - continued

<u>Name</u>	<u>Source</u>	<u>Recipient and/ or Claimant</u>	<u>Amount A.F.</u>
Lake Brennand	Lake Brennand	Town of Crested Butte, Colorado	152
Meek Tunnel	Crystal Creek	Carton Meek Maher, Colorado	1,265
Mesa Creek Ditch	Mesa Creek	Carton Meek Maher, Colorado	385

G. Annual Diversion and Storage Records

The 1978 season completed the fourth year in which Division 4 participated in the Computer Data Bank program in recording and summarizing annual diversion records. At this time, the 1975-1977 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 1977 records were key punched by the computer center at Valley Federal Savings and Loan Association in Grand Junction, Colorado. An initial cost of 10 cents per card was negotiated; however, it was determined that considerable editing and computations could be made at the 10 cents per card cost. A limited program was developed to analyze and compute various editing processes which were of invaluable assistance in identifying diversion record errors. Additional requests were made of the computer center with the hope of obtaining the most error-free "deck" of punched cards possible to submit to the Denver ADP Section. At the same time, certain computations were requested to help 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 of great help in the preparation of the 1978 Annual Report and records. It should be noted that the work done by the Valley Federal Savings and Loan computer

center has not been without some problems (bugs); however, this year's records are of a higher grade than in past years, and Division 4 is very happy with this arrangement.

It is our feeling that computerized diversion record keeping can be of significant assistance to the field commissioner in the performance of his responsibilities. We feel that local control over the basic raw data is important to effectively pursue this program.

In most districts Division 4 has continued to use commissioner field books with preliminary values being recorded the same as in past years. This additional record is also necessary to compute budget statistical indicators as requested as part of the Annual Report.

H. Reservoir Storage

All irrigation reservoirs in Division 4 were at or near record low storage levels at the beginning of the 1977-1978 storage season (November 1, 1977). Blue Mesa was down near a record low with a storage of approximately 220,760.00 acre feet. Grand Mesa Reservoirs were at approximately 11% of storage capacity.

Due to the high snow-pack, all reservoirs in Division 4 that were able and wanted to, stored water and had nearly a full supply. Blue Mesa Reservoir reached an elevation of slightly under one foot from spilling. Other Bureau of Reclamation project reservoirs experienced spilling conditions for several weeks.

SPECIAL NOTE

The storage and diversion data presented in this report have been compiled from the water officials' field book notes, diaries and special edit listing of key punch cards for 1978. It is important to point out that in order to have accurate data for the 1978 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 1978:

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-77</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-78</u>
28	Hot Springs Reservoir	97.50	603.00	119.80
28	McDonough Reservoir #1	599.60	654.80	599.60
28	McDonough Reservoir #2	887.00	430.10	165.9
28	Needle Creek Reservoir	550.10	707.30	317.50
28	Upper Cochetopa Reservoir	276.46	382.32	243.30
28	Vouga Reservoir	309.40	492.90	51.30
40	Alexander Lake Reservoir	.00	157.00	.00
40	Arch Slough Reservoir	.00	.00	.00
40	Ault Reservoir	.00	116.00	.00
40	Bailey Reservoir	.00	434.00	.00
40	Bald Mountain Reservoir	.00	.00	.00
40	Barren Lake Reservoir	26.40	775.00	170.10
40	Basin #1 Reservoir	.00	257.50	.00
40	Basin #2 Reservoir	.00	62.60	.00
40	Battlement #1 Reservoir	79.50	79.50	79.50
40	Battlement #2 Reservoir	400.80	913.90	913.90
40	Baxter Reservoir	318.0		
40	Beaver Dam Reservoir (Escalante)	79.60	396.50	.00
40	Beaver Res. (Minnesota Creek)	72.40	1351.00	37.00
40	Bonita Reservoir	47.70	285.80	191.30
40	Bottle Stomp Reservoir	15.00	17.00	.00
40	Boulder Lake #1 Reservoir	.00	12.50	.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-77</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-78</u>
40	Brockman #1 Reservoir	.00	16.00	.00
40	Brockman #2 Reservoir	.00	40.00	.00
40	Bruce Park Reservoir	.00	632.00	.00
40	Bull Finch #1 Reservoir	.00	72.40	.00
40	Bull Finch #2 Reservoir	.00	40.50	.00
40	Coalby Horse Park Reservoir	100.00	484.00	217.00
40	Cabin Lake Reservoir	.00	33.50	.00
40	Calumet Reservoir	.00	16.80	.00
40	Carbonate Camp #3 Reservoir	.00	4.30	.00
40	Carbonate Camp #6 Reservoir	.00	129.60	42.10
40	Carbonate Camp #7 Reservoir	.00	107.60	.00
40	Carl Smith Reservoir	121.00	838.00	516.00
40	Cedar Mesa Reservoir	62.10	925.80	279.30
40	Clark Reservoir	.00	39.10	.00
40	Cole #1 Reservoir	.00	26.00	.00
40	Cole #2 Reservoir	.00	52.00	.00
40	Cole #3 Reservoir (Cherry Lane)	.00	53.00	.00
40	Cole #4 Reservoir	.00	38.20	.00
40	Columbine #1 Res. (Reynolds)	.00	176.00	.00
40	Cole #5 Reservoir	.00	116.80	.00
40	Crawford Reservoir	810.00	14177.00	4548.00
40	Cyphers Reservoir	21.00	21.00	21.00
40	Daniels Sl. Reservoir (Reed)	31.10	228.00	167.90

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-77</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-78</u>
40	Davenport Reservoir	.00	20.00	.00
40	Deep Slough Reservoir	.00	498.40	56.00
40	Deep Ward Reservoir	.00	1043.00	699.00
40	Delta City #1 Reservoir	6.00	14.00	14.00
40	Delta Control Reservoir	40.00	34.00	34.00
40	Deserted Park Reservoir	.00	35.90	.00
40	Dog Fish Lake Reservoir	.00	243.00	.00
40	Don Meek #1 Reservoir	.00	42.00	.00
40	Donnelly Slough Reservoir	.00	276.90	85.70
40	Doughty #1 Res. (Chipmunk)	.00	47.60	.00
40	Doughty #2 Res. (Sliderrock)	.00	19.50	.00
40	Dowdy Reservoir	.00	264.00	.00
40	Dreyfus Reservoir	.00	38.60	.00
40	Dugger Reservoir	.00	185.10	162.00
40	East Beckwith #1 Reservoir	.00	400.00	40.00
40	Eggleston Lake Reservoir	.00	2402.00	808.00
40	Elk Park Reservoir	.00	96.80	96.80
40	Elk Wallows Reservoir	.00	218.00	.00
40	Ella Reservoir	.00	98.00	.00
40	Ellington & Cook Reservoir	.00	24.50	.00
40	Eureka Reservoir No. 2	.00	53.50	.00
40	Fairmont Reservoir	.00	78.00	.00
40	Fairmount Park Reservoir	.00	30.00	.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-77</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 11-31-78</u>
40	Fish Lake Reservoir	.00	68.00	.00
40	Fisher Reservoir	.00	10.00	.00
40	Forrest Reservoir (Finney)	.00	65.90	.00
40	Fruitgrowers Reservoir	138.00	4312.40	480.30
40	G & M Volk Fish Pond #1	5.90	5.90	5.90
40	Goodenough Reservoir (Kiser)	12.60	148.80	62.00
40	Goodenough #2 Res. (Leroux)	.00	872.00	100.00
40	Granby #6 Reservoir	.00	45.90	.00
40	Granby #7 Reservoir	2.70	76.10	26.20
40	Granby #8 Reservoir	.00	10.30	3.10
40	Granby #9 Reservoir	.00	54.60	.00
40	Granby #11 Reservoir	.00	737.40	51.80
40	Granby #12 Reservoir	68.50	549.40	224.90
40	Gray Reservoir	.00	423.00	.00
40	Green Mountain Dam Reservoir	.00	.00	.00
40	Greenwood Reservoir	.00	58.80	.00
40	Gregg #1 Reservoir	.00	5.00	.00
40	Gregg #2 Reservoir	5.00	26.40	.00
40	Hale Reservoir	.00	33.00	.00
40	Hanson #2 Reservoir	.00	225.00	.00
40	Holy Terror Reservoir	.00	116.00	.00
40	Hotel Lake Reservoir	.00	548.00	308.00
40	Howard Lake Reservoir	.00	67.10	33.80

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-77</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt.,A.F. 11-31-78</u>
40	Island Lake Reservoir	266.30	1677.00	557.20
40	Kehmeier Reservoir	.00	319.50	.00
40	Kiser Slough Reservoir	224.60	512.00	146.20
40	Knox Reservoir	19.60	241.20	99.50
40	Kennicott Slough Reservoir	.00	573.00	125.40
40	Lake Brennard Reservoir	367.00	367.00	367.00
40	Leon Lake Reservoir	.00	1785.00	237.00
40	Leon Park Reservoir	.00	172.20	.00
40	Lily Pad Res. (Young Creek)	.00	35.80	.00
40	Little Gem Reservoir	92.40	214.50	131.70
40	Little Giant #1 Reservoir	.00	34.00	.00
40	Little Giant #2 Reservoir	.00	5.50	.00
40	Little Grouse Reservoir	2.10	42.00	.00
40	Lone Cabin Reservoir	.00	160.00	.00
40	Lucky Find	.00	32.00	.00
40	Marcott Park Reservoir	.00	450.00	.00
40	McKoon Reservoir (Blanchard)	.00	148.00	44.00
40	Military Park Reservoir	.00	236.00	.00
40	Miller Reservoir	.00	20.00	.00
40	Monument Reservoir	.00	500.00	.00
40	Morris #2 Reservoir	16.30	16.30	16.00
40	New Pond Reservoir	.00	2.00	.00
40	Meek Reservoir	.00	30.00	.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-77</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 11-31-78</u>
40	Onion Valley Reservoir	.00	10279.00	1311.00
40	Overland #1 Reservoir	.00	5193.00	.00
40	Owens Reservoir	.00	92.00	.00
40	Paonia Reservoir	1532.00	18468.00	1400.00
40	Park Reservoir	595.50	3383.40	868.00
40	Patterson #1 Reservoir	.00	78.00	.00
40	Patterson #2 Reservoir	15.00	151.00	.00
40	P. C. & G #1 Res. (Muskrat)	.00	19.40	.00
40	Pedro Reservoir	4.00	177.70	144.60
40	Pine Reservoir	.00	.00	.00
40	Pine Cone Reservoir	.00	37.00	.00
40	Pitcarin Reservoir	.00	100.00	70.00
40	Poison Springs Reservoir	10.00	123.00	70.00
40	Porter #1 Reservoir	94.20	201.0	169.00
40	Porter #4 Reservoir	30.00	38.00	38.00
40	Prebble Reservoir	29.90	180.00	57.40
40	Rex Reservoir	1.00	24.00	.00
40	Reynolds Res. (Reynolds Creek)	.00	100.00	.00
40	Rim Rock Lake Reservoir	65.40	107.00	64.00
40	Rockland Reservoir	.00	33.00	3.60
40	Roeber #2 Reservoir	.00	44.00	.00
40	Round Lake Reservoir	.00	20.00	.00
40	Ryan Reservoir	.00	31.00	.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-77</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-78</u>
40	Rockwell Reservoir	.00	50.00	.00
40	Sackett Reservoir	52.00	108.00	42.60
40	Safety #1 & #2 Reservoir	.00	16.00	.00
40	Scotland Peak Reservoir	.00	109.10	.00
40	Sheep Lake Reservoir	.00	153.00	97.10
40	Skim Milk Reservoir	.00	90.00	.00
40	Spatofore Reservoir	.00	100.00	.00
40	Stell Reservoir	.00	59.80	.00
40	Todd Reservoir	.00	.00	.00
40	Tomahawk Reservoir	.00	87.00	.00
40	Trickle Reservoir	.00	32.70	.00
40	Trio Reservoir #1	.00	164.30	134.90
40	Twin Lake Reservoir #1	.00	87.30	.00
40	Twin Lake Reservoir #2	.00	65.40	.00
40	Tyler Reservoir	40.00	169.00	.00
40	Upper Hotel Lake Reservoir	.00	105.50	55.00
40	Van Den Berg #1 Reservoir	5.60	5.60	5.60
40	Vela Reservoir	.00	437.00	132.00
40	Ward Creek Reservoir	39.90	284.40	36.00
40	Wash Tub Reservoir	.00	25.00	.00
40	Water Bug Reservoir	.00	57.00	.00
40	Weir & Johnson #2 Reservoir	120.00	553.80	284.50
40	Weir Park Reservoir	.00	40.70	.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-77</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-78</u>
40	West #1 Reservoir	.00	454.00	.00
40	Williams Creek Reservoir	.00	100.00	.00
40	Willow Reservoir	.00	120.00	.00
40	Womack #1 Reservoir	.00	186.30	73.00
40	Womack #2 & #3 Reservoir	.00	156.20	.00
40	Womack #5 Reservoir	.00	8.50	.00
40	Young Creek Reservoir #1 & #2	.00	738.40	182.70
40	Young Creek #3 Reservoir	37.30	193.40	125.40
40	Y & S Reservoir	.00	189.0	92.10
41	Buckhorn Reservoir	29.00	140.00	129.60
41	Citizens Reservoir	33.00	124.00	40.20
41	Garnet Mesa (Sweitzer)	156.00	100.00	1332.00
41	Wenger #1 Reservoir	45.00	10.00	.00
42	Anderson #1 Reservoir	71.00	468.00	.00
42	Anderson #2 Reservoir	.00	568.00	460.00
42	Anderson #6 Reservoir	.00	115.00	.00
42	Bolen Reservoir	.00	535.00	184.00
42	Bolen Anderson	.00	293.00	.00
42	Carson Reservoir	387.00	637.00	637.00
42	Deep Creek Reservoir #2	.00	348.00	.00
42	Dry Creek Reservoir (Chambers Res)	.00	133.00	.00
42	Flowing Park Reservoir	.00	782.00	735.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-77</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-78</u>
42	Grand Mesa #1 Reservoir	.00	559.00	46.10
42	Grand Mesa #6 Reservoir	.00	171.00	.00
42	Grand Mesa #8 Reservoir	.00	378.00	.00
42	Grand Mesa #9 Reservoir	.00	153.00	.00
42	Hollenbeck #1 Reservoir	614.00	680.00	614.00
42	Hollenbeck #2 Reservoir	.00	503.00	466.00
42	Juniata Reservoir	1811.00	128.00	.00
42	Scales No. 1	.00	567.00	.00
42	Scales No. 3	.00	328.00	.00
59	Spring Creek	520.00	2000.00	1140.00
59	Taylor Reservoir	43880.00	50500.00	58650.00
59	Kapushion Reservoir	.00	.00	.00
59	Cunningham Reservoir	.00	60.00	.00
59	Ferris Creek Reservoir	.00	.00	.00
59	Rainbow Lake	350.00	350.00	.00
59	Meridian Lake	480.00	480.00	320.00
60	Alexander Reservoir	.00	6.00	.00
60	Gurley Reservoir	200.00	9320.00	.00
60	Lilylands Reservoir	29.10	494.00	40.73
60	Lone Cone Reservoir	30.00	1840.00	30.00
60	Miramonte Reservoir	5792.00	5792.00	5792.00
60	Mosca Livestock Reservoir #2	.00	10.00	.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-77</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-78</u>
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	102.12	898.00	306.00
60	Trout Lake Reservoir	3,200.00	3,245.00	2,598.00
61	Buckeye Reservoir	140.00	1,700.00	200.00
62	Blue Mesa	220,760.00	249,840.00	631,164.00
62	Morrow Point	114,150.00	114,150.00	115,365.00
62	Fish Creek #1	50.00	143.00	50.00
62	Fish Creek #2	100.00	522.00	100.00
62	Cerro Reservoir	675.00	50.00	675.00
62	Silverjack Reservoir	915.00	13,640.00	2,480.00
62	Lake San Cristobal	9,786.00	9,786.00	9,786.00
62	Crystal Reservoir	.00	6,538.00	16,240.00
63	Big Creek Reservoir	. . .	NO RECORD	. . .
63	Burg Reservoir	. . .	NO RECORD	. . .
63	Casement Reservoir	. . .	NO RECORD	. . .
63	Casto Reservoir	. . .	NO RECORD	. . .
63	Craig Reservoir	. . .	NO RECORD	. . .
68	Carrol Brown	0.50	40.00	0.50
68	Elephant Reservoir	4.00	15.00	15.00

Division tabulation of storage - continued

<u>Water District</u>	<u>Name of Reservoir</u>	<u>Amt., A.F. 11-1-76</u>	<u>Amt., A.F. Start of Irr. Season</u>	<u>Amt., A.F. 10-31-78</u>
68	Jacques Reservoir	1.00	45.00	.00
68	Victor Reservoir	2.00	2.00	1.00
73	Fruita Reservoir #1	. . .	NO RECORD	. . .
73	Fruita Reservoir #2	.00	167.00	39.00
73	Fruita Reservoir #3	. . .	NO RECORD	. . .
73	Mirror Lake	. . .	NO RECORD	. . .

IV. AGRICULTURE

Because of the great variety of agricultural lands throughout the division, almost every type of farming enterprise is found within the division. Various crops range from high mountain hay meadows and range lands to highly productive low valley grain farms. Overall crop production for the 1978 season can be estimated to be average or better. Overall, the water supply was adequate and good quality crops were grown. The Uncompahgre Project which irrigates 80,000 acres had sufficient water and was able to meet almost 100% of demand. It was limited only by the various canal capacities. All reservoirs supplied their historic average, and agricultural areas dependent upon this storage produced normal production.

The upper Gunnison hay producing lands along with the San Miguel Basin hay lands all experienced average crop yields. Hay prices are down, although the market may come up because of the early heavy winter snow storms necessitating increased demand for winter cattle feed. The absence of late summer and fall rains may have had some effect on production levels. Small grains grown along the lower Gunnison Valley and Uncompahgre Valley recorded average or better yields and the onion crops were average. Prices paid for these commodities were fair to good and farm income should be higher than the past two years.

The fruit industries along the North Fork Valley and the lower Uncompahgre Valley produced a below-normal crop, and prices received

for harvested peaches, pears, cherries, apricots and apples were high. Some lower elevation orchards were short of irrigation water for their last irrigation.

Livestock production was less than last year; however, cattle and sheep market prices were much higher than 1977. Cattle ranchers should show some profit in 1978. Cattle herds are still reduced from several years ago but some replacement and rebuilding is beginning. Hog production continues to grow in Division 4 and pork prices remain good. Farm land continues to be sold at premium prices with an active market.

Presented below is a brief agricultural resume for 1978 by counties:

County	Average Growing Season in Days	Crop Production* Irrigated Land			Livestock**	
		Barley	Beets	Corn	Cattle Calves	Stock Sheep
Delta	146	66.0	23.6	102	45,000	25,000
Montrose	153	75.0	21.1	107	54,000	43,000
Mesa	188	80.0	23.2	106	68,000	58,000
Ouray	88	--	--	--	21,500	1,000
San Miguel	85	--	--	--	5,700	4,500
Gunnison	79	--	--	--	31,000	100
Hinsdale	65	--	--	--	1,100	--
Saguache	105	70.0	--	--	36,000	7,000

*1977 Colorado Agriculture Statistics, Published July 1978; in bu./ac.
or tons/ac.

**Number of head, 1977

Crop dollar values for 1977 are as follows:

<u>County</u>	<u>Corn, Beans Grain & Silage</u>	<u>Hay</u>	<u>Sugar Beets</u>	<u>All Other Crops</u>
Delta	3,215,500	4,103,000	983,000	15,679,300
Montrose	5,850,000	4,140,000	1,863,000	14,144,000
Mesa	4,332,000	3,764,000	2,081,000	14,265,900
Ouray	--	1,027,000	--	1,109,300
San Miguel	--	890,000	--	1,167,600
Gunnison	--	2,355,000	--	2,355,000
Hinsdale	--	49,000	--	49,000
Saguache	--	3,632,000	--	16,238,700

The above production data has been extracted from the 1978 Colorado Agriculture Statistics - Colorado Department of Agriculture.

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. Elton Watson, Water Commissioner C, Water District 40 and we consider this an important addition to Division 4's Annual Report.

In spite of the shortage of rainfall, this irrigation season has been blessed with an abundance of water. Due to the excellent snow-pack last winter, the spring and early summer flow held up well, and most of the reservoirs were filled to capacity.

The amount of flow remaining in the streams this fall with all reservoirs shut down is above average--an indication that the springs were replenished by the snow-melt this spring.

The carry-over in the reservoirs this fall is well above last year's carry-over and with an average snow-pack this winter, most reservoirs should fill this next spring.

The orchards in the valley still show the effects of last year's drought. The fruit was smaller and didn't produce as abundantly as normal, producing only 60 to 70 per cent of an average crop. However, the loss in production cannot all be attributed to the previous dry year. In the spring we had a killing frost that got most of the Red Delicious apples as well as most of the sweet cherries, apricots, and thinned the Golden Delicious, Johnathans and Roman Beauty apples.

Hail was another factor in the loss of the apple crop. In August there were narrow strips of hail storms that hit part of the valley, mostly near Cedaredge, which destroyed any apples that were hit as far as packaging them for the public market. These were sent to food processors and used for apple juice, sauce or cider.

The whole valley received a heavy frost in the fall which caused the apples to fall from the tree prematurely.

The lack of qualified pickers was another factor in not getting the apples picked before they dropped off. If the good apples could have been picked before they dropped off the trees, they would have brought

from \$8.00 to \$15.00 per bushel on the market. After they fell off the trees, they brought \$2.00 per bushel at the processing plants.

With the loss of the sugar beet factory, the farmers planted a large acreage of onions and corn. For the first time lettuce was tried on a fairly small scale; this could prove to be a good crop for this area replacing some of the acres now planted to corn and onions.

Good onion and corn crops were produced this year-- the market for onions holding up quite well so far. Corn is so abundant across the nation that the price will probably be depressed most of the year; however, locally, the good price of beef, hogs and lambs may keep the price up to where the farmers can make some profit.

In some areas the hay crop was the best in years. One farmer on George Creek said he had the best hay crop he had ever raised.

The pasture this year in the low country from about 8,000 feet in elevation on down didn't do well where there was no irrigation because of lack of rain, but the higher elevations produced an abundance of grass, and cattle came off these mountains fat.

The livestock farmer should be a lot happier with the prices this year, and hopefully will recuperate some of the losses he sustained in the past few years.

The influx of new families in all of Delta County is still increasing, causing concern about the availability of water and the taking of it for uses other than agriculture.

Delta, Cedaredge and Orchard City all had ample municipal water this year, as well as the other towns in the area.

Cedaredge and Orchard City are preparing for future growth by obtaining more potable water and conserving what they have. Delta and Cedaredge have both put in meters and expect to conserve water in this manner. Both cities have replaced some sections of old water lines, and Delta claims they have saved up to one quarter of their previous water consumption in this manner.

Orchard City has probably one of the best water systems in the state. By tapping the springs at their source and not letting it become exposed to the open ditches or streams, they can bring it off the hill without contamination. In fact they received an award from the American Water Works for the most outstanding water system of the year.

Some of the factors causing many new families to move into the area are: mild winters and warm summers for older people; the general trend of moving away from larger cities; closeness to recreational areas and the potential for jobs. The largest factor is the energy crisis.

The abundance of coal in the area has caused large and small companies to move into the area. Some large and established energy companies as U.S. Steel, Westmoreland, Western Slope Carbon, Midway and Pittsburg and Atlantic Richfield, as well as small companies such as Sunflower Energy, Quinn Development Co., and Grand Mesa Coal are moving or planning on moving into the area. One company has bought the

old Holly Sugar complex as a storage and shipping point for their coal. These companies with money available to them and the need for coal could and probably will change drastically the economy and lifestyle of the valley in the near future.

These factors all contribute to the need of continued close administration and accurate records in the future.

Richard L. Drexel

Water District No. 40

Moisture conditions in the North Fork, Smith Fork, Minnesota Creek and the Leroux Creek in 1978 were a complete turn-around from 1977, from an extreme low snow-pack of 50 per cent of normal to 150 per cent of normal. This, together with ideal conditions during the spring run-off period, allowed us to fill all of our storage facilities and held the natural flow up about 30 days longer than usual. These conditions were helpful since the precipitation during the summer was far below normal; however, some late fall storms produced some much needed moisture.

While this area is not a major fruit producing one, we are concerned with the problems of late frosts and sufficient supply of water. Water was sufficient this past year, but some late frost cut the fruit crop, mainly apples, to about 50 per cent. The cherries and peaches and apricots were nearly a total loss.

The ranchers fared much better than the fruit farmer, with exceptionally good hay and feed crops. This might well be a record

year for hay production in the area. Prices for cattle and sheep were well above the past year's prices. Cattle were up 30 cents per pound and sheep showed an advance of 10 cents per pound. With no outlook for any major increase in the number of livestock on the ranches in this area, prices will probably hold at the present level.

The increased development of the coal deposits in the North Fork Valley continues with two new companies getting started with production in the past year, and two more companies with plans on the drawing boards. ARCO, who holds large leases in the North Fork and Minnesota Creek drainages, is proposing to mine up to 2.5 million tons per year by 1985, which would mean an additional work force of 565 men. This, together with the considerable development expected over the next few years, poses a problem for the cities to provide sufficient housing, water and sewage disposal. Coal companies are in search of adequate water supplies for their operations with wells and augmentation plans the likely source, again putting pressure on the agricultural water to supply these augmented needs. We are fortunate in that most streams are on call only during the late irrigation season. This would mean that at the present time the augmentation plan would only have to be used during the time of call on the stream. At the present time, the usage by the various coal companies is very minimal; however, this could change if the washing of coal were to expand.

Inflation continues: Real estate prices are soaring daily, taxes

increase yearly, schools are becoming overcrowded with the population growth.

With the surplus of hay, prices have not been established and will depend on weather conditions between now and spring; however, prices are bound to be lower than last year's extremely high prices. A good number of livestock were taken to other areas of the state for wintering last year due to high feed costs in this area.

Elton Watson
Water District No. 40

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 4. The lower basin states can put a call on any series of water-short years based on the long-term average flow at Lee Ferry. This year there was no occasion that involved administration of water in Division 4 relating to these compacts.

VI. DAMS

With a good snow-pack and minimum carry-over storage levels, reservoir problems were anticipated in the spring and summer of 1978; however, only a few minor problems occurred. The various reservoirs that have been involved in special repairs, maintenance programs and official restrictions have not changed from 1977.

Of the several hundred reservoirs and dams in Division 4 most are

inspected and regulated by field personnel many times during the 1978 season. These men have been alert to possible trouble spots and constant communication between the division office and field commissioners keep all the necessary personnel of the Division of Water Resources informed of the conditions of most reservoirs. This year minimum attention was given by the water resources office dam inspectors. There were two small failures which they looked at: the Oasis Dam in District 40 and the Wenger Reservoir No. 1 in District 41. There was minor damage from these two failures.

Reservoir stop storage orders are in effect as follows:

<u>Name</u>	<u>Water District</u>	<u>Order Date</u>	<u>Restrictions</u>
Lone Cabin	40	8-9-72	5' below lowest embankment.
Waterbug	40	8-9-72	5' below embankment. Repairs made; no notice of restriction being lifted.
Beaver	40	Verbal, fall '73	Not over 75' without permission on gage; may fill late.
Granby No. 12	40	10-25-76	7' below lowest point on crest of dam.
Dogfish	40	11-15-76	10' below lowest point of the crest of dam; Most repair has been completed; restriction not lifted to date.
Hidden Treasure	61	Verbal, fall '73	Enlarge channel opening at base of dam.
Gurley	60	10-12-78	Control willow growth and clear brush; repair two sink holes; remove silt from spillway; restricted to gage height 30

Livestock Water Tanks - Permits Issued 1978:

<u>Name</u>	<u>Stream</u>	<u>Height</u>	<u>Cap.,A.F.</u>	<u>Permit No.</u>
Tony Bear Bench #1	SE 9-13S-90W	14.5	1.80	15342
Asher Reservoir No. 1	SE21-13S-91W	10.0	6.20	15372
Asher Reservoir No. 2	SE21-13S-91W	10.0	1.80	15373
Lambert #1	SE31-15S-86W	19.0	4.00	15483
Lambert #2	SE30-15S-86W	19.0	3.00	15484
Forsman No. 1	SE23-47N-16W	10.0	0.50	15386
Forsman No. 2	SE23-47N-16W	10.0	0.25	15398
Davis-1-78	SE12-45N-14W	10.0	1.20	15506
East #1 78	SE34-45N-13W	13.4	0.50	15555

Inspections were made of several livestock water tanks during the 1977 season. There were no problems of any consequence concerning stock water tanks for this season.

VII. WATER RIGHTS

A. Tabulation

The 1978 Water Right Tabulation was published according to the time table set forth in the Colorado Statutes and copies were delivered to all Water Commissioners and County Clerks in Division 4. Errors are still being identified in the new tabulation and corrections are made as time becomes available.

B. Referee Findings and Decrees

<u>Type of Application</u>	<u>No. Received Dec 1977 thru Nov 1978</u>
Underground Water Rights	24
Change of Water Rights	41
Plan for Augmentation	4
Water Rights (Surface)	201
Diligence (Conditional)	110
To Make Absolute	8
Water Storage Rights	13
Applications Received in Water Court	387
*Structures filed on	598
**Number of Referee Consultations	All Cases

*Several "W" 1978 cases concerned numerous different structures which exceeded the number of "W" cases filed.

**Division 4's Division Engineer submits monthly recommendations to the Water Court on all published resume water cases.

"W" cases for 1978 have not been key punched for future tabulations updates, however, this will occupy some of the winter office time.

Early in 1978 Tom Aaron, Water Referee from Division 1, helped the Division 4 Water Court as temporary Referee. He worked on a part-time basis until summer. On July 10, 1978 Water Judge Fred J. Calhoun retired as District Judge and was replaced by Robert A. Brown as District Judge and Water Judge. On July 31, 1978 Elra L. Wilson was appointed as Water Referee for Division 4. Mr. Wilson was the original Water Referee in Division 4 and has served for over seven years on his first appointment.

VIII. ORGANIZATION

A. Water Conservation and Conservancy Districts:

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

Tri-County Water Conservancy District, % Tim Whitener, Manager,
601 North Park, Montrose, Colorado 81401.

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

Southwest Colorado Water Conservancy District, % Bob Tyner,
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., % Taramarcaz Brothers, Gunnison,
Colorado 81230.

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

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

W.D. 40

Alfalfa Ditch Co., % Sam Oaks, President, Eckert, Colorado 81418.

Big Ditch Co., % Andy Herman, President, Cedaredge, Colorado 81413.

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

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

W.D. 40 - continued

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, Cedar-
edge, Colorado 81413.

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

Crawford Conservancy District, % Austin Hall, Secretary, Paonia,
Colorado 81428.

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

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

Fruitland Irrigation Co., % R. C. Steckel, Secretary, Crawford,
Colorado 81415.

Fruitland Mesa Conservancy District, % Carton Meek, Maher, Colo-
rado 81421.

Grand View Canal Irrigation Co., % Don Reed, President, Crawford,
Colorado 81415.

W.D. 40 - continued

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

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

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

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

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

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

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

North Delta Canal Co., % James Winkler, President, Delta, Colorado 81416.

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

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

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

W.D. 40 - continued

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 Bond, Delta, Colorado 81416.

Saddle Mountain Ditch Co., % James Kent, 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., % R. M. Campbell, President,
Cedaredge, Colorado 81413.

Terror Ditch & Reservoir Co., % William O'Bannon, Paonia, Colo-
rado 81428.

W.D. 41

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

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

W.D. 41 - continued

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

W.D. 42

Grand Mesa Reservoir Co., % John Whiting, President, Whitewater,
Colorado 81527.

Kannah Creek Water Users Association, % W. D. Bradbury, Presi-
dent, 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.

W.D. 61

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

W.D. 61 - continued

Ray Ditch Co., % Charles Proctor, Secretary, Paradox, Colorado
81429.

W.D. 62

Big Cimarron Canal & Reservoir Co., % Frank Woodrow, Attorney,
144 South Uncompahgre St., 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., % Henry Stanton, President, Ridgway,
Colorado 81432.

1978

ANNUAL SUMMARY - DIVISIONS

ACRE FEET (11-1-77 thru 10-31-78)

Divisions	IRRIGATION				CURRENT YEAR		TRANS-MOUNTAIN	
	Non-Exempt Wells #	Ditch Structures Reported #	Direct Diversions To Irrigation	Diversions To Storage	Storage To Irrigation	Acres Irrigated	Export	Div. to Div. Import
1								
2								
3								
4	484	2,607	2,051,539	621,701	444,437	392,500	2,344	1419
5								
6								
7								
TOTAL								

Divisions	MUNICIPAL			INDUSTRIAL		RECREATION Storage - Wildlife Parks	ACTUAL STORAGE For Year All Reservoirs	# Decree Applications	# Water Court Applications
	Direct Diversions	Diversions To Storage	Storage Releases	Direct Diversions	Diversions To Storage				
1									
2									
3									
4	17,901	6,384	6,384	516,458	1,844,229	2,393,355	995,140	1,155,275	598
5									387
6									
7									
TOTAL									

IX. WATER COMMISSIONER'S SUMMARY - 1978

Division 4

Direct flow diversions (A.F.)	2,051,539
Reservoir storage (A.F.)	1,155,275
Amount delivered from storage	444,437
Acres irrigated	392,500
Number of ditches	2,607
Standard administration	1,902
Semi-standard administration	705
Number of daily ditch reports	44,312
Number of reservoirs served	219
Power diversions (A.F.)	1,855,399

District 28

Direct flow diversions (A.F.)	250,068
Flow diverted to reservoir storage (A.F.)	1,493
Amount delivered from storage	1,494
Acres irrigated	33,672
Number of ditches	216
Standard administration	204
Semi-standard administration	12
Number of daily ditch reports	1,435
Number of reservoirs served	6
Average demand (flow & reservoir) AF/AC..	7.47
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.)	503,337
Flow directed to reservoir storage (A.F.)..	82,634
Amount delivered from storage	67,157
Municipal and other	1,080
Acres irrigated	134,747
Number of ditches	772
Standard administration	700
Semi-standard administration	75
Number of daily ditch reports	30,555
Number of reservoirs served	164
Average demand (flow & reservoir) AF/AC ...	4.04
Power diversions	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.)	610,691
Flow diverted to reservoir storage (A.F.) ..	161
Amount delivered from storage	22,856
Acres irrigated	88,646
Number of ditches	81
Standard administration	72
Semi-standard administration	9
Number of daily ditch reports	928
Number of reservoirs served	4
Average demand (flow & reservoir) AF/AC ...	688
Power diversions	1,510

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

District 42

Direct flow diversions (A.F.)	542,917
Flow diverted to reservoir storage (A.F.) .	4,463
Amount delivered from storage	958
Acres irrigated	8,902
Number of ditches	53
Standard administration	33
Semi-standard administration	20
Number of daily ditch reports	3,106
Number of reservoirs served	18
Average demand (flow & reservoir) AF/AC ...	5.22
Power diversions	491,060

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

District 59

Direct flow diversions (A.F.)	277,793
Flow diverted to reservoir storage (A.F.)..	38,640
Amount delivered from storage	23,820
Acres irrigated	35,220
Number of ditches	306
Standard administration	195
Semi-standard administration	111
Number of daily ditch reports	1,749
Number of reservoirs served	3
Average demand (flow & reservoir) AF/AC ...	7.82
Power diversions	0

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

District 60

Direct flow diversions (A.F.)	138,333
Flow diverted to reservoir storage (A.F.) .	16,529
Amount delivered from storage	12,846
Acres irrigated	29,070
Number of ditches	326
Standard administration	178
Semi-standard administration	148
Number of daily ditch reports	1,679
Number of reservoirs served	10
Average demand (flow & reservoir) AF/AC ...	3.61
Power diversions	19,173

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.)	17,273
Flow diverted to reservoir storage (A.F.) .	1,560
Amount delivered from storage	1,025
Acres irrigated	3,155
Number of ditches	77
Standard administration	44
Semi-standard administration	33
Number of daily ditch reports	1,621
Number of reservoirs served	1
Average demand (flow & reservoir) AF/AC ...	5.80
Power diversions	0

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.)	132,939
Reservoir storage 9A.F.)	775,860
*Amount delivered from storage	477,599
Acres irrigated	38,000
Number of ditches	308
Standard administration	243
Semi-standard administration	65
Number of daily ditch reports	649
Number of reservoirs served	8
**Average demand (flow & reservoir) AF/AC ..	3.49
Power diversions	1,844.229

*Includes delivered from the Currecanti system.

**Includes 116,631 A.F. from Taylor Reservoir.

SPECIAL NOTE FOR DISTRICT 62 ONLY:

Water used by Uncompahgre Project from
Gunnison River and Reservoirs 328,444 A.F.

Silverjack Reservoir storage: Irrigation - 7,832
Fish & river - 24,785

TOTAL 32,617 A.F.

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

District 63

Direct flow diversions (A.F.)	17,266
Reservoir storage (A.F.)	0
Amount delivered from storage	0
Acres irrigated	1,891
Number of ditches	82
Standard administration	49
Semi-standard administration	33
Number of daily ditch reports	856
Number of reservoirs served	0
Average demand (flow & reservoir) AF/AC ...	7.72
Power diversions	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.)	109,672
Flow diverted to reservoir storage (A.F.) .	115
Amount delivered from storage	100
Acres irrigated	15,724
Number of ditches	352
Standard administration	158
Semi-standard administration	194
Number of daily ditch reports	1,278
Number of reservoirs served	5
Average demand (flow & reservoir) AF/AC ...	6.97
Power diversions - inoperative	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.)	9,852
Reservoir storage (A.F.)	0
Amount delivered from storage	0
Acres irrigated	3,473
Number of ditches	34
Standard administration	26
Semi-standard administration	8
Number of daily ditch reports	456
Number of reservoirs served	0
Average demand (flow & reservoir) AF/AC ...	2.84
Power diversions	0

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

NA - No water available
 NU - Non use
 NR - No record

TABLE A

DIVISION SUMMARY - DIVISION NO. 4

Direct Flow Diversions

1978

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-Mun. Diversions A. F.	Total Diversions A.F.	No. of Daily Ditch Rpts	Delivered to Compact Cmtmt.A.F.
	Active	Inactive	NA					NU	NR					
28	204	0	0	250,068	33,672	7.42	880	0	0	1,905	585	252,935	1,433	0
40	772	12	58	477,371	134,747	3.54	6,343	5,790	11,076	0	2,234	503,337	21,224	0
41	72	1	1	610,691	88,646	6.88	5,038	2,020	0	1,236	0	617,116	858	0
42	33	0	3	46,512	8,902	5.22	491,060	5,345	0	0	0	542,917	2,544	0
59	195	19	38	275,553	35,220	7.82	640	1,600	0	0	0	277,793	1,736	0
60	178	22	5	74,008	29,070	2.73	18,745	690	8,062	5,792	0	107,297	1,484	0
61	44	1	22	17,273	3,155	5.47	0	211	0	0	0	17,484	1,198	0
62	243	20	45	132,939	38,000	3.49	1,869,014	1,300	0	0	792	1,878,746	626	0
63	49	0	7	16,564	1,891	8.75	0	702	0	0	0	17,266	856	0
68	158	23	31	109,672	15,724	6.97	1,615	243	7,790	47	152	119,519	1,027	0
73	26	0	5	9,852	3,473	2.84	0	0	0	0	0	9,852	443	0
Total	1,978	97	196	2,020,503	392,500	5.15	2,393,335	17,901	0	8,980	3,763	4,375,298	33,429	0

TABLE B

DIVISION SUMMARY - DIVISION NO. 4

Storage Report - Acre Feet

1978

Water District	Amount in Storage Acre Feet		Actual Amt. Diverted to Storage During Season	Delivered from Storage to Irrigation	Storage to Industrial/Power Use	Storage for Municipal Use	Storage for Recreation Use	Storage to Projects
	11-1-77	6-1-78						
28	2,718	2,719	0	1,494	0	0	1,905	0
40	6,122	88,756	82,634	67,157	0	1,080	88,756	32,099
41	263	364	161	161	0	202	1,332	0
42	2,883	4,346	4,463	958	0	2,687	0	0
59	44,760	52,560	38,640	23,820	0	0	81,040	0
60	5,084	21,613	16,529	12,846	11,170	1,095	21,613	11,832
61	140	1,700	1,560	1,025	0	0	1,200	0
62	346,436	981,377	477,599	336,876	1,844,229	1,300	799,246	125,063
63	0	0	0	0	0	0	0	0
68	1,715	1,840	115	100	0	20	48	0
73	0	0	0	0	0	0	0	0
Total	410,121	1,155,275	621,701	444,437	1,855,399	6,384	995,140	168,994

WORKLOAD AND STATISTICAL INDICATORS

- Statistics -

<u>Description</u>	<u>1977-78</u>
Acre Feet Water Used	4,375,298
Acre Feet Diverted for Agricultural Use	2,051,539
Acre Feet Diverted for Industrial Use	2,393,335
Acre Feet Diverted for Recreational Use	8,980
Acre Feet Diverted for Urban Use (Municipal)	24,285
Acre Feet Delivered to Compact Commitment	None
Acre Feet Water Stored (Maximum)	1,155,275
Acre Feet Water Divisions Transbasin Diversion	3,763
Acres Irrigated	392,500
Ditches, Wells & Reservoirs Administered (No Wells)	2,607
Daily Ditch Reports	44,312
Acre Feet Water Delivered from Storage	444,437

UNCOMPAHGRE PROJECT

1978 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 Uncompahgre Project was taken over by the Association on January 1, 1932.

The Project irrigation system includes 575 miles of irrigation canals and laterals, including 7.2 miles of tunnels and 5.1 miles of siphons. The Project drainage system includes 204 miles of open drains.

The water content of the snow on the Uncompahgre River watershed measured at the Ironton Park snow course was 160% on May 1, 1977.

Adequate water supplies were available until June. The balance of the irrigation season the Project delivered 60 to 70% water.

Taylor Dam failed to fill, reaching an elevation of 9316.60 amounting to storage of 81,210 acre feet on July 22, 1978.

Several serious operating difficulties were caused by canal bank slides on the West Canal and M & D Canals. The West Canal had two slides, milepost 3.32 and 16.44. Again in 1978 the slide on the M & D at milepost 4.30 required a large amount of earth fill on the lower bank, plus recleaning of some drains and installing of several more drains. By September all three slides were basically stabilized.

The Gunnison Tunnel Rehabilitation and Betterment Program continued during the non-irrigation season. Several small holes in the walls and ceiling were patched using a "Shot-crate" unit. A total of \$1,129,590 has been spent on the Gunnison Tunnel Program through September 30, 1978.

Rehabilitation of major structures included 40 reinforced concrete drop structures.

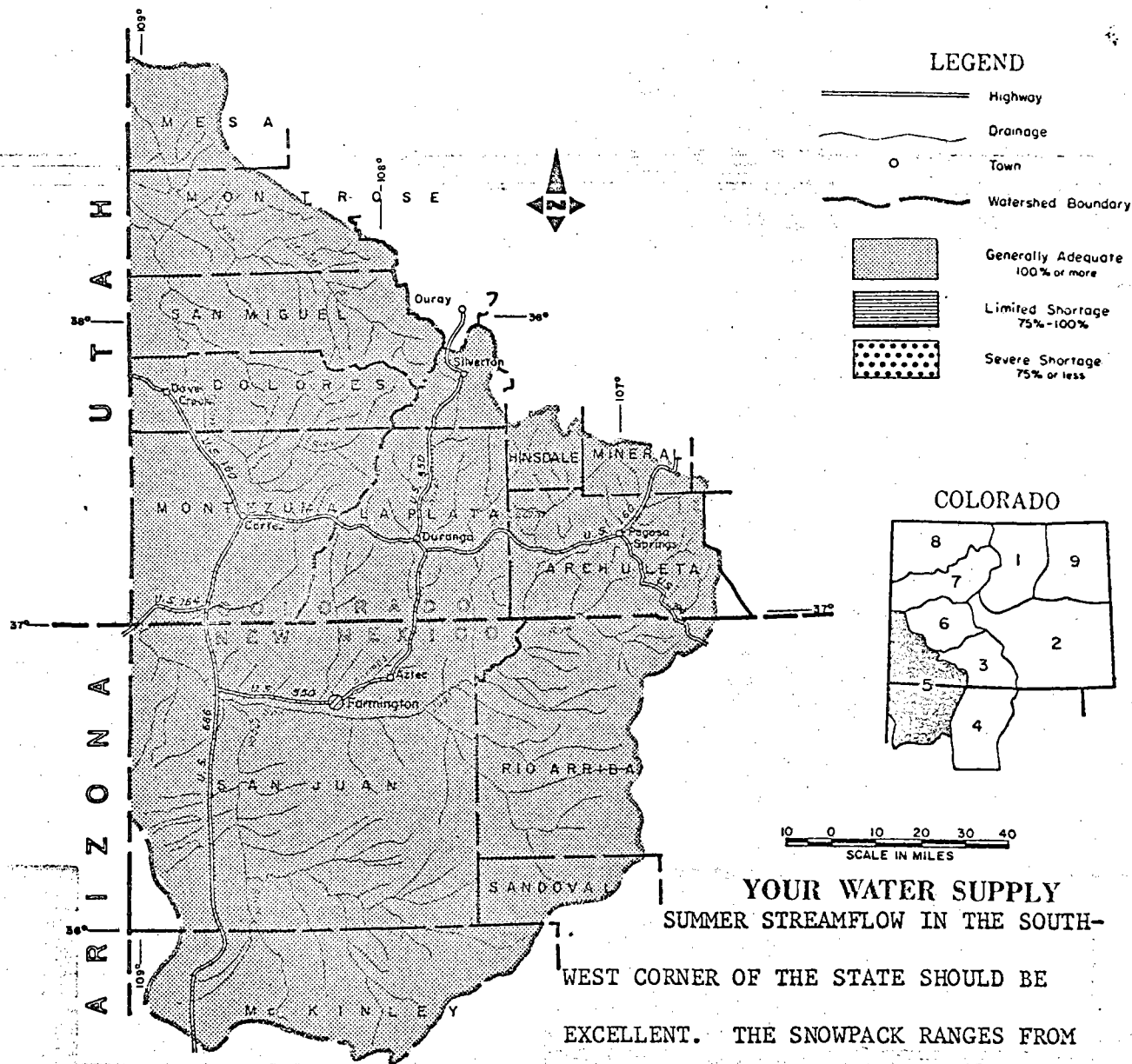
UNCOMPAHGRE VALLEY WATER USERS

John W. Bigham, Manager

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, 1978

U.S. DEPARTMENT OF AGRICULTURE—SOIL CONSERVATION SERVICE
 SOIL EXPERIMENT STATION—SANTA FE, NEW MEXICO



WEST CORNER OF THE STATE SHOULD BE EXCELLENT. THE SNOWPACK RANGES FROM 106% TO 138% OF THE 15-YEAR AVERAGE. THE DOLORES AND MANCOS HAVE ESPECIALLY HIGH FORECASTS. CARRYOVER STORAGE IS GOOD. THE FIRST OF MAY STORM SHOULD IMPROVE CONDITIONS, ESPECIALLY THE VALLEY SOIL MOISTURE.

This report prepared by
 JACK N. WASHICHEK—BERNARD A. SHAFER
 SNOW SURVEY UNIT, SOIL CONSERVATION SERVICE
 DENVER, COLORADO

Issued by
 ROBERT G. HALSTEAD—STATE CONSERVATIONIST
 DENVER, COLORADO
 A. W. HANDELSTROM—STATE CONSERVATIONIST
 ALBUQUERQUE, NEW MEXICO
 U.S. DEPARTMENT OF AGRICULTURE—SOIL CONSERVATION SERVICE
 D. W. GILLASPIE—AREA CONSERVATIONIST
 ALAMOSA, COLORADO
 JAMES E. TATUM—AREA CONSERVATIONIST
 SANTA FE, NEW MEXICO

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

FORECAST POINT	FORECAST	% of Average	Average *
Animas River at Durango	550	130	423
Dolores River at Dolores	300	129	232
La Plata River at Hesperus	30	125	24
Los Pinos River at Bayfield (1)	230	116	198
Mancos River near Towac (2)	18	129	14
Inflow to Navajo River (1 & 3)	650	109	597
Piedra Creek at Arboles	200	108	185
San Juan River at Carracas	350	100	354
San Miguel River at Placerville	170	131	130

(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
Florida River	Exc.	Avg.
Hermosa Creek	Exc.	Avg.
West Dolores River	Exc.	Avg.
Williams Creek	Exc.	Avg.

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

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average *
Groundhog	22	11	4	12
Jackson Gulch	10	4	0	7
Lemon	40	7	22	25
Navajo	1696	1030	1090	944
Vallecito	126	39	50	68

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	Average *
Animas	6	750	127
Dolores	4	---	138
San Juan	5	538	106

* 1958-1972 period.

Return if not delivered
 UNITED STATES DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 SNOW SURVEY UNIT
 P.O. BOX 17107
 DENVER, COLORADO 80217
 OFFICIAL BUSINESS
 PENALTY FOR PRIVATE USE, \$300

POSTAGE AND FEES PAID
 U. S. DEPARTMENT OF AGRICULTURE
 AGR-101

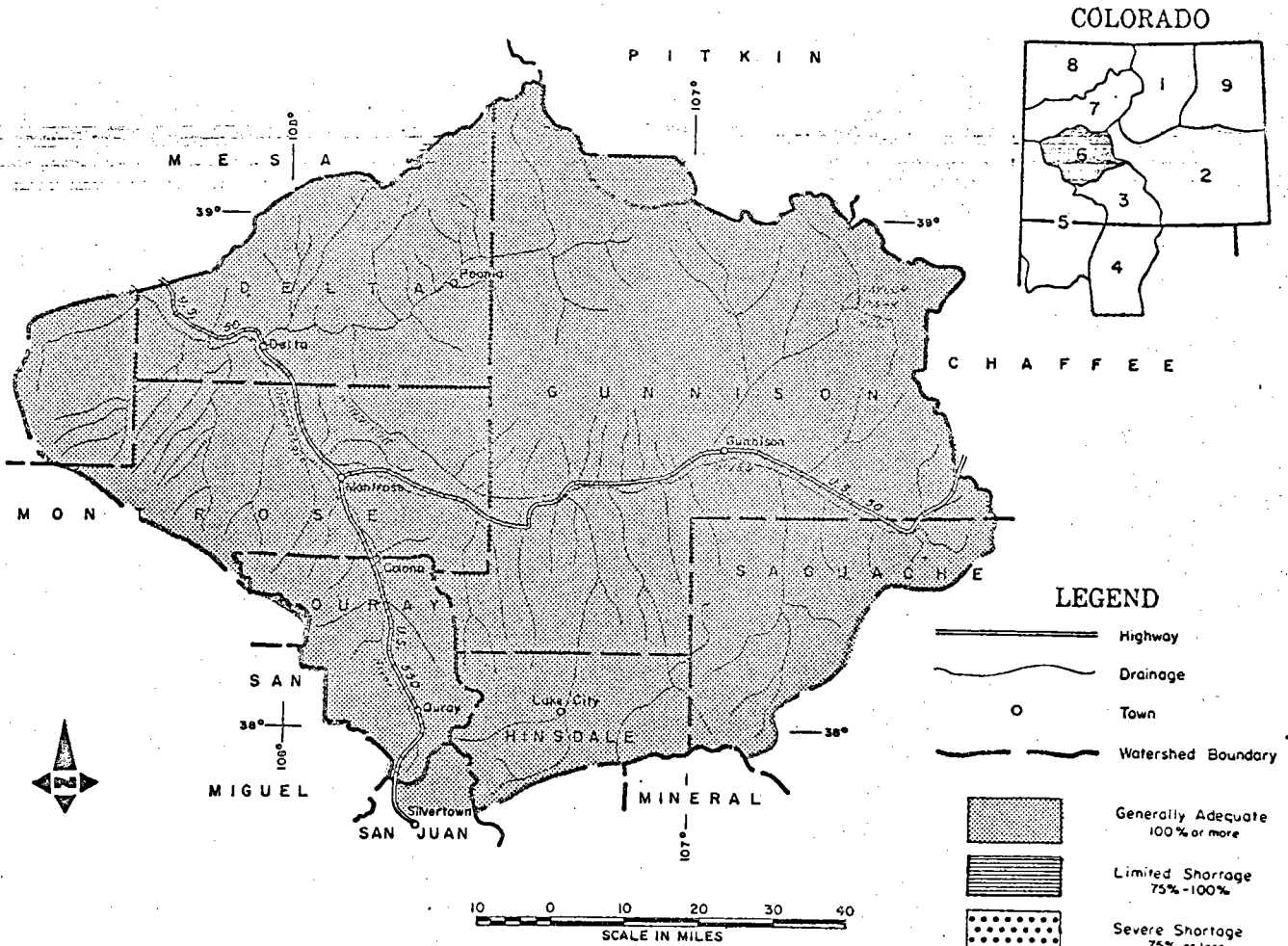


FIRST CLASS MAIL

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

as of
MAY 1, 1978

U.S. DEPARTMENT OF AGRICULTURE—SOIL CONSERVATION SERVICE
SUPERVISOR'S STATION, STATE ENGINEERS OF COLORADO AND NEW MEXICO



APRIL WAS ANOTHER GOOD MONTH FOR SNOW. BASIN SNOWCOVER IS NOW 129 TO 167% OF NORMAL WITH THE GRAND MESA AREA HAVING THE HEAVIEST ACCUMULATIONS. SNOWMELT RUNOFF SHOULD PROVIDE ABOVE NORMAL STREAMFLOW. RESERVOIR STORAGE REMAINS BELOW NORMAL BUT SHOULD IMPROVE CONSIDERABLY WITH THE SPRING RUNOFF. SOIL MOISTURE IS RATED AS FAIR TO GOOD IN IRRIGATED AREAS.

This report prepared by
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DENVER, COLORADO

Issued by
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GRAND JUNCTION, COLORADO
U.S. DEPARTMENT OF AGRICULTURE—SOIL CONSERVATION SERVICE

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

FORECAST POINT	FORECAST	% of Average	Average *
Gunnison River inflow to Blue Mesa Reservoir (1)	930	117	793
Gunnison River near Grand Junction (2)	1500	127	1184
North Fork of Gunnison (3)	350	133	263
Surface Creek near Cedaredge	21	131	16
Uncompahgre River at Colona	175	130	134

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

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

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

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

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average *
Blue Mesa	830	276	360	308
Morrow Point	121	114	113	115
Taylor	106	28	58	62

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	Average *
Gunnison	12	1059	152
Surface Creek	3	1717	167
Uncompahgre	3	399	129

* 1958-1972 period.

Return if not delivered
 UNITED STATES DEPARTMENT OF AGRICULTURE
 SOIL CONSERVATION SERVICE
 SNOW SURVEY UNIT
 P.O. BOX 17107
 DENVER, COLORADO 80217
 OFFICIAL BUSINESS
 PENALTY FOR PRIVATE USE, \$ 300

POSTAGE AND FEES PAID
 U. S. DEPARTMENT OF
 AGRICULTURE
 AGR-101



FIRST CLASS MAIL

TABLE OF ORGANIZATION - PERSONNEL

IRRIGATION DIVISION NO. 4

Division Engineer - Ralph V. Kelling

Assistant Division Engineer - Thomas A. Kelly

Secretary I-A - L. Jean Duncan

Hydrographer - Charles G. David

Water District 28

WATER COMMISSIONER A
John S. Garber

Water District 40

PRIN. WATER COMMISSIONER
Richard L. Drexel*

Water District 41

WATER COMMISSIONER B
Crandall Howard

WATER COMMISSIONER C
Elton J. Watson*

WATER COMMISSIONER B
Mack Gorrod

Water District 42

WATER COMMISSIONER C
Richard Belden

WATER COMMISSIONER A
Lester Whiting

Water District 43

WATER COMMISSIONER A
Willard Bull
James E. Carr
Lloyd Connell
Thomas Jones
John McHugh
James Miller
Robert Starr
Marvin Stephens
Stephen Tuck
Wayne Wiseman
Charley Woolley
David Woolley

Water District 59

WATER COMMISSIONER B
Edwin S. Hofmann*

WATER COMMISSIONER A
Robert Drexel

Water District 60

WATER COMMISSIONER B
Lyman D. Campbell

Water District 61

WATER COMMISSIONER B
Clinton L. Oliver

Water District 62

WATER COMMISSIONER B
Edwin S. Hofmann*

Water District 63

WATER COMMISSIONER C
Richard Belden

Water District 68

WATER COMMISSIONER B
H. Roger Noble*

Water District 73

WATER COMMISSIONER C
Richard Belden

WELL COMMISSIONER
Dwayne Mansker*

WATER COMMISSIONER A
Lester Whiting

*Annual

AREAS OF RESPONSIBILITY OF WATER COMMISSIONERS

IRRIGATION DIVISION NO. 4

WELL COMMISSIONER

Dwayne Mansker - Division Wide

WATER DISTRICT 28

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

WATER DISTRICT 40

Richard Drexel (SRWC) - Crystal Creek; the Gunnison River from Mesa County line to Montrose County line & its tributaries except the Uncompahgre River

Elton Watson (WCC) - North Fork of the Gunnison River and Smith Fork

WATER COMMISSIONERS A:

Willard Bull - Upper Surface Creek

James Carr - Leroux Creek

Lloyd Connell - Minnesota Creek & Stewart Mesa

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

Thomas Jones - Gunnison River & Escalante Creek

Jack McHugh - Youngs, Kiser & Ward Creeks

James Miller - Muddy, Anthracite & Hubbard Creeks

Robert Starr - Park Basin

Marvin Stephens - Leon Reservoirs

Stephen Tuck - Forked Tongue

Wayne Wiseman - Granby & Battlement Reservoirs

Charley Woolley - Lower Surface Creek

David Woolley - Dry Creek & Alfalfa Run

AREAS OF RESPONSIBILITY OF WATER COMMISSIONERS (cont'd)

WATER DISTRICT 41

Crandall Howard
(WCB)

- Uncompahgre River from Colona to Delta

WATER DISTRICT 42

Richard Belden
(WCC)

- Gunnison River below Mesa County line & its tributaries

Lester Whiting
(WCA)

- Same area

WATER DISTRICT 59

E. S. Hofmann
(WCB)

- Gunnison River above Gunnison & Tributaries on north side of the Gunnison River from Gunnison to Mesa Creek

Robert Drexel
(WCB)

- Same area

WATER DISTRICT 60

Lyman Campbell
(WCB)

- 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 & Cebolla Creek

WATER DISTRICT 63

Richard Belden
(WCC)

- Dolores River below confluence of San Miguel River

WATER DISTRICT 68

H. Roger Noble
(WCB)

- Uncompahgre River above Colona

WATER DISTRICT 73

Richard Belden
(WCC)

- Little Dolores River

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

	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
<u>1976</u>												
Precip. (In.)	0.49	0.79	0.97	0.30	0.35	0.50	1.15	1.49	0.48	0.09	0.17	0.00
Avg. Max. Temp.	19.00	17.00	27.00	36.00	57.00	77.00	86.00	80.00	74.00	60.00	46.00	38.00
Avg. Min. Temp.	-1.00	-8.00	3.00	9.00	25.00	41.00	48.00	45.00	39.00	24.00	12.00	4.00
Total Ann. Precip.	6.06 In.											
Total Ann. Dischg.	805,400 A.F.											
<u>1977</u>												
Precip. (In.)	0.37	0.23	0.11	0.89	0.38	0.38	3.28	0.73	0.68	0.93	0.81	.78
Avg. Max. Temp.	31.00	41.00	44.00	68.00	69.00	71.00	82.00	83.00	75.00	64.00	46.00	34.00
Avg. Min. Temp.	1.00	8.00	11.00	29.00	38.00	36.00	49.00	47.00	41.00	29.00	20.00	10.00
Total Ann. Precip.	0.37 In.	0.60	0.71	1.60	1.98	2.36	5.64	6.37	7.05	7.98	8.79	9.57
Total Ann. Dischg.	159,570 A.F.	199,920	234,890	287,530	356,150	426,710	494,620	563,920	612,112	652,304	666,923	676,693
<u>1978</u>												
Precip. (In.)	1.42	.89	.42	.40	.55	.40	.50	.35	.27	.94	.80	
Avg. Max. Temp.	26.00	28.00	42.00	58.00	65.00	79.00	85.00	83.00	75.00	63.00	48.00	
Avg. Min. Temp.	3.00	1.00	23.00	28.00	34.00	39.00	47.00	45.00	39.00	26.00	22.00	
Total Ann. Precip.	1.42 In.	2.31	2.73	3.13	3.68	4.09	4.59	4.94	5.21	6.15	6.95	
Total Ann. Dischg.	136,177 A.F.	157,337	181,311	220,191	246,319	280,259	364,289	445,749	529,129	595,774	644,629	