

ANNUAL REPORT

1977 - Water Year

Irrigation Division No. 4



January 12, 1978

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 1977.

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, Jr.*  
Ralph V. Kelling, Jr.  
Division Engineer

RVK/slb

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1977 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 Dolores River in Montrose and Mesa Counties. Larger communities in the division include 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 65,000 people. The Gunnison River basin encompasses the largest portion of Division 4 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 in Division 4. Several other small basins make up approximately 2,000 square miles. In 1977, three hundred and seventy-eight thousand (378,000) acres were irrigated in the division, and there is less than 3,000 dry land acres farmed in Division 4. The agricultural crop patterns

are similar to the 1976 season with the exception that there was a total elimination of sugar beets as a farm crop. This change in planting was due to the closing of the Holly Sugar plant at Delta, Colorado, at the end of the 1976-1977 campaign. Additional mention will be made relative to this at other points in this report. Major crops are hay, corn, grains, and various types of fruits (peaches, pears, plums, apricots, cherries, apples). Beef cattle and sheep are the primary livestock products with some interest continued to be shown in pork production. Many small farmers are now raising some commercial swine. Eleven former water districts are located in Division 4.

Elevations range from 4,500 feet to an excess of 14,000 feet in the San Juan mountain range. The climate is semi-arid with annual precipitation varying from 8 to 15 inches in much of the agricultural area. In all parts of the division, much below average precipitation occurred in 1977.

Summer moisture was limited in most of Division 4. However, rain storms in July, August, and September came at a time when critical flow conditions existed in many tributary streams. This year's (December, 1976 - November, 1977) accumulative precipitation in Montrose was 7.14 inches, which is 2.37 inches below normal.

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, cut their work force more than 50%, and additional reductions are expected. Other smaller mineral mining companies are following the same pattern. This action is being taken in order to reduce expenses, that a profit might be made. Uranium exploration and development is in the middle of a boom with an ore buying station located at Vancorum near Naturita. The western section of the division is experiencing a boom economy due to the uranium and oil-gas exploration. Uranium is similar to times of the late 1940's and early 1950's. Coal, silver, copper, and zinc are major mineral resources with oil and gas exploration continuing to be active. Heavy exploration drilling has been taking place in several areas of the division, and seismic exploration continues at an active pace in the western area of the division.

Tourism plays a major role in the division's economy, and 1977 was an excellent year for all aspects of this industry.

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

1. Coal resources are developing into a major economic factor, with acquisition and development of water

- rights by major energy and industrial companies,
2. Continued operation of Russell Stover Candy Company in Montrose,
  3. The rapid development of Colorado Ute Electric Association facilities in Montrose,
  4. The processing and packaging of agricultural products,
  5. Continued oil and gas exploration activity,
  6. Exploration and development of uranium resources,
  7. Mining and milling activities continue in the Ouray-Telluride, Westend, and Gunnison areas,
  8. Tourist-recreation industry continues to grow,
  9. U. S. Bureau of Reclamation activities include the Curecanti Project and Dallas Dam,
  10. Population growth involves expansion of all services.

The economy is agriculturally dominated and, because of this, the major water usage is for irrigation. Farms and ranches are oriented to the region's drainage systems and related water diversions are tied to the 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 Curecanti Unit Reservoirs of the Colorado River Storage Project used approximately one million acre feet of water in the production of electrical power in 1977. The hydro-power plants of the three reservoirs will have a



combined capacity of 200,000 kilowatts at the completion of Crystal Dam. Crystal Power Plant is scheduled to be completed in early 1978. Storage is already occurring in Crystal Reservoir. Operating water resource projects within Division 4 are the Uncompahgre Project, which includes Taylor Park Reservoir and the Gunnison Tunnel, Fruitgrowers 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 Curecanti Unit 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 appears to be closer to the beginning than anytime since its inception. Field offices are being located and field personnel continue to increase their planning and preconstruction activities. Relocation of U. S. Highway 550 should begin early in 1978. A more comprehensive statement 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 4'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 activity. 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 resources along the North Fork of the Gunnison and the Cedaredge areas are beginning to actually increase land development in those parts of Water District 40. Housing is at a premium in the Paonia area and development is planned for many locations in these areas. Surface flows in these locations are over appropriated and will produce many problems concerning water supply as this land is developed. The towns of Hotchkiss, Cedaredge, and Paonia are planning the development of additional water supplies. All facets of Division 4 citizen residence during 1977 have been touched by severe drought. Preliminary records indicate that water resources were the lowest since the beginning of formal records.

SPECIAL NOTE - Coal development, North Fork Valley

Three mines are active in the North Fork of the Gunnison Valley. This year they will produce and ship more than 1,500,000 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 that is 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

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

## II. PERSONNEL

Russell Bertram's disability retirement was approved by PERA during the winter of 1977, and Wayne Wiseman was appointed through regular Personnel Department procedure to fill Russell's vacant job. Mr. Bertram's retirement was of short duration when he passed away this past summer as the result of a massive stroke. Division 4 personnel and water users of the Cedaredge, Colorado, area will remember Russell Bertram as a conscientious water official and a good friend.

Ed Blank, Division 4 and 7 cooperative hydrographer was given a great boost when Pat Archey was assigned as full time hydrographer to Division 4. His appointment was made effective July 1, 1977.

Mrs. Audrey Keep, Clerical Assistant, resigned in April, 1977, and was replaced by Mrs. Shirley Brown, Typist B.

Retirement applications have been submitted by Woodrow Saunders, WD-42, 63, and 73, and by Ralph Glendening, WD-41; both of these commissioners will retire on February 1, 1978. Crandall Howard, water commissioner for WD-28, will replace Ralph Glendening, and announcements and examinations are now pending for Water Commissioner A in WD-28 and Water Commissioner C in WD-42, 63, and 73.

Continued recognition is voiced of the high qualifications and abilities of our Division 4 field and office staff.

By their work, the responsibilities of Irrigation Division 4 were well attended.

The following is a list of personnel in the division for the year 1977. Mileage listed is for the calendar year 1977, with December being estimated on the basis of 1976.

PERSONNEL

Name	Position	District	Months Worked/ Budgeted		Mileage
			Budgeted	Worked	
*Patrick J. Archey	Hydro	Staff	Annual		8,292
Richard L. Belden	WCA	40	6 mos	6½ mos	9,263
*Shirley L. Brown	TYP B	Staff	--	2½ mos	--
**Ed Blank	Hydro	Div 4/7	Annual		--
Willard N. Bull	WCA	40	7 mos	7 mos	4,654
Lyman D. Campbell	WCB	60	11 mos	9½ mos	10,510
James E. Carr	WCA	40	7 mos	8½ mos	12,847
Lloyd E. Connell	WCA	40	7 mos	6½ mos	6,490
Richard E. Drexel	SRWC	40	Annual		9,278
Robert Drexel	WCA	59	6 mos	7¼ mos	6,201
Ralph Glendening	WCB	41	Annual		9,179
Mack A. Gorrod	WCB	40	7 mos	6-3/4 mos	5,337
Edwin S. Hofmann	WCB	59,62	Annual		15,554
C. Crandall Howard	WCB	28	7 mos	7¼ mos	8,849
***Audrey M. Keep	CAB	Staff	6 mos	4 mos	--
Ralph V. Kelling, Jr.	SWRE	Staff	Annual		3,023
Thomas A. Kelly	SRWRE	Staff	Annual		7,025
Dwayne C. Mansker	WCB	1042	Annual		6,453
Melita Maten	SIA	Staff	Annual		--
John L. McHugh	WCA	40	6 mos	8 mos	8,481
James A. Miller	WCA	40	6 mos	6 mos	11,845
H. Roger Noble	WCB	68	Annual		11,066

PERSONNEL (continued)

Name	Position	District	Months Worked/ Budgeted		Mileage
			Budgeted	Worked	
Clinton L. Oliver	WCB	61	7 mos	8 mos	7,906
**Jack Raine (shared with Div. 5)	WCA	73	6 mos	6 mos	10,372
**W. W. Saunders (shared with Div. 5)	SRWC	42,63,73		Annual	recorded in Div 5
Marvin Stephens	WCA	40	6 mos	6½ mos	1,706
Paul Stockemer	WCA	40	7 mos	6-3/4 mos	7,738
Stephen Tuck	WCA	40	6 mos	7¼ mos	6,991
Elton J. Watson	WCC	40		Annual	18,738
Lester E. Whiting	WCA	42	6 mos	6¼ mos	7,804
****Wayne Wiseman	WCA	40	7 mos	6¼ mos	3,164
Charley Woolley	WCA	40	6 mos	7 mos	6,130
David E. Woolley	WCA	40	6 mos	7 mos	2,961
TOTALS			133 mos (11.083 FTE)	140½ mos (11.708 FTE)	<u>227,857</u>

State Vehicle Mileage ..... 18,748

- \* New employees with Division 4.
- \*\* Shared with either Division 5 or 7, as indicated.
- \*\*\* Audrey Keep resigned April, 1977.
- \*\*\*\* Replacement for Russell Bertram (retired).

This report is for the period December 1976 through November, 1977.

WATER COMMISSIONERS' ANNUAL MILEAGE REVIEW

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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

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\*December 1977 mileage estimated from 1976.



### III. WATER SUPPLY

#### A. Snow Pack

Water supply forecasts for the Gunnison and San Miguel watersheds were reported from poor to very poor. An extremely short water supply was forecasted, and all streams were expected to run below their previous minimums. A great part of the normal snow-pack area was without snow cover during all of the snow season. All drainage areas surveyed recorded 50% or less for the final SCS snow survey. High water was not predicted on any major rivers and no flooding was reported throughout the division.

Snow pack at the major ski areas throughout the division was so poor that most ski resorts were open only a small fraction of their normal time. Winter snow-related recreation activities were at a near stand still during most of the season. Many snow-related businesses were forced out of business due to the minimum snow conditions.

The cloud seeding weather modification program in the San Juan mountains directed by the Bureau of Reclamation was completed at the end of the 1976 season and final evaluations are still pending. The following is quoted from a letter to this office from Dr. Archie Kahan, the USBR Chief of Division of Atmospheric Water Resources Management, relative to this project:

"The field activities of the Colorado River Basin Pilot Project, a 5-year research program in Colorado's San Juan mountains, are completed and the final analysis are well underway. Preliminary analysis from the project indicate:

1. Mountain snowfall increases can be caused by selective seeding of the warmer winter clouds.
2. With protective restraints implemented during the project, no adverse environmental effects were found.
3. Downwind increases in precipitation are indicated rather than often presupposed decreases.
4. Airflow patterns near the mountains are complex, which makes targeting of seeding plumes difficult.

Recent studies estimate the water supplies of the Colorado River could be increased an average of some 1.3 million acre-feet annually at a cost of about \$2.50 per acre-foot."

The Grand Mesa Water Users Association and Grand Mesa Conservancy District continue to be involved in weather modification programs. There were few opportunities to seed clouds because there were very few days when clouds were present to seed. We are not aware of any reports available on this

project; however, it was in effect during the 1977 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 area. Copies of the May, 1977, snow surveys are found at the end of this report.

SUMMARY OF SNOW MEASUREMENT - May 1, 1977

<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	15	14
Surface Creek	3	9	10
Uncompahgre	3	31	32

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	310	39	793
Gunnison River near Grand Junction	400	34	1184
Surface Creek near Cedaredge	8	50	16
Uncompahgre River at Colona	51	38	134

Soil Moisture - May 1, 1977

Rated as poor.

## B. Precipitation - Summer

The water year began with much below average precipitation through April, 1976. Below normal precipitation has been experienced from May through June, near normal July, August, and September precipitation was recorded. Some summer thunder storms occurred throughout the division, however, the majority of summer water usage came from minimum stream flow and much below average storage supplies. The fall season in Division 4 has been generally dry with exceptionally good conditions for crop harvesting. Carry-over storage is critically below average and soil moisture is below average. Much above normal winter precipitation will be needed if the water outlook for 1978 is to be favorable. No hail suppression work is being conducted in Division 4.

### CLIMATOLOGICAL DATA 1976:

<u>County</u>	<u>Avg. Annual Temp., F<sup>o</sup></u>	<u>Depar- ture</u>	<u>Total Preci- pitation, In.</u>	<u>Depar- ture</u>
Delta	35.9	.7	3.13	-8.79
Mesa	51.9	- .8	5.27	-3.14
Montrose	48.9	- .2	6.60	-2.91
Ouray	44.2	-	9.54	-
San Miguel	39.9	.1	16.73	-6.68
Gunnison	35.3	-2.4	9.55	-1.69
Hinsdale	37.3	-	8.82	-
Saguache	40.9	-2.2	5.63	-1.74

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#### C. Floods

No flows in any area of the division were considered to approach flood conditions in 1977. Most of the rivers did not reach stages of any consequences. There was no damage reported in Division 4.

#### 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 2,787,754 acre feet with approximately 350,000 acre feet being diverted and used in other drainages. The beneficial use of the water resources in Division 4 would exceed more than 3 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 printout and a count of permits, breaks down as follows:

<u>Type of Wells</u>	<u>Number of Wells</u>	<u>GPM</u>	<u>CFS</u>
0 - Household Only	360	5,400	12.00
1 - Domestic	1,510	20,940	46.53
2 - Livestock	840	5,490	12.20
3 - Domestic & Stock	160	2,400	5.33
4 - Commercial	138	6,460	14.35
5 - Industrial	41	8,270	18.37
6 - Irrigation	132	31,770	70.60
7 - Stock & Irrigation	47	10,575	23.50
8 - Municipal	42	10,700	23.77
9 - Other	38	2,050	4.55

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Total Registered Wells..... 3,151

F. Transmountain and Transbasin Diversions - 1977

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	207
Carbon Lake Ditch	Mineral Creek	Pinon Ditch Co. Colona, Colorado	559
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 Cr. Marshall Creek	Rocky Ford Highline Canal Co. Rocky Ford, Colorado	No Diversion
Tabor	Tr. Cebolla Cr.	Colo. Div. of Wildlife Alamosa, Colorado	180
Tarbell	Cochetopa	Saguache Land & Wtr. Co. Saguache, Colorado	162
Divide Cr. Highline Feeder Ditch	Divide Creek	F. M. Starbuck, Mgr. Silt, Colorado	690
Leon Lake	Leon Creek	Sam Oaks Eckert, Colorado	517

Transbasin Diversions:

Leopard Cr. Ditch	Leopard Creek	Harry McClure (Irrigation) Ridgway, Colorado (Stock)	669 367
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	3,140
Gunnison Tunnel	Gunnison River	" "	341,321
Head & Ferrier	Soap Creek	H. Head & Ferrier Delta, Colorado	46.7
Lake Brennand	Lake Brennand	Town of Crested Butte, Colorado	90.8
Meek Tunnel	Crystal Creek	Carton Meek Maher, Colorado	47.4
Mesa Creek Ditch	Mesa Creek	Carton Meek Maher, Colorado	129.0

G.

The 1977 season marked the third full year in which Division 4 participated in the Computer Data Bank program in recording and summarizing annual diversion records. At this time, the 1975-1976 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 1976 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 1977 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.

Division 4 has continued to use commissioner field books with preliminary values being computed 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 1976-1977 storage season (November 1, 1976), except for the two following major reservoirs. Blue Mesa was down below last fall levels; however, it was more than half full. Taylor Reservoir contains approximately 5,000 acre feet

more than the 1976 beginning storage season. It is important to note that the two exceptions had their maximum storage on the first day of the storage season, November 1, 1976. Grand Mesa Reservoirs were at approximately 16% of storage capacity and at the maximum level reached only approximately 45% of maximum storage.

Due to drought conditions, many reservoirs throughout the division did not store any water, and those that did have some storage were only able to release for short runs. The 1977 fall reservoir levels are much lower than 1976, perhaps  $\frac{1}{2}$  of last year's record lows, and with this in view, winter precipitation will need to be much above average just to have average storage in the spring 1978.

#### SPECIAL NOTE

The storage diversion data presented in this report has been compiled from the water officials field book notes, diaries, and special edit listings of key punch cards for 1977. It is significant to point out that in order to have accurate data for the 1977 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 1977:

<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. 10-31-77</u>
28	Hot Springs Reservoir	483.10	603.00	97.50
28	McDonough Reservoir #1	805.20	805.20	599.60
28	McDonough Reservoir #2	201.80	430.10	887.00
28	Needle Creek Reservoir	202.30	363.40	550.10
28	Upper Cochetopa Reservoir	669.20	736.25	276.46
28	Vouga Reservoir	408.20	492.90	309.40
40	Alexander Lake Reservoir	.00	94.60	.00
40	Arch Slough Reservoir	.00	.00	.00
40	Ault Reservoir	.00	.00	.00
40	Bailey Reservoir	.00	414.00	.00
40	Bald Mountain Reservoir	.00	120.00	.00
40	Barren Lake Reservoir	109.60	351.40	26.40
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	.00	427.30	400.80
40	Baxter Reservoir	318.00	318.00	318.00
40	Beaver Dam Reservoir (Escalante)	.00	79.60	79.60
40	Beaver Res. (Minnesota Creek)	37.00	193.00	72.40
40	Bonita Reservoir	40.20	123.30	47.70
40	Bottle Stomp Reservoir	17.00	17.00	15.00
40	Boulder Lake #1 Reservoir	.00	.00	.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. 10-31-77</u>
40	Brockman #1 Reservoir	.00	16.00	.00
40	Brockman #2 Reservoir	.00	40.00	.00
40	Bruce Park Reservoir	.00	374.00	.00
40	Bull Finch #1 Reservoir	.00	.00	.00
40	Bull Finch #2 Reservoir	.00	.00	.00
40	Coalby Horse Park Reservoir	165.50	329.00	100.00
40	Cabin Lake Reservoir	.00	5.50	.00
40	Calumet Reservoir	.00	.00	.00
40	Carbonate Camp #3 Reservoir	.00	2.00	.00
40	Carbonate Camp #6 Reservoir	.00	47.60	.00
40	Carbonate Camp #7 Reservoir	.00	22.00	.00
40	Carl Smith Reservoir	500.00	850.00	121.00
40	Cedar Mesa Reservoir	48.50	133.00	62.10
40	Clark Reservoir	.00	.00	.00
40	Cole #1 Reservoir	.00	.00	.00
40	Cole #2 Reservoir	.00	9.00	.00
40	Cole #3 Res. (Cherry Lane)	.00	10.80	.00
40	Cole #4 Reservoir	.00	39.00	.00
40	Cole #5 Reservoir	.00	116.80	.00
40	Columbine #1 Res. (Reynolds)	150.00	47.00	.00
40	Crawford Reservoir	2888.00	6009.00	810.00
40	Cyphers Reservoir	21.00	21.00	21.00
40	Daniels Sl. Reservoir (Reed)	29.90	103.10	31.10
40	Davenport Reservoir	.00	2.00	.00
40	Deep Slough Reservoir	.00	226.90	.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. 10-31-77</u>
40	Deep Ward Lake Reservoir	266.80	229.80	.00
40	Delta City #1 Reservoir	.00	14.30	6.00
40	Delta Control Reservoir	40.00	40.00	40.00
40	Deserted Park Reservoir	.00	.00	.00
40	Dog Fish Lake Reservoir	.00	59.00	.00
40	Don Meek #1 Reservoir	.00	.00	.00
40	Donnelly Slough Reservoir	.00	89.30	.00
40	Doughty #1 Res. (Chipmunk)	.00	23.50	.00
40	Doughty #2 Res. (Sliderock)	.00	3.80	.00
40	Dowdy Reservoir	.00	264.00	.00
40	Dreyfus Reservoir	.00	.00	.00
40	Dugger Reservoir	53.00	.00	.00
40	East Beckwith #1 Reservoir	147.00	569.00	.00
40	Eggleston Lake Reservoir	378.00	775.00	.00
40	Elk Park Reservoir	.00	.00	.00
40	Elk Wallows Reservoir	.00	40.00	.00
40	Ella Reservoir	.00	109.00	.00
40	Ellington & Cook Reservoir	25.60	.00	.00
40	Eureka Reservoir #2	.00	8.00	.00
40	Fairmont Reservoir	.00	78.00	.00
40	Fairmount Park Reservoir	.00	.00	.00
40	Fish Lake Reservoir	.00	54.00	.00
40	Fisher Reservoir	.00	.00	.00
40	Forrest Reservoir (Finney)	.00	.00	.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. 10-31-77</u>
40	Fruitgrowers Reservoir	198.30	2542.00	138.00
40	G & M Volk Fish Pond #1	5.90	5.90	5.90
40	Goodenough Reservoir (Kiser)	1.90	87.00	12.60
40	Goodenough #2 Res. (Leroux)	.00	138.00	.00
40	Granby #6 Reservoir	.00	45.20	.00
40	Granby #7 Reservoir	10.60	54.20	2.70
40	Granby #8 Reservoir	.00	.00	.00
40	Granby #9 Reservoir	.00	5.0	.00
40	Granby #11 Reservoir	152.40	407.20	.00
40	Granby #12 Reservoir	213.40	283.50	68.50
40	Gray Reservoir	.00	178.00	.00
40	Green Mountain Dam Reservoir	.00	8.00	.00
40	Greenwood Reservoir	.00	.00	.00
40	Gregg #1 Reservoir	.00	10.00	.00
40	Gregg #2 Reservoir	.00	10.00	5.00
40	Hale Reservoir	.00	33.60	.00
40	Hanson #2 Reservoir	.00	225.00	.00
40	Holy Terror Reservoir	.00	116.00	.00
40	Hotel Lake Reservoir	291.00	378.00	.00
40	Howard Lake Reservoir	.00	20.00	.00
40	Island Lake Reservoir	222.30	581.40	266.30
40	Kehmeier Reservoir	9.70	9.60	.00
40	Kiser Slough Reservoir	76.80	310.10	224.60
40	Knox Reservoir	136.30	112.00	19.60

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. 10-31-77</u>
40	Kennicott Slough Reservoir	.00	42.80	.00
40	Lake Brennard Reservoir	367.00	367.00	367.00
40	Leon Lake Reservoir	.00	406.60	.00
40	Leon Park Reservoir	.00	11.10	.00
40	Lily Pad Res. (Young Creek)	.00	6.40	.00
40	Little Gem Reservoir	99.80	112.50	92.40
40	Little Giant #1 Reservoir	.00	.00	.00
40	Little Giant #2 Reservoir	.00	.00	.00
40	Little Grouse Reservoir	.00	25.80	2.10
40	Lone Cabin Reservoir	.00	30.00	.00
40	Lucky Find	.00	32.00	.00
40	Marcott Park Reservoir	.00	.00	.00
40	McKoon Reservoir (Blanchard)	.00	.00	.00
40	Military Park Reservoir	.00	.00	.00
40	Miller Reservoir	.00	20.00	.00
40	Monument Reservoir	.00	80.00	.00
40	Morris #2 Reservoir	16.30	16.30	16.30
40	New Pond Reservoir	.00	1.00	.00
40	Meek Reservoir	.00	.00	.00
40	Onion Valley Reservoir	.00	2126.00	.00
40	Overland #1 Reservoir	.00	2466.00	.00
40	Owens Reservoir	.00	37.00	.00
40	Paonia Reservoir	4308.00	9825.00	1532.00
40	Park Reservoir	845.90	1644.00	595.50

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. 10-31-77</u>
40	Patterson #1 Reservoir	.00	.00	.00
40	Patterson #2 Reservoir	.00	155.00	15.00
40	P. C. & G. #1 Res. (Muskrat)	.00	.00	.00
40	Pedro Reservoir	61.00	88.50	4.00
40	Pine Reservoir	.00	.00	.00
40	Pine Cone Reservoir	.00	37.00	.00
40	Pitcarin Reservoir	.00	36.00	.00
40	Poison Spring Reservoir	60.00	60.00	10.00
40	Porter #1 Reservoir	148.00	94.20	94.20
40	Porter #4 Reservoir	38.00	30.00	30.00
40	Prebble Reservoir	69.40	65.80	29.90
40	Rex Reservoir	.00	.00	.00
40	Reynolds Res. (Reynolds Creek)	.00	10.00	.00
40	Rim Rock Lake Reservoir	.00	107.00	65.40
40	Rockland Reservoir	.00	.00	.00
40	Roeber #2 Reservoir	.00	.00	.00
40	Round Lake Reservoir	.00	.00	.00
40	Ryan Reservoir	.00	23.80	.00
40	Rockwell Reservoir	.00	50.00	.00
40	Sackett Reservoir	2.60	29.00	52.00
40	Safety #1 & #2 Reservoir	.00	8.00	.00
40	Scotland Peak Reservoir	.00	.00	.00
40	Sheep Lake Reservoir	.00	71.10	.00
40	Skim Milk Reservoir	.00	32.00	.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. 10-31-77</u>
40	Spatafore Reservoir	.00	.00	.00
40	Stell Reservoir	.00	.00	.00
40	Todd Reservoir		NOT USED	NOT USED
40	Tomahawk Reservoir	.00	87.00	.00
40	Trickle Reservoir	.00	30.00	.00
40	Trio Reservoir	81.30	80.00	.00
40	Twin Lake Reservoir #1	.00	.00	.00
40	Twin Lake Reservoir #2	.00	.00	.00
40	Tyler Reservoir	.00	100.00	40.00
40	Upper Hotel Lake Reservoir	.00	10.00	.00
40	Van Den Berg #1 Reservoir	5.60	5.60	5.60
40	Vela Reservoir	119.00	111.00	.00
40	Ward Creek Reservoir	17.10	103.00	39.90
40	Wash Tub Reservoir	.00	25.00	.00
40	Water Bug Reservoir	.00	67.00	.00
40	Weir & Johnson #2 Reservoir	156.40	258.00	120.00
40	Weir Park Reservoir	.00	26.20	.00
40	West #1 Reservoir	.00	40.00	.00
40	Williams Creek Reservoir	.00	100.00	.00
40	Willow Reservoir	.00	37.00	.00
40	Womack #1 Reservoir	.00	.00	.00
40	Womack #2 & #3 Reservoir	.00	65.00	.00
40	Womack #5 Reservoir	.00	3.70	.00
40	Young Creek Reservoir #1 & #2	70.40	126.40	.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. 10-31-77</u>
40	Young Creek #3 Reservoir	13.50	62.60	37.30
40	Y & S Reservoir	48.80	64.30	.00
41	Buckhorn Reservoir	29.00	140.00	29.00
41	Citizens Reservoir	118.00	120.00	33.00
41	Garnet Mesa (Sweitzer)	156.00	1332.60	156.00
41	Wenger #1 Reservoir	.00	.00	.00
42	Anderson #1 Reservoir	100.00	64.52	71.00
42	Anderson #2 Reservoir	.00	23.76	.00
42	Anderson #6 Reservoir	.00	8.40	.00
42	Bolen Reservoir	.00	107.00	.00
42	Bolen Anderson	.00	51.66	.00
42	Carson Reservoir	265.00	259.00	387.00
42	Deep Creek Reservoir #2	.00	36.74	.00
42	Dry Creek Reservoir (Chambers Res)	.00	55.00	.00
42	Flowing Park Reservoir	.00	224.00	.00
42	Grand Mesa #1 Reservoir	100.00	67.00	.00
42	Grand Mesa #6 Reservoir	.00	12.50	.00
42	Grand Mesa #8 Reservoir	35.00	240.00	.00
42	Grand Mesa #9 Reservoir	.00	78.00	.00
42	Hollenbeck #1 Reservoir	400.00		614.00
42	Hollenbeck #2 Reservoir	.00	68.80	.00
42	Juniata Reservoir	1200.00		1811.00

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. 10-31-77</u>
42	Scales No. 1	.00	25.00	.00
42	Scales No. 3	.00	112.00	.00
59	Spring Creek	1700.00	1600.00	520.00
59	Taylor Reservoir	64,830.00	65,150.00	43,880.00
59	Kapushion Reservoir	.00	.00	.00
59	Cunningham Reservoir	80.00	20.00	.00
59	Ferris Creek Reservoir	.00	.00	.00
59	Rainbow Lake	350.00	350.00	.00
59	Meridian Lake	480.00	480.00	360.00
60	Alexander Reservoir	.00	.00	.00
60	Gurley Reservoir	.00	2780.00	200.00
60	Lilylands Reservoir	40.73	88.77	29.10
60	Lone Cone Reservoir	30.00	530.00	30.00
60	Miramonte Reservoir	7237.00	5792.00	5792.00
60	Mosca Livestock Reservoir #2	.00	10.00	.00
60	Mosca Livestock Reservoir #3	.00	4.00	.00
60	Palmer Reservoir	.00	.00	.00
60	Palmer Reservoir #2	.00	.00	.00
60	Paxton Reservoir	102.12	643.00	102.12
60	Trout Lake Reservoir	1170.00	2357.00	3200.00
61	Buckeye Reservoir	500.00	250.00	140.00

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. 10-31-77</u>
62	Blue Mesa	605,820.00	379,060.00	220,760.00
62	Morrow Point	115,350.00	113,900.00	114,150.00
62	Fish Creek #1	46.00	143.00	50.00
62	Fish Creek #2	185.00	522.00	100.00
62	Cerro Reservoir	675.00	675.00	675.00
62	Silverjack Reservoir	2,270.00	10,050.00	915.00
62	Lake San Cristobal	9,786.00	9,786.00	9,786.00
63	Big Creek Reservoir	50.00	NO RECORD	150.00
63	Burg Reservoir	.00	NO RECORD	.00
63	Casement Reservoir	50.00	NO RECORD	.00
63	Casto Reservoir	.00	NO RECORD	.00
63	Craig Reservoir	.00	NO RECORD	.00
68	Carrol Brown	0.50	40.00	0.50
68	Elephant Reservoir	4.00	15.00	15.00
68	Jacques Reservoir	1.00	45.00	.00
68	Victor Reservoir	.00	15.00	1.00
73	Fruita Reservoir #1		NO RECORD	
73	Fruita Reservoir #2		NO RECORD	
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 land to highly productive low valley truck farms. Over-all crop production for the 1977 season can be estimated to be from 50% to 75% of average. This seems to correlate closely to the total water supply. Selected areas were able to produce average or above average crops, and the quality in these cases was above average. The Uncompahgre Project which irrigates 80,000 acres had sufficient water, although it ran only at 60% of demand. All reservoirs except Taylor Park and Blue Mesa supplied much less than 50% of average, and agricultural areas dependent on this storage produced from 50% of normal to zero production.

The Upper Gunnison hay producing lands along with the San Miguel Basin hay lands all experienced 50%<sup>±</sup> of average crop yields. Hay prices have remained good, although the market seems to be suffering as winter approaches. Late summer rains were helpful in the growth of fall pastures; however, this did not boost hay production. Small grains grown along the lower

Gunnison Valley and Uncompahgre Valley recorded average yields, and the onion crops were average or better.

Prices paid for these commodities were poor and in many instances did not return the investment necessary to produce the crop.

The fruit industries along the North Fork Valley and lower Uncompahgre Valley produced an abundant crop and prices for harvested peaches, pears, cherries, apricots, and apples have been good. In many orchards, the rancher had to purchase extra water from reservoirs at as high as \$200.00 for 1.0 cfs for a 24-hour day in order to make his crop. There seemed to be water available at these high prices.

Livestock production was about the same as last year; however, with the fall round-up, a new problem has emerged; the lack of winter pasture and the high cost of hay compared to the price of livestock. Lamb prices are as good or better than last year, but the cattle market seems to be down slightly from the past year.

As in the last two years, entire cattle herds are being sold because of the inability of the cattle rancher to pay expenses, disregarding a profit for his business.

Hog production continues to grow in Division 4 and pork prices remain good. Farm land continues to be sold at good prices with an active market.

Presented below is a brief agricultural resume for 1977 by counties:

<u>County</u>	<u>Average Growing Season in Days</u>	<u>Crop Production*</u>			<u>Livestock**</u>	
		<u>Irrigated Land</u>			<u>Cattle</u>	<u>Stock</u>
		<u>Barley</u>	<u>Beets</u>	<u>Corn</u>	<u>Calves</u>	<u>Sheep</u>
Delta	146	78.0	21.4	109	55,000	28,000
Montrose	153	75.4	19.2	91	52,500	53,000
Mesa	188	85.0	21.7	115.0	67,000	56,000
Ouray	88	--	--	--	--	500
San Miguel	85	--	--	--	11,000	8,500
Gunnison	79	--	--	--	33,000	1,400
Hinsdale	65	--	--	--	900	--
Saguache	105	66.0	--	--	38,500	6,000

\*1976 Colorado Agriculture Statistics, Published July 1977; in bu./ac. or tons/ac.

\*\*Number of head, 1976

Crop dollar values for 1976 are as follows:

<u>County</u>	<u>Corn, Grain &amp; Silage</u>	<u>Hay</u>	<u>Sugar Beets</u>	<u>Barley</u>	<u>All Other Crops</u>
Delta	2,269,300	4,300,000	1,728,000	1,173,000	15,300,550
Montrose	2,358,500	3,483,800	1,871,000	923,000	12,596,250
Mesa	3,547,000	4,291,000	2,496,000	861,000	14,519,550
Ouray	--	867,100	--	--	949,500
San Miguel	--	499,500	--	--	496,400
Gunnison	--	2,497,300	--	--	2,601,400
Hinsdale	--	52,000	--	--	1,524,200
Saguache	--	3,439,700	--	2,410,000	15,313,700

The above production data has been extracted from the 1977 Colorado Agriculture Statistics - Colorado Department of Agriculture

The following special report is presented concerning the sugar beet industry in Division 4. It has been prepared by Richard Drexel, Supervising Water Commissioner, WD 40, and this is considered an important part of this Annual Report.



DIVISION OF WATER RESOURCES

Cedaredge Field Office  
Cedaredge, Colorado

The closing of the sugar beet refinery in Delta was quite an economic loss for the Uncompahgre and Gunnison Valleys. It also effected Mesa County as well, and in a smaller way, the whole state.

The refinery had been in Delta since 1920, and it served Montrose and Delta Counties as well as Mesa County.

Even though some of the plant had been updated with new machinery and buildings from time to time, it still was considered an obsolete plant, which was one of the reasons given for closing it down. Twelve or fifteen years ago, they spent over one million dollars in updating it, and in the last few years added a \$250,000 storage building.

In 1974, sugar beets provided nearly 18% of the total field crop value in this area. For instance, the dollar value of the beets for 1972 in the two counties was \$1,674,500. In 1973 it was \$2,470,000 and 1974 it was \$4,392,000. So you can see the impact this loss would have on the economy of the valley.

In 1970, Delta County planted 2,060 acres to beets; Montrose County planted 3,550 acres. In 1975, Delta County planted 2,900 acres to beets and Montrose County planted 4,000 acres.

This only shows part of the loss, for it is estimated it effects other sections of the economy in the form of labor, equipment sales, fertilizer sales, transportation and fuel to a total of \$13,791,000. This does not take in the loss to local businesses which will not be able to share in the profits made by the farmers and laborers at the refinery. Whenever one segment of the area loses part of its income, it hurts the whole area.

The refinery was the largest manufacturing facility in Delta County and had a major contribution in payroll. There were 50 full time people working at the refinery, receiving from \$5.05 to \$6.81 per hour. During the campaign, there were an additional 200 employees hired with an annual payroll of \$1,000,000.

Added loss to the beet farmer and equipment dealers is the large inventory of beet equipment and parts that cannot be used for any other purpose, and with the whole area not raising beets, little or no resale value for this equipment can be realized.

The decision as to what crop to plant in the 6,900 acres left void was also a hard one to make. The other cash crops are balanced between supply and demand, and too many acres planted to some crop could result in an oversupply of that crop and cause the price to fall below profit. Onions, beans, potatoes and tomatoes are examples of crops that fluctuate widely in price, depending on supply and demand.

Hay and grain crops, including corn, do not return per acre the dollars that sugar beets do, so with beets out of the picture for this area, the farmer is faced with a tough decision as to what to grow.

There is no doubt the economy has been hurt by the closing of the refinery in Delta.

## 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

Because of the limited snow pack and minimum carry-over storage levels, reservoir problems were non-existent in 1977. The various reservoirs that have been involved in special repairs, maintenance programs and official restrictions have not changed.

Of the over several hundred reservoirs and dams in Division 4, most are inspected and regulated by field personnel many times during the 1977 season. These men have been alert to possible trouble spots, and constant communication between the division office and field commissioners keeps all the necessary personnel of the Division of Water Resources informed of the conditions of most reservoirs. In addition to this attention, Division of Water Resources dam inspectors made numerous field trips into Division 4 and were able to view the majority of the larger reservoirs.

Reservoir stop storage orders are in effect as follows:

<u>Name</u>	<u>Water District</u>	<u>Order Date</u>	<u>Restrictions</u>
Dogfish	40	11-15-76	10' below lowest point of the crest of dam; Most repair has been completed; restriction not lifted to date.
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' on gage; may fill late.
Full Moon	68	8-24-72 7-24-75	5' below dam crest; Breach dam from crest to toe.
Hidden Treasure	62	Verbal, fall '73	Enlarge channel opening at base of dam.
Granby No. 12	40	10-25-76	7' below lowest point on crest of dam.

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Livestock Water Tanks - Permits Issued 1977:

<u>Name</u>	<u>Stream</u>	<u>Height</u>	<u>Cap., A.F.</u>	<u>Permit No.</u>
Blunt #1	SE34-43N-11W	18.0	10.00	15218
Buck Horn #2	SE13-50N-8W	9.6	0.50	15311
Charles Abernathy #1	SE15-44N-10W	10.0	2.00	15313
Heath #1	SE15-44N-10W	14.0	2.00	15217
Hotchkiss #1 - 77	SE18-12S-90W	8.0	1.10	15278
Hotchkiss #1 - 77	SE30-12S-90W	16.0	2.00	15237
J. A. Morrell 101	SE2-13S-92W	17.0	3.00	15242
Jack A. Morrell	SE2-13S-92W	8.0	N/A	15241
Miller #1	SE15-49N-10W	6.0	0.50	15123
Morrell #3	SE3-13S-92W	13.0	2.00	15206
Pfeiffer #1	SE33-13S-95W	12.0	1.50	15234
Sage Bruch Park #1	SE16-13S-90W	10.0	0.25	15315
Spruce Gulch Pond	SE16-13S-90W	10.0	0.25	15314
Stratman #1	SE27-15S-86W	16.0	6.70	15208
Upper Basin Pond	SE13-50N-8W	14.2	1.00	15310

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Inspections were made of several livestock water tanks during the 1976 season. There were no problems of any consequence concerning stock water tanks for this season.

VII. WATER RIGHTS

A. Tabulation

Water commissioner personnel were involved to a limited degree in the updating and correcting of errors in the Water Rights Tabulation. Errors are still being identified and corrections are made as time becomes available.

B. Referee Findings and Decrees

<u>Type of Application</u>	<u>No. Received Nov-Dec '76 (Jan-Oct '77)</u>
Underground Water Rights	27
Change of Water Rights	33
Plan for Augmentation	1
Water Rights (Surface)	155
Diligence (Conditional)	64
To Make Absolute	2
Water Storage Rights	22
Applications Received in Water Court	368
Number of Referee Consultants	

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All "W" cases have been listed and key punched to late fall, 1977. These punched cards have been forwarded to the Denver office and we are now awaiting an update of the combined tabulation. The timetable for the 1978 tabulation should be accomplished with minimum problems. Several changes have been made in the Division 4 Water Referee

office. In April, 1977, John Hughes replaced E. L. Wilson as Water Referee, and on November 1, 1977, John Hughes left the referee office. At the time of this writing, the Division is without a referee; however, a new appointment is anticipated shortly.



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, % John Bingham, 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 Court House, 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, Cedar-  
edge, 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

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

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

Big Ditch Co., % Barbara Hood, Secretary, Cedaredge, Colo-  
rado 81413.

W.D. 28

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

Hot Springs Reservoir Co., % Taramarcz Brothers, Gunnison,  
Colorado 81230.

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

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

W.D. 40

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

Surface Creek Ditch & Reservoir Co., % R. M. Campbell, President,  
Cedaredge, Colorado 81413.

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

Leroux Creek Water Users Association, % Raymond White, Secretary,  
Hotchkiss, Colorado 81419.

Bone Mesa Domestic Water Co., % Fred Vernard, Paonia, Colorado 81428.

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

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

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

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

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

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

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

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

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

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

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

W.D. 40 - continued

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

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

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

Coalby Domestic Pipeline, Archie Peterson, President, Cedar-  
edge, Colorado 81413.

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

W.D. 41

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

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

Menoken Water Co., % Ray Weaver, President, Montrose, Colo-  
rado 81401.

W.D. 42

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

Grand Mesa Reservoir Co., % John Whiting, President, White-  
water, Colorado 81527.

W.D. 42 - continued

Kannah Creek Water Users Association, % W. D. Bradbury,  
President, Whitewater, Colorado 81527.

W.D. 60

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

Farmers Water Development Co., Ivan McKinny, President, Nor-  
wood, Colorado 81423.

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

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

W.D. 61

Paradox Valley Canal & Reservoir Co., % Wyvonna Irish, Secre-  
tary, Paradox, Colorado 81429.

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.

Dallas Ditch Co., Inc., % Henry Stanton, President, Ridgway,  
Colorado 81432.

IX. WATER COMMISSIONER'S SUMMARY - 1977

Division 4

Direct flow diversions (A.F.) .....	1,510,057
Reservoir storage (A.F.) .....	739,295
Amount delivered from storage .....	304,289
Acres irrigated .....	378,454
Number of ditches .....	2,712
Standard administration .....	1,892
Semi-standard administration .....	465
Number of daily ditch reports .....	43,170
Number of reservoirs served .....	212
Power diversions (A.F.) .....	1,233,185

District 28

Direct flow diversions (A.F.) .....	128,417
Reservoir storage (A.F.) .....	1,905
Amount delivered from storage .....	865
Acres irrigated .....	33,672
Number of ditches .....	216
Standard administration .....	186
Semi-standard administration .....	30
Number of daily ditch reports .....	1,120
Number of reservoirs served .....	6
Average demand (flow & reservoir) AF/AC ..	3.81
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.) .....	242,894
Reservoir storage (A.F.) .....	36,582
Amount delivered from storage (irrigation)..	32,341
(Municipal and other) .....	621
Acres irrigated .....	122,819
Number of ditches .....	756
Standard administration .....	513
Semi-standard administration .....	63
Number of daily ditch & reservoir reports ..	30,705
Number of reservoirs served .....	163
Average demand (flow & reservoir) AF/AC ....	1.97
Power diversions .....	0

District 41

Direct flow diversions (A.F.) .....	551,813
Reservoir storage (A.F.) .....	266
Amount delivered from storage .....	23,106
Acres irrigated .....	88,646
Number of ditches .....	88
Standard administration .....	66
Semi-standard administration .....	22
Number of daily ditch reports .....	1,146
Number of reservoirs served .....	1
Average demand (flow & reservoir) AF/AC ....	6.22
Power diversions .....	151

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.) .....	462,592
Reservoir storage (A.F.) .....	1,435
Amount delivered from storage .....	591
Acres irrigated .....	8,619
Number of ditches .....	52
Standard administration .....	19
Semi-standard administration .....	28
Number of daily ditch reports .....	2,140
Number of reservoirs served .....	18
Average demand (flow & reservoir) AF/AC ..	3.13
Power diversions .....	1

District 59

Direct flow diversions (A.F.) .....	250,357
Reservoir storage (A.F.) .....	22,680
Amount delivered from storage (to WD-41)..	22,840
Acres irrigated .....	35,220
Number of ditches .....	300
Standard administration .....	184
Semi-standard administration .....	62
Number of daily ditch reports .....	2,175
Number of reservoirs served .....	1
Average demand (flow & reservoir) AF/AC ..	7.04
Power diversions .....	1,552

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.) .....	61,082
Reservoir storage (A.F.) .....	14,735
Amount delivered from storage .....	33,695
Acres irrigated .....	29,070
Number of ditches .....	306
Standard administration .....	173
Semi-standard administration .....	31
Number of daily ditch reports .....	1,575
Number of reservoirs served .....	10
Average demand (flow & reservoir) AF/AC ..	2.61
Power diversions .....	10,745

District 61

Direct flow diversions (A.F.) .....	8,664.84
Reservoir storage (A.F.) .....	67.45
Amount delivered from storage .....	179.74
Acres irrigated .....	2,900
Number of ditches .....	60
Standard administration .....	44
Semi-standard administration .....	16
Number of daily ditch reports .....	1,318
Number of reservoirs served .....	1
Average demand (flow & reservoir) AF/AC ..	3.03
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.) .....	150,298
Reservoir storage (A.F.) .....	611,956
*Amount delivered from storage .....	235,740
Acres irrigated .....	38,000
Number of ditches .....	342
Standard administration .....	277
Semi-standard administration .....	65
Number of daily ditch reports .....	765
Number of reservoirs served .....	7
**Average demand (flow & reservoir) AF/AC ..	3.96
Power diversions .....	771,876

\*Less exported water.

\*\*Includes 144,000.00 A.F. from Taylor Reservoir.

SPECIAL NOTE FOR DISTRICT 62 ONLY:

Water used by Uncompahgre Project from Gunnison River and Reservoirs .....	341,321.40 AF
Silverjack Reservoir storage: Irrigation - 7,379 Fish - <u>1,756</u>	
TOTAL	9,135.00 AF
Water purchased from Blue Mesa by Uncompahgre Valley Water Users Association .....	6,975.00 AF

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.) .....	5,353
Reservoir storage (A.F.) .....	350
Amount delivered from storage .....	200
Acres irrigated .....	994
Number of ditches .....	20
Standard administration .....	7
Semi-standard administration .....	51
Number of daily ditch reports .....	300
Number of reservoirs served .....	0
Average demand (flow & reservoir) AF/AC ..	5.39
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.) .....	78,675
Reservoir storage (A.F.) .....	229
Amount delivered from storage .....	94.5
Acres irrigated .....	15,724
Number of ditches (352 total ID no's.) ...	285
Standard administration .....	153
Semi-standard administration .....	199
Number of daily ditch reports .....	1,770
Number of reservoirs served .....	5
Average demand (flow & reservoir) AF/AC ..	4.41
Power diversions (inoperative) .....	1

District 73

Direct flow diversions (A.F.) .....	1,936
Reservoir storage (A.F.) .....	0
Amount delivered from storage .....	0
Acres irrigated .....	2,790
Number of ditches .....	34
Standard administration .....	14
Semi-standard administration .....	15
Number of daily ditch reports .....	156
Number of reservoirs served .....	0
Average demand (flow & reservoir) AF/AC ..	.69
Power diversions .....	0

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

DROUGHT SUMMARY COMPARISON

Division 4

	<u>1976</u>	<u>1977</u>	<u>% of 1976</u>
Direct flow diversions (A.F.)	1,963,120	1,510,057	77
Reservoir storage (A.F.)	1,000,546	739,295	74
Amount delivered from storage	207,541	304,289	147
Acres irrigated	414,666	378,454	91
Number of ditches	2,971	2,712	91
Standard administration	1,906	1,892	99
Semi-standard administration	456	465	102
Number of daily ditch reports	44,691	43,170	97
Number of reservoirs served	316	212	67
Power diversions (A.F.)	2,172,710	1,233,185	57

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

TABLE A

DIVISION SUMMARY - DIVISION NO. 4

Direct Flow Diversions

1977

Water District	Total Ditches Reported		Irrigation Diversions Ac. Ft.	No. of Acres Irrigated	Ac. Ft. Per Acres	Industrial, Fish Use Diversions Ac. Ft.	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										
28	186	0 0 30	128,417	33,672	3.81	880	1,459	2,572	0	133,328	1,120	0
40	756	200 29 0	242,894	122,819	1.97	8,039	Dom & Mun. Stock 4046 14,619	0	695	270,293	30,705	0
41	66	9 2 11	551,813	88,646	6.22	10,197	151	1,333	0	563,494	1,146	0
42	19	4 5 20	27,060	8,619	3.13	430,336	5,196	0	0	462,592	2,140	0
59	184	23 39 54	248,285	35,220	7.05	520	1,552	0	0	250,357	2,175	0
60	173	22 5 9	75,814	29,070	2.61	10,473	2,281	0	0	88,568	1,575	0
61	44	1 6 9	8,771	2,900	3.02	0	73	0	0	8,844	1,318	0
62	277	20 45 0	150,298	38,000	3.95	771,876	1,300	0	0	923,474	765	0
63	20	7 2 49	5,353	994	5.39	0	846	0	0	6,193	300	0
68	153	21 10 168	69,416	15,724	4.41	864	Dom & Mun. Stock 673 6,911	44	767	78,675	1,770	0
74	14	13 2 5	1,936	2,790	0.69	0	0	0	0	1,936	156	0
Total	1,892	320 145 355	1,510,057	378,454	3.99	1,233,185	39,107	3,949	1,462	2,787,754	43,170	0

TABLE B

## DIVISION SUMMARY - DIVISION NO. 4

## Storage Report - Acre Feet

1977

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
	11-1-76	6-1-77	10-31-77						
28	2,770	1,905	2,718	0	865	0	0	1,905	0
40	13,161	38,083	5,121	24,922	32,341	0	621	38,083	17,098
41	1,533	1,366	1,510	266	266	0	383	1,433	0
42	601	1,435	2,883	1,435	591	0	140	0	0
59	67,440	67,600	44,760	22,680	22,840	0	0	67,600	0
60	8,579	16,235	5,084	7,656	11,151	10,745	1,799	10,096	3,990
61	500	250	140	67	180	0	0	0	0
62	554,078	611,956	346,886	57,878	235,740	493,210	1,300	504,384	220,180
63	0	350	150	350	200	0	0	0	0
68	5	115	16	109	115	0	20	100	0
73	0	0	0	0	0	0	0	0	0
Total	648,667	739,295	409,268	115,363	304,289	503,955	4,263	623,601	241,268



WORKLOAD AND STATISTICAL INDICATORS

- Statistics -

<u>Description</u>	<u>1976-77</u>
Acre Feet Water Used	2,787,754
Acre Feet Diverted for Agricultural Use	1,510,057
Acre Feet Diverted for Industrial Use	1,233,185
Acre Feet Diverted for Recreational Use	3,949
Acre Feet Diverted for Urban Use (Municipal)	21,840
Acre Feet Delivered to Compact Commitment	--
Acre Feet Water Stored (Maximum)	739,295
Acre Feet Water Divisions Transbasin Diversion	2,315
Acres Irrigated	409,268
Ditches, Wells & Reservoirs Administered (No Wells)	2,924
Daily Ditch Reports	43,170
Acre Feet Water Delivered from Storage	304,289

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## UNCOMPAHGRE PROJECT

### 1977 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 less than 50% of normal on May 1, 1977.

Water shortage was experienced early in the season with little runoff until late May. The balance of the irrigation season the Project delivered 50 to 60% water.

Taylor Dam failed to fill, reaching an elevation of 9309.50 amounting to storage of 69,070 acre feet on June 12, 1977.

Due to the shortage of water and very low June river flows, the annual summer inspection of the Gunnison Tunnel was cancelled.

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 1977 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. A total of 1,800 feet of invert was completed starting November 1, 1976, and finishing February 23, 1977. A total of \$1,920,038 has been spent on the Gunnison Tunnel Program through September 30, 1977.

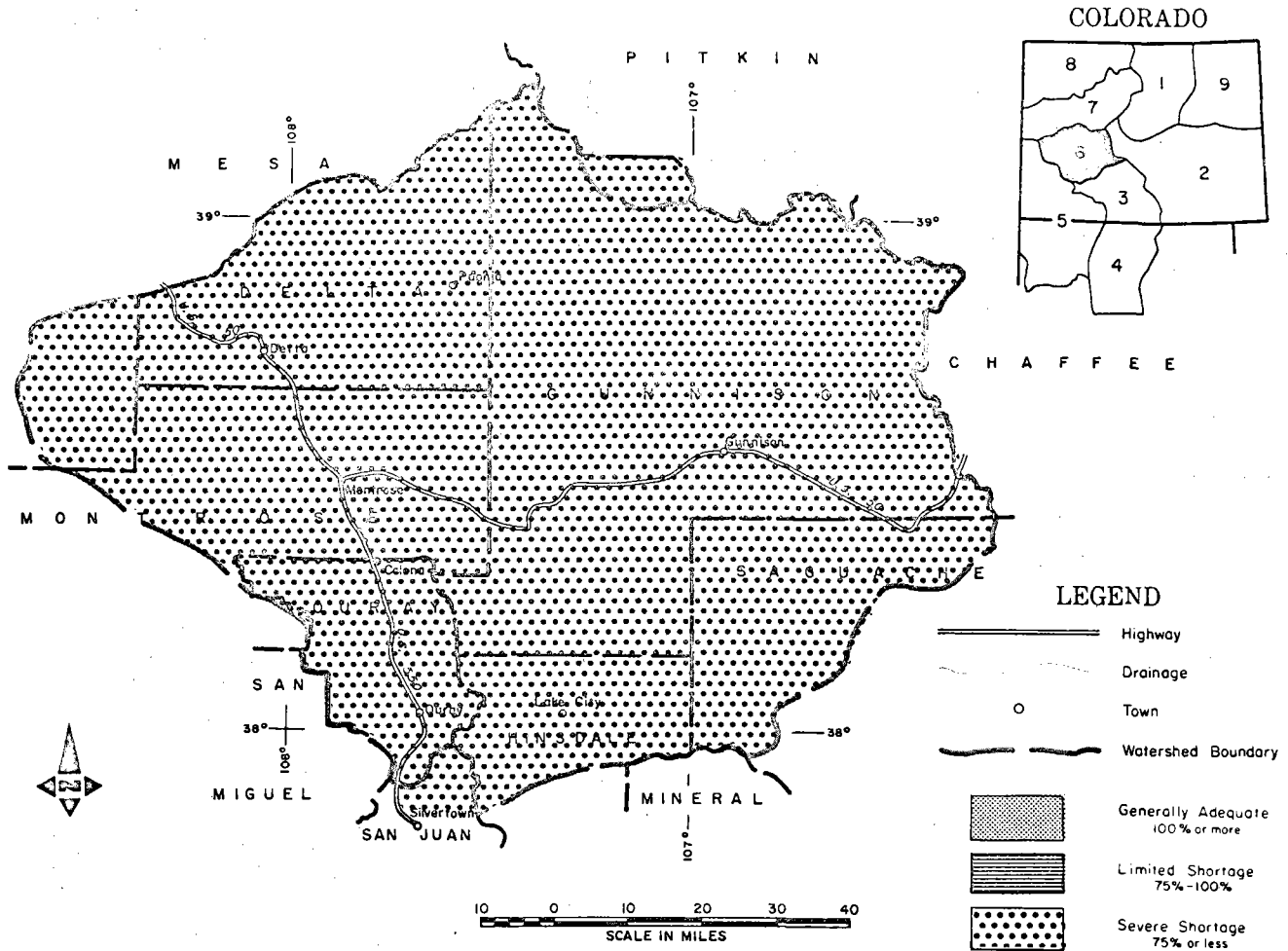
Rehabilitation of major structures included 18 reinforced concrete drop structures.

UNCOMPAHGRE VALLEY WATER USERS

John W. Bigham  
Manager

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

as of  
MAY 1, 1977



## YOUR WATER SUPPLY

AN EXTREMELY SHORT WATER SUPPLY IS FORECAST. ALL STREAMS ARE EXPECTED TO BE BELOW THEIR PREVIOUS MINIMUMS. THE SNOWPACK HAS MELTED BELOW 10,500 FEET WHICH IS MOST UNUSUAL FOR THIS TIME OF YEAR. IT IS AS MUCH AS 90% BELOW NORMAL ON SOME DRAINAGES. SOIL MOISTURE IS FAIR AND CARRYOVER STORAGE IS NEAR AVERAGE WHICH WILL PROVIDE SOME MINIMAL RELIEF.

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  
**DEAN F. FISHER—AREA CONSERVATIONIST**  
 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)	310	39	793
Gunnison River near Grand Junction (2)	400	34	1184
North Fork of Gunnison (3)	110	42	263
Surface Creek near Cedaredge	8	50	16
Uncompahgre River at Colona	51	38	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	Poor	Poor
Slate River	Poor	Poor
Taylor River	Poor	Poor
Tomichi Creek	Poor	Poor

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

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average *
Blue Mesa	830	360	431	308
Morrow Point	121	113	116	115
Taylor	106	58	57	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	15	14
Surface Creek	3	9	10
Uncompahgre	3	31	32

\* 1958-1972 period.

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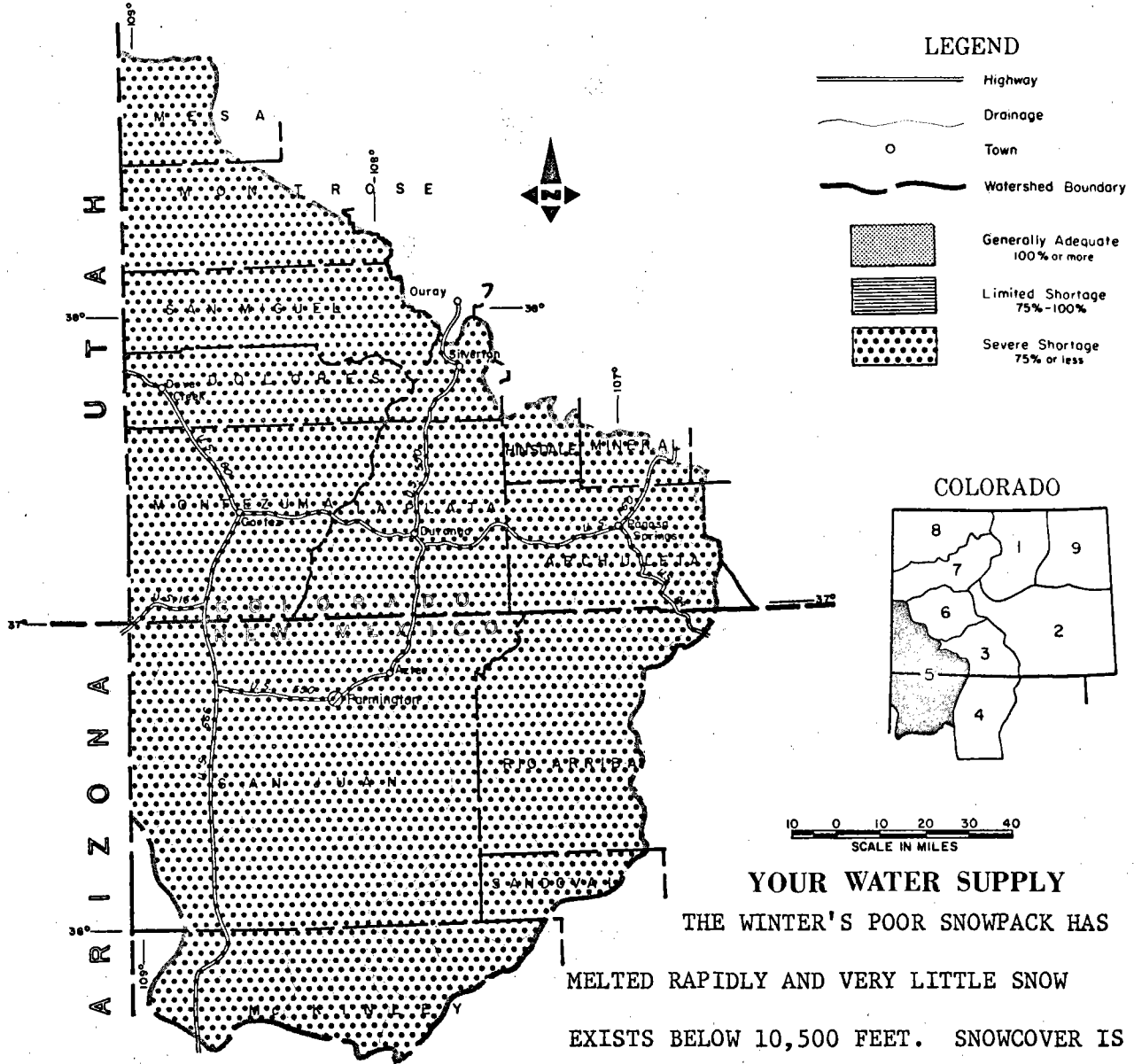


**FIRST CLASS MAIL**

# 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, 1977

U.S. DEPARTMENT OF AGRICULTURE SOIL CONSERVATION SERVICE  
STATE ENGINEERS OF COLORADO AND NEW MEXICO



**YOUR WATER SUPPLY**  
THE WINTER'S POOR SNOWPACK HAS  
MELTED RAPIDLY AND VERY LITTLE SNOW  
EXISTS BELOW 10,500 FEET. SNOWCOVER IS  
NOW LESS THAN 20% OF NORMAL. ALL STREAMS ARE EXPECTED TO FLOW AT OR BELOW  
THEIR PREVIOUS MINIMUM OF RECORD. SEVERE SHORTAGES ARE FORECAST AND  
CONSERVATION IS IMPERATIVE.

*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. GALLASPE—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	165	39	423
Dolores River at Dolores	81	35	232
La Plata River at Hesperus	7	31	24
Los Pinos River at Bayfield (1)	85	43	198
Mancos River near Towac (3)	5	36	14
Inflow to Navajo River (1 & 2)	191	32	597
Piedra Creek at Arboles	70	38	185
San Juan River at Carracas	125	35	354
San Miguel River at Placerville	65	50	130

(1) Observed flow plus change in storage in Vallecito Reservoir. (2) April - July (3) March-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	Poor	Poor
Hermosa Creek	Poor	Poor
West Dolores River	Poor	Poor
Williams Creek	Poor	Poor

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

RESERVOIR	Usable Capacity	Usable Storage		
		This Year	Last Year	Average*
Groundhog	22	4	12	12
Jackson Gulch	10	0	8	7
Lemon	40	22	25	25
Navajo	1696	1090	1120	944
Vallecito	126	50	74	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	17	17
Dolores	4	17	13
San Juan	4	15	20

\* 1958-1972 period.

Return if not delivered  
 UNITED STATES DEPARTMENT OF AGRICULTURE  
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**FIRST CLASS MAIL**

TABLE OF ORGANIZATION - PERSONNEL

IRRIGATION DIVISION NO. 4

Division Engineer - Ralph V. Kelling, Jr.  
Assistant Division Engineer - Thomas A. Kelly  
Secretary 1-A - Melita Maten  
Typist B - Shirley Brown  
Hydrographer - Patrick J. Archey

Water District 28

WATER COMMISSIONER B  
C. Crandall Howard -  
Transferred to WD-41,  
"S" Position, until  
2-1-78  
(Replacement Pending)

Water District 42

SR. WATER COMMISSIONER  
W. W. Saunders \* (\*\*) -  
Retirement 2-1-78  
(Replacement Pending)  
WATER COMMISSIONER A  
Lester Whiting  
(Jack Raine transferred  
to Irrigation Division 5  
12-1-77)

Water District 60

WATER COMMISSIONER B  
Lyman D. Campbell

Water District 63

SR. WATER COMMISSIONER  
W. W. Saunders\* -  
Retirement 2-1-78  
(Replacement Pending)

WELL COMMISSIONER

Dwayne Mansker\*

Water District 40

PRIN. WATER COMMISSIONER  
Richard L. Drexel\*  
WATER COMMISSIONER C  
Elton J. Watson\*  
WATER COMMISSIONER A  
Richard Belden  
Willard Bull  
James E. Carr  
Lloyd Connell  
Mack Gorrod  
John McHugh  
James Miller  
Marvin Stephens  
Paul Stockemer  
Stephen Tuck  
Wayne Wiseman  
Charley Woolley  
David Woolley

Water District 61

WATER COMMISSIONER B  
Clinton L. Oliver

Water District 68

WATER COMMISSIONER B  
H. Roger Noble\*

Water District 41

WATER COMMISSIONER B  
Ralph Glendening\* -  
Retirement 2-1-78

Water District 59

WATER COMMISSIONER B  
Edwin S. Hofmann\*  
WATER COMMISSIONER A  
Robert Drexel

Water District 62

WATER COMMISSIONER B  
Edwin S. Hofmann\*

Water District 73

SR. WATER COMMISSIONER  
W. W. Saunders\* -  
Retirement 2-1-78  
(Replacement Pending)  
WATER COMMISSIONER A

\*Annual

\*\*Seasonal with Division 5

AREAS OF RESPONSIBILITY OF WATER COMMISSIONERS

IRRIGATION DIVISION NO. 4

Well Commissioner

Dwayne Mansker - Division Wide

WATER DISTRICT 28

\*C. Crandall Howard - Tomichi & Cochetopa Creek  
(WCB)

WATER DISTRICT 40

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

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

WATER COMMISSIONERS A:

Richard Belden - Gunnison River & Escalante Creek

Willard Bull - Upper Surface Creek

James Carr - Leroux Creek

Lloyd Connell - Minnesota Creek & Stewart Mesa

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

Jack McHugh - Youngs, Kiser, & Ward Creeks

James Miller - Muddy, Anthracite, & Hubbard Creeks

Marvin Stephens - Leon Reservoirs

Paul Stockemer - Dry Creek & Alfalfa Run

Stephen Tuck - Forked Tongue

\*\*Wayne Wiseman - Granby & Battlement Reservoirs

Charley Woolley - Lower Surface Creek

David Woolley - Park Basin

\*Transferred to WD-41, "S" Position until 2-1-78. Replacement pending.

\*\*Replaced Russell Bertram



AREAS OF RESPONSIBILITY OF WATER COMMISSIONERS (cont'd)

WATER DISTRICT 41

- \*Ralph Glendening (WCB) - Uncompahgre River from Colona to Delta

WATER DISTRICT 42

- \*\*W. W. Saunders (SRWC) - 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 (WCA) - 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

- \*\*W. W. Saunders (SRWC) - Dolores River below confluence of San Miguel River

WATER DISTRICT 68

- H. Roger Noble (WCB) - Uncompahgre River above Colona

WATER DISTRICT 73

- \*\*W. W. Saunders (SRWC) - Little Dolores River  
\*\*\*Jack Raine (WCA) - Same area

\*Retirement 2-1-78

\*\*Retirement 2-1-78. Replacement pending.

\*\*\*Transferred to Division 5, 12-1-77

HYDROMETEOROLOGICAL DATA - BLUE MESA RESERVOIR (From U. S. Bureau of

	Jan.	Feb.	Mar.	Apr.	May	June
<u>1975</u>						
Precip. (In.)	1.22	0.60	1.15	0.37	0.56	0.08
Avg. Max. Temp.	20.60	25.40	37.10	47.90	64.10	74.40
Avg. Min. Temp.	-5.90	-4.30	13.80	20.00	30.90	37.10
Total Ann. Precip.	8.41 In.					
Total Ann. Dischg.	846,900 A.F.					

	6 months precipitation					
<u>1976</u>						
Precip. (In.)	0.49	0.79	0.97	0.30	0.35	0.50
Avg. Max. Temp.	19.00	17.00	27.00	36.00	57.00	77.00
Avg. Min. Temp.	-1.00	-8.00	3.00	9.00	25.00	41.00
Total Ann. Precip.	6.06 In.					
Total Ann. Dischg.	805,400 A.F.					

	6 months precipitation					
<u>1977</u>						
Precip. (In.)	0.37	0.23	0.11	0.89	0.38	0.38
Avg. Max. Temp.	31.00	41.00	44.00	68.00	69.00	71.00
Avg. Min. Temp.	1.00	8.00	11.00	29.00	38.00	36.00
Total Ann. Precip.	0.37 In.	0.60	0.71	1.60	1.98	2.36
Total Ann. Dischg.	159,570 A.F.	199,920	234,890	287,530	356,150	426,710