JOHN A. LOVE
Governor

C. J. KUIPER
State Engineer

DIVISION OF WATER RESOURCES

GEORGE E. BARCLAY P.E.
IRRIGATION DIVISION ENGINEER
P. O. BOX 551
DURANGO, COLORADO 81302
OFFICE: 247-3770 HOME: 247-5821

November 18, 1971

Mr. C. J. Kuiper, State Engineer
Division of Water Resources
1845 Sherman Street
Denver, Colorado 80203

Dear Mr. Kuiper:

Attached herewith is our Annual Report for the 1970 - 1971 Water Year.

Very truly yours,

George E. Barclay
Division Engineer

GEB:alf
Enclosure

ANNUAL REPORT

WATER DIVISION VII

1971

PREPARED BY

GEORGE E. BARCLAY

DIVISION ENGINEER

DIVISION ENGINEER'S ANNUAL REPORT

1970 - 1971 WATER YEAR

DIVISION VII

I N D E X

1971 ANNUAL REPORT *

DIVISION 7

DURANGO, COLORADO

Water Division 7 includes a number of streams which are tributary to the San Juan River; some within the state and some out of the state. It also includes Disappointment Creek which is a tributary of the Dolores River, and the Dolores River which is a tributary of the Colorado River.

Starting with the easternmost stream, the following drainages are in this Division: the Navajo, Little Navajo, Coyote Creek, Little Blanco and Blanco Rivers, San Juan, Piedra, Pine, Siembritas, Florida, Animas, La Plata, Mancos, Mc Elmo Creek which flows into the San Juan River in Utah, and the Dolores River and Disappointment Creek.

The general geology of this Division consists of the main range of the San Juan and La Plata Mountains, most of the peaks showing glacial action. Most of the upper river basins in this Division are the remnants of old glaciers. Terminal and lateral morains and hanging valleys are found in most of the river basins. Interspersed especially in the high mountain areas, is an intrusion of igneous rock formations. Most of these intrusion areas are found to be highly mineralized mountain ranges of the San Juan and La Plata Mountains. Generally speaking, this whole Division was an old lake bed; sedimentary rocks are found to depths of from zero to 5,000 feet. Most of the river beds have shallow alluvial fills. It is felt that as water becomes more expensive in this Division, more exploratory work will be undertaken to find more productive aquifers of water in the lower sandstone strata.

The main industries in the San Juan Basin are farming, ranching and tourism. There is some farming on the lower mesas, and cattle raising is found in the higher mountains, as well as on the lower mesas and plateaus. The general land pattern is that in the higher mountain areas private ownership is found along river courses. Most of the land outside of the river bottoms is U.S. Forest Service land. On the upper and lower Blanco, and to some degree on the Navajo, Mancos and Dolores Rivers,

*Detailed resumes on geology, history, water availability, land under cultivation, and other details are discussed under our 1970 Annual Report.

large land developers are purchasing most of the existing ranges and large land holdings, and are subdividing these into either city lots or larger tracts. This land use is presenting many headaches relative to water rights and change of usage. This office has been working very closely with county land planning groups on these changes. Subdivision regulations for La Plata County were adopted by the Board of County Commissioners effective June 15, 1971.

Although we feel that there is a growth potential in the development of electric power plants using coal as a fuel base, we feel that the major industry in this country will be light industry that would supply part-time work to local residents.

We have not relisted the projects that were proposed under our 1970 Annual Report. Some of these projects are still active and steps are being taken to inaugurate the construction.

The Bureau of Indian Affairs and the Jicarilla-Apache and Southern Ute Tribes have sent representatives to this office to seek further information relative to some of these proposed projects. We feel that in the near future, some preliminary surveys will be made and in all probability, some of these projects will be started within the next two years. To date we have not seen any definite revised plans on these projects.

II. PERSONNEL

The following is a list of the personnel in this Division for the period of November 1, 1970 to November 1, 1971:

NAME	POSITION	DISTRICT	MONTHS WORKED/ BUDGETED	MILEAGE
George E. Barclay	Division Engineer		12/12	271 P* 15,033 S
Thomas A. Kelly	Asst. Div. Engineer		12/12	11,863 S
Ann-L. Fauth	Clerk		12/12	(2,330)P
Terry P. Alley	D.W.C.	30	5-½ / 2	4,920
Neil Bankston	W.C.I	69	3-3/4 /2	4,034
Roy Brown	D.W.C.	29	8/ 2	16,678
E. Ivan Danielson (New March 1971)	W.C.I.	29	** 7-½ /7-½	15,998
George Davis	W.C.I.	30	8-¼ / 10	10,558
George Edmonson	D.W.C.	32	9 / 6	9,026
Glen Humiston	W.C.I.	34-32	8-¼ / 10	6,031
Edward Kennedy (Retired May 1971)	W.C.I.	33	3-½ / 7	787
Russell Kennedy	W.C.I.(From D.W.C.)	33	8-3/4 /3	11,432
William P. Lynn	W.C.I.	29	9-¼ / 6	8,359
Ronald Robinson	D.W.C.	29	7-½ / 3	6,660
Bob Shahan	D.W.C.	29	4 / 4	2,536
Lawrence Shock	D.W.C.	46	6-3/4 /2	5,783
Avrit Sparks	W.C.I.	31	9-½ / 8	10,011
Wilford Speer	D.W.C.	34-71	6-½ / 5	6,281
TOTAL			98-½ / 70	119,094

*Private Vehicle - P
State Vehicle - S

**As shown above the total man months worked by part-time deputies and water commissioners is 98.5. During this same period last year a total of 121.5 man months were worked. We have not shown in the total the one full-time water commissioner we have in this Division - that is Ivan Danielson who is assigned to the San Juan-Chama Project. A large percentage of the work he takes care of is new work, and is not associated with regular water commissioner work.

III. WATER SUPPLY

A. SNOW PACK

SNOW PACK	NO. OF COURSES	THIS YEAR'S SNOW WATER PERCENTAGE LAST YEAR	AVERAGE
Animas	6	61	74
Dolores	4	30	52
San Juan	3	56	52

This year although the weather modification was in operation, little effect was shown, with the possible exception that heavier snowfall was apparent on the west side of the La Plata and San Juan Mountains.

WATER SUPPLY	MAY THRU SEPT. 1000 A.F. FORECAST	% OF NORMAL	15 YEAR AVERAGE	ACTUAL	% OF NORMAL
Animas at Durango	245	67	365	313.0	85.7%
Dolores at Dolores	115	59	195	184.0	94.3%
La Plata at Hesperus	11.3	57	19.7	13.8	70.0%
Los Pinos at Bayfield	92	53	17.4	178.0	102.2%
Piedra at Piedra	60	45	132	*	*

*Not Available

STREAM SUPPLY OUTLOOK	FLOW PERIOD SPRING	SUMMER
Florida	Poor	Poor
Mancos	Poor	Poor
San Miguel	Poor	Poor

SOIL MOISTURE	NO. OF STATIONS	THIS YEAR MOISTURE AS PERCENT OF LAST YEAR	AVERAGE
Animas	3	121	85
Dolores	3	89	78
San Juan	2	123	87

III. WATER SUPPLY

B. PRECIPITATION - SUMMER

April precipitation was poor and below normal; May poor and below normal; June poor; July poor at the start of the month and good during the latter two weeks; August was much above average; September was above average; October also

above average. There was good soil moisture into this winter.

III. WATER SUPPLY

C. FLOODS

The Weather Bureau predicted a flood during September but due to a fast jet stream, the anticipated flood did not materialize. The only floods that occurred in this Division were three recorded on Disappointment Creek. These washed out several bridges and caused considerable damage.

III. WATER SUPPLY

D. WATER BUDGET

It is very difficult in this Division to make a comprehensive water budget. Most of the supply comes from yield areas within the respective watersheds extending to the State Line. To tabulate an accurate account of all the water produced and used within each of the old water districts, it would be necessary to have an untold number of recording gages on each of the contributing branches of the main rivers within each district.

On the following page is a tabulation of the figures that were available to us.

WATER BUDGET

RIVER STATIONS UPPER RIVER	LOWER RIVER	1 A.F. YIELD DRAINAGE AREA	2 IRRIGATION DIVERSION A.F.	3 DIST. NUMBER	4 DEPLETION BY IRRIGA.	5 MUNICIPAL DIVERS.	6 DEPLETION BY MUNICIPAL	7 OTHER DIVERS.	8 OTHER DEPLET.	9 RUNOFF AT STATION A.F.
	San Juan at Carracas*		148,139	29						
	Piedra At Arboles*									
	Pine at Bayfield	240,688	227,824	31						240,688
	Florida at Bondad	30,681		30		7,636		37,683		30,681
	Animas, Durango	482,964	166,896							482,964
La Plata at Hesperus	La Plata at Colo.-N. Mex. Line	22,848	20,064	33	8,408					22,848
	Dolores at Dolores	266,486	151,348	34						266,486
	Mancos at Towaoc	23,400								23,400
	Disappointment at Dove Creek	11,035	5,326	69		10				11,035
	Siembritas	No Station	7,840	46						No Record
	Mc Elmo, State Line	38,764	38,140	32						38,764
TOTALS		1,116,846	765,577		8,408	7,646		37,683		1,116,846

*Records not available when report was made up.

III. WATER SUPPLY

E. UNDERGROUND WATER

Junction Creek sandstone formation may offer some promise as an aquifer in and around the Durango area. At the present time one commercial well is being drilled into this formation, however, no results are available yet. One well was adjudicated this year for 0.5 c.f.s. for irrigation.

The computer printout of registered wells in Division 7 breaks down as follows:

TYPE	NO. OF WELLS	AMT. REGISTERED IN C.F.S.
Domestic	615	15.80
Stock	5	1.63
Domestic and Stock	24	2.91
Commercial	26	2.17
Industrial	15	13.13
Irrigation	7	4.23
Irrigation and Stock	1	2.23
Municipal	14	2.53
TOTAL	775 Wells	44.63 C.F.S.

This total represents approximately 30% - 35% of the actual wells in Division 7.

III. WATER SUPPLY

F. TRANSMOUNTAIN DIVERSIONS

NAME OF DITCH	SOURCE OF SUPPLY	RECIPIENT	AMOUNT A.F.
Pine River-Weminuche Pass Fuchs Ditch	Pine River	Liland & Harley Fuchs Del Norte	289.0
Weminuche Pass Ditch Raber-Lohr Ditch	Pine River	Hilde Lohr & Leon Raber Del Norte	1,450.0
Treasure Pass Ditch	San Juan R.	Fred Falk, Del Norte	303.0
Williams Creek Ditch Squaw Pass	Piedra R.	Loren Sanderson & Craton Sanderson, Monte Vista	181.0
Piedra Pass Ditch (Don La Font Ditch)	Piedra R.	Colo. State Game & Fish	0.0
Carbon Lake Ditch	Animas R.	Helen Tinkler, et. al, Montrose	321.0
Red Mountain Ditch	Animas R.	John Jutten, Silverton	243.0
San Juan-Chama Project	Navajo, Blanco & Little Navajo	U.S. Bureau of Reclama. Chama, New Mexico	48,650.0

III. WATER SUPPLY

G. RESERVOIR STORAGE

NAME OF RESERVOIR	SOURCE OF SUPPLY	AMOUNT A.F. 11-1-1970	AMOUNT A.F. BEGINNING IRR. SEASON	AMOUNT A.F. 10-31-1971
Beaver Creek	Navajo River	1	1	1
Gale Reservoir #3	Blanco River	12	12	12
Spring Creek Reservoir	Spring Creek		46	11
Williams Creek Res.	Williams Creek		11,500	10,422
Hence Barrow Res.	San Juan River	13	13	13
Pargin Reservoir	Stollsteimer	540	540	540
Slesinger Reservoir	White Creek	27	27	27
Sunset Cottage Res. #1	San Juan River	19	19	19
Sunset Cottage REs. #2	San Juan River	23	23	23
Wilson Lake	Blanco River	7	7	7
Bauer Reservoir #1	Crystal Creek	115	350	40
Bauer Reservoir #2	Chicken Creek	400	1,532	300
Jackson Lake Reservoir	West Mancos River	6,506	9,980	4,177
Coppinger Reservoir	Summit Res. System	4	14	4
L. A. Bar Reservoir	Bauer Res. System	10	73	8
Sellers & McClane Res.	Summit Res. System	15	52	9
Webber Reservoir	Middle Mancos River	50	249	40
A. M. Puett Res.	Summit Res. System	600	2,537	192
Summit Reservoir	Lost Canyon	1,700	4,795	1,000
Big Pine Reservoir	Turkey Creek	90	460	90
Groundhog Reservoir	Fish Creek	13,636	23,289	8,469
Lost Canyon Res.	Summit Res. System	106	106	106
Narraguinnep Res.	Dolores River	8,500	19,050	7,000
R. B. Coppinger Res.	Summit Res. System	5	16	1
Totten Reservoir	Dolores River	1,600	3,302	2,384
Robert Leighton Res.	Unnamed Draw Mc Elmo Creek	Built in Spring 1971	36	36
Ducks Nest Res.	Monument Creek	0	0	0
West Reservoir	Mc Elmo Creek	6	6	6
Durango Res. #1	Florida River	2,220	2,220	2,220
Durango Res. #2	Florida River	570	570	570
Durango Res. #3	Florida River	42	42	42
Durango Res. #4	Florida River	440	440	440

NAME OF RESERVOIR	SOURCE OF SUPPLY	AMOUNT A.F. 11-1-1970	AMOUNT A.F. BEGINNING IRR. SEASON	AMOUNT A.F. 10-31-1971
Lemon Reservoir	Florida River	29,920	33,454	17,096
Shaull Reservoir	Florida River			
Short Reservoir	Tumble Arroya	full	full	full
Red Mesa Ward Res.	La Plata River-Hay Gulch	905	1,200	296
Vallecito Reservoir	Pine River	74,507	107,823	48,052
Wommer Reservoir	Little Bear Cr.	150	159	143
Emerald Lake Res.	Lake Fork of Los Pinos River	full	full	full
Belmear Lake Res.	Rincone Creek	400	496	135
Buck Pasture Res.		20	60	20
Dunham Reservoir	Groundhog Creek	85	100	37
Ethel Belmear Res.	Unnamed Draw			75
Garner Reservoir	Bear Creek	30	37	4
Morrison Reservoir	Morrison Creek	70	80	38
North Draw Reservoir	North Draw	45	45	10
Columbine Reservoir	Little Navajo R.	5	5	5
Echo Canyon Res.	Echo Creek	832	832	832
Dunnagan Reservoir	Devil Creek	94	94	94
G. S. Hatcher Res.	Stollsteimer Creek	1,675	1,536	1,536
Hersch Reservoir	Stollsteimer Creek	16	16	16
Fall Creek Reservoir	Fall Creek	5	5	5
Fall View Reservoir	Navajo R.,-Aspen Cr.	8	8	8
Hidden Lake Res.	Indian Creek	5	5	5
Gardner Lake Res.		15	15	15
Harris & Boone Res. #1	Branch Creek	49	49	49
Harris & Boone Res.	Branch Creek	190	205	42
King Dam	Butler Creek	2	2	2
Kruger Reservoir	Oil Well Creek	5	5	5
Muddy Creek Res.	Big Muddy Creek	8	8	8
Three Lakes Res.	Navajo River	22	22	22
Gale Reservoir #1	Blanco River	7	7	7
Spence Reservoir	Coyote Creek	360	441	296

NAME OF RESERVOIR	SOURCE OF SUPPLY	AMOUNT A.F. 11-1-1970	AMOUNT A.F. BEGINNING IRR. SEASON	AMOUNT A.F. 10-31-1971
Johansing Vinnel Fish	Florida River			
Pat. A. Sherwood Res.	Animas River	4	4	4
Hotter Bros. Reservoir	Cascade Creek	39	39	39
Columbine Reservoir	Little Cascade Cr.	383	383	383
Lake of the Pines	Little Cascade Cr.	114	114	114
Cascade Reservoir	Cascade Creek	20,456	21,688	19,166
Haviland Lake Res.	Elbert Creek	404	404	404
Keeler Reservoir	Elbert Creek	438	438	438
Ice Lake Res.	Elbert Creek	416	416	416
Clifty Lodge Reservoir	Elbert Creek	1	1	1
Turner Reservoir	Waterfall Creek	354	472	472
Warner Res. #1	Elbert Creek	13	13	13
Hutchinson Reservoir	Bear Creek	22	22	22
Macy Reservoir	Spring Creek	0	0	0
Duck Slough-Anderson Lake	Animas River	131	131	131
Warner Reservoir #2	Elbert Creek	6	6	6
Warner Reservoir #3	"	0.8	0.8	0.8
Warner Reservoir #4	"	0.5	0.5	0.5
Warner Reservoir #5	"	23	23	23
Warner Reservoir #6	"	0.4	0.4	0.4
Warner Reservoir #7	"	0.3	0.3	0.3
Warner Reservoir #8	"	2	2	2
Lake Carol	Non-Tributary	8	8	8
Lake Susan	"	17	17	17

IV. AGRICULTURE

Good ground moisture was experienced on most of the agricultural lands last winter and early this spring. This made it possible to harvest an average wheat crop on the Red Mesa, dry lands on the west side of the La Plata River, and on the dry lands in Montezuma County. The weather was especially dry during June and the forepart of July, causing a deterioriation in the wheat crop. The average yield would be approximately 2,500 lbs. per acre.

The dry period during the late spring and early summer also caused a below-normal first cutting of the hay crop. Above-normal late rains made above-normal hay yields for the second cutting.

The bean crop on the dry areas was approximately one-quarter of normal. This was due to insufficient moisture during the latter part of June and July, and early frost during the first part of September. The beans that were harvested were shrivelled and of poor quality. It is too bad because the bean price is up approximately $2 to $3 higher than normal.

The apple crop around Cortez was fair. The size of apples was small due to high temperatures and low moisture during June and July. The yield was also spotty due to late frost this spring and early freezes this fall.

The gain per animal in cattle was approximately 5% above average. This was probably due to the good late rains which produced good late pastures.

V. COMPACTS AND COURT STIPULATIONS

LA PLATA COMPACT

The La Plata Compact was operated smoothly this year. Highest discharge at Hesperus was 156 c.f.s. on May 28. At the State Line, the highest discharge was 840 c.f.s. on August 18. New Mexico requested one-half of the stream flow on March 23; Colorado took over the upper water on July 19. We had very few complaints from New Mexico on the operation of the Compact this year.

SAN JUAN-CHAMA DIVERSION PROJECT

This was the first year of operation of this project and it is hoped that the following years will not present themselves with as many headaches as we have had this year. A meeting was called by the Southwest Water Conservation District in Durango on August 4. Representatives from the U.S. Bureau of Reclamation, U.S. Bureau of Sport Fisheries and Wildlife, Colorado Department of Game Fish and Parks, Jicarilla-Apache Indians, State Water Board, State Engineer's Office, New Mexico State Engineer's Office, as well as a large number of interested land owners were present at this meeting. A great many people expressed their disappointments and objections as to the way the project was being operated. A second meeting was called by our State Engineer on October 15, in which further grievances were heard. This was a very good meeting and we feel that it brought to light many of the operational problems that we will be confronted with from now on.

VI. DAMS

During the last fiscal year, an effort has been made on the part of the Division Office to secure capacity curves of all reservoirs within the Division. We have also written numerous requests and given verbal instructions to different owners and operators to instal gage rods on all reservoirs. During this year, two illegal reservoirs were found and letters written by this office to the owners and the State Office. These two were an enlargement of a stocktank by Frank Gomez in District 29, and the other an illegal dam built behind an old railroad grade in District 30 by Charles Lemon.

It was our pleasure to have Don Bressler of the Dam Section in this Division for approximately three weeks, at which time all dams were inspected. The one in the most critical condition was Big Pine Reservoir in District 34. Since the inspection, the willows growing on the dam have been removed, and the water lowered to outlet level and the spillway dried out. The owner should be able to clean the spillway in the near future. Summit Reservoir also has a heavy stand of willows on its embankments and should be cleaning this up in the near future.

A letter was written to the Bauer Lakes Water System instructing them to raise certain low sections in their reservoir and also widen the front slopes of the embankments. The Belmear Reservoir in District 69 also showed signs of leakage and a need for adding an additional embankment to the front of the reservoir. The owner plans to enlarge this reservoir in the near future and should make the necessary repairs at that time.

We have not as yet received a report relative to the Dunnagan Reservoir in District 29. The owner was to furnish this office with new capacity curves and repair the outlet structures. We have also not received any information from our dam section relative to Electra Lake dam in District 30, which is in very poor condition.

VI. LIVESTOCK WATER TANKS

Stocktank permits were issued in individual districts as follows:

DISTRICT	NUMBER OF PERMITS
29	11
30	8
31	9
32	16
33	5
34	2
69	10

There were no permits issued for District 46 this year.

VII. WATER RIGHTS

B. REFEREE FINDINGS AND DECREES

	INVESTIGATED BY DIV. ENGINEER	REFEREE RULING	COURT DECREE
1. Underground Water Rights	49	46	46
2. Change of Water Right	28	26	26
3. Plan for Augmentation	0	0	0
4. Water Right	151	140	140
5. Due Diligence: Biennial Findings	89	89	89
Conditional Made Absolute	96	95	95
6. Water Storage Right	52	50	50
TOTAL	465	446	446

A hearing on one case as a result of protest is set for this month.

VIII. ORGANIZATIONS

A. WATER CONSERVATION AND CONSERVANCY DISTRICTS

NAME	ADDRESS	ATTORNEY	OFFICER
La Plata Water Conservation	115 W. 11th Durango	F.S. Maynes	J. R. Kroeger
Dolores Water Conservancy	115 W. 11th	F.S. Maynes	I. W. Patterson
Florida Water Conservancy	1157 Main Durango	L.W. McDaniel	Chester Beaston
Mancos Water Conservancy	115 W. 11th	F.S. Maynes	Lloyd Doerfer
Pine River Irrigation	115 W. 11th	F.S. Maynes	Frank Wommer, Jr.
San Miguel Water Conservancy	115 W. 11th	F.S. Maynes	Dan Noble
S. W. Water Conservation	115 W. 11th	F.S. Maynes	D. L. Williams

VIII. ORGANIZATIONS

B. DITCH COMPANIES

Montezuma Valley Irrigation District
Hearld G.Keown, Secretary
Cortez, Colorado

Summit Ditch Company
Edmond Mc Rae, Secretary
Dolores, Colorado

Bauer Lakes Water Company
Mrs. Dwight Wallace, Secretary
Mancos, Colorado

Park Ditch Company
Roland Bartel, President
Pagosa Springs, Colorado

IX. WATER COMMISSIONERS' SUMMARY

		A.F.	DUTY OF WATER DIRECT A.F./A.	DUTY OF WATER STORAGE A.F./A.
WATER DISTRICT 29				
Direct Flow Diversions		143,775	4.88	
Reservoir Storage Used for Irrigation		2,147		1.19
Acres Irrigation	Direct 29,482			
	Storage 1,800			
Number of Ditches	234			
Number of Reservoirs Served	32 (6 for irrigation)			
Average Demand A.F./A.	4.95			
Number Water Rights Non Use	182			
Number Water Rights Not for Irrigation	23			
WATER DISTRICT 30				
Direct Flow Diversions		140,503	3.47	
Reservoir Storage Used for Irrigation		26,394		1.23
Acres Irrigation	Direct 40,505			
	Storage 21,500			
Number of Ditches	155			
Number of Reservoirs Served	33 (1 for irrigation)			
Average Demand A.F./A.	4.12			
Number Water Rights Non Use	181			
Number Water Rights Not for Irrigation	74			
WATER DISTRICT 31				
Direct Flow Diversions		148,365	2.93	
Reservoir Storage Used For Irrigation		79,459		1.85
Acres Irrigation	Direct 50,635			
	Storage 43,043			
Number of Ditches	86			
Number of Reservoirs Served	3 (1 for irrigation)			
Average Demand A.F./A.	4.50			
Number Water Rights Non Use	27			
Number Water Rights Not For Irrigation	15			
WATER DISTRICT 32				
Direct Flow Diversions		38,140	5.99	
Reservoir Storage Used For Irrigation*				
*Reported in Water District 71				
Acres Irrigation	Direct 6,363			
	Storage			
Number of Ditches	69			
Number of Reservoirs Served	4 (1 for irrigation)			
Average Demand A.F./A.	5.99			
Number Water Rights Non Use	38			
Number Water Rights Not For Irrigation	-			

			A.F.	DUTY OF WATER DIRECT A.F./A.	STORAGE A.F./A.
WATER DISTRICT 33					
Direct Flow Diversions			20,064	1.56	
Reservoir Storage for Irrigation			1,075		1.10
Acres Irrigation	Direct	12,856			
	Storage	980			
Number of Ditches		44			
Number of Reservoirs Served		1			
Average Demand A.F./A.		1.64			
Number of Water Rights Non Use		45			
Number of Water Rights Not for Irr.		1			
WATER DISTRICT 34					
Direct Flow Diversions			37,872	2.80	
Reservoir Storage for Irrigation			7,574		0.61
Acres Irrigation	Direct	13,505			
	Storage	12,350			
Number of Ditches		46			
Number of Reservoirs Served		8			
Average Demand A.F./A.		3.37			
Number Water Rights Non Use		13			
Number Water Rights Not for Irrigation		4			
WATER DISTRICT 46					
Direct Flow Diversions			7,840	4.10	
Reservoir Storage for Irrigation			none		
Acres Irrigation	Direct	1,914			
	Storage	-			
Number of Ditches		21			
Number of Reservoirs Served		none			
Average Demand A.F./A.		4.10			
Number Water Rights Non Use		6			
Number Water Rights Not for Irrigation		0			
WATER DISTRICT 69					
Direct Flow Diversions			2,582	3.02	
Reservoir Storage for Irrigation			573		1.71
Acres Irrigation	Direct	856			
	Storage	335			
Number of Ditches		11			
Number Reservoirs Served		6			
Average Demand A.F./A.		3.69			
Number Water Rights Non Use		14			
Number Water Rights Not for Irr.		0			

			A.F.	DUTY OF WATER DIRECT A.F./A.	STORAGE A.F./A.
WATER DISTRICT 71					
Direct Flow Diversions			106,610	2.48	
Reservoir Storage for Irrigation			44,738		1.12
Acres Irrigation	Direct	42,956			
	Storage	40,000			
Number of Ditches		46			
Number of Reservoirs Served		7			
Average Demand A.F./A.		3.52			
Number Water Rights Non Use		18			
Number Water Rights Not for Irr.		7			
DIVISION 7 SUMMARY					
Direct Flow Diversions			645,751	3.24	
Reservoir Storage for Irrigation			200,100		1.67
Acres Irrigation	Direct	199,072			
	Storage	120,008			
Number of Ditches		712			
Number Reservoirs Served		94	(23 for irrigation)		
Average Demand A.F./A.		4.25			
Number Water Rights Non Use		524			
Number Water Rights Not for Irr.		124			

IX. WATER COMMISSIONERS' SUMMARY

TRANSMOUNTAIN DIVERSIONS

FROM WATER DISTRICT 29	TO WATER DISTRICT 20
Name of Diversion:	Diversion in Acre Feet:
Squaw Pass Ditch (Williams Cr.)	181
Piedra Pass Ditch (Don La Font)	0
Treasure Pass Ditch	303
San Juan-Chama Project	48,650

FROM WATER DISTRICT 30	TO WATER DISTRICT 68
Name of Diversion:	Diversion in Acre Feet:
Carbon Lake Ditch	321
Red Mountain Ditch	117

FROM WATER DISTRICT 31	TO WATER DISTRICT 20
Name of Diversion:	Diversion in Acre Feet:
Pine River-Weminuche Pass	289
Weminuche Pass Ditch (Raber & Lohr Ditch)	1,450

X. RECOMMENDATIONS AND SUGGESTIONS

These are changing times on the use of water in this Division. It is estimated that there is in excess of 400 subdivisions in this Division that have been inaugurated within the last two years. In most instances the developers sold the land without transferring any water rights. In some instances they are maintaining the water rights for speculative purposes.

There is one instance where a ditch that served two ranches and had an adjudicated water right of approximately 10 c.f.s., is now partially abandoned. The ranch has been cut up into approximately 300 home sites. At least 35 new homes have been built on these new acreages. Within the next two years, the developers insist that there will be at least 100 homes built. The main supply of water for these home sites is surface water. Water is either pumped from the stream or a well is drilled in the alluvial fill next to the stream. This is citing only one instance of the problems which we are being confronted with.

One time last summer we had approximately five calls in one day wherein owners of ditches or priorities along a river reported illegal pumping of water either from their ditch or from the stream when the stream was on call.

We also have a large number of subdivisions that are located in places where it is going to be very difficult to find ground water, or any type of water supply at all.

With this changing use of water, it becomes more apparent that additional men will have to be hired on a full-time basis to take care of these complaints and also to see that water is properly used. If it is the intent of the Division of Water Resources to computerize all ditch diversions, a complete change in method of operation will be necessary in this Division.

Following are some of the administrative problems that will have to be met before a program of this nature can be operative:

1. On the Pine River, storage water is allocated to different water users based on their priority and also the amount of water they have adjudicated. Number one water is adjudicated to the Southern Ute Indians. Before it is possible to separate stream flow and storage water, it is necessary that we receive a list of diversions from the Indian Service. This is presently received on approximately the fifteenth of the following month after the usage. Any recording of ditch use

on the Pine River will lag at least six weeks.

2. In the Montezuma Valley Irrigation District, return flow, transfer water, storage water, and stream flow are commingled during the entire irrigation season. It is not until after the irrigation season ends that these waters can be separated and properly recorded. We have the same problem on the Bauer Lakes and Summit Reservoir Systems in District 34.

To properly computerize all the water in this Division, even on a monthly basis, it is estimated that we would have to have at least three hydrographers and three times as many full-time personnel as we now have in part-time personnel. The greatest problem we have at the present time is trying to properly record all the water diverted in the division in order to protect the rights of Colorado and individual water users, and to keep on top of other water administrative problems, with the meagre man-months allocated to the respective water commissioners and deputies in the division.

To date, our water commissioners have been very loyal, conscientious, and hard working in their jobs, but now due to the insecurity of their jobs, many are looking for other employment.

APPENDIX A

TEMPERATURE

NOVEMBER, 1970 TO OCTOBER, 1971 INCLUSIVE

STATION	1970 NOV.	1970 DEC.	1971 JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	1971 AVERAGE	LONG TERM AVERAGE
Durango	37.4	27.4	24.7	31.2	38.6	44.7	51.1	61.6	69.2	67.2	54.1	47.5	46.2	46.2
Difference	+0.9	-0.5	-0.6	+1.5	+1.9	-0.4	-1.4	+1.0	+2.2	+1.2	+1.1	-1.0	0	
Ft. Lewis	33.3	24.5	22.4	27.0	33.3	40.2	46.6	59.2	65.5	61.8	N.R.	N.R.	-	42.8
Difference	+0.1	-1.4	-0.6	+1.1	+1.6	-1.0	-2.4	+2.0	+1.9	-0.1				
Silverton	27.9	17.0	19.2	19.1	25.0	35.0	41.3	50.7	56.0	56.1	45.0	38.0	34.3	36.5
Difference	+1.3	-2.3	+2.5	+0.1	+1.2	+1.8	-0.6	+1.0	+0.9	+2.0	-2.2	-1.0	-2.2	
Pagosa Springs	33.2	22.1	19.9	25.3	33.2	40.1	46.7	57.3	63.3	62.6	52.0	42.0	41.5	N.A.
Difference	-	-	-	-	-	-	-	-	-	-	-	-	-	
Cortez	39.2	29.6	28.4	31.7	38.9	46.7	53.5	66.0	73.2	70.1	59.0	48.4	48.7	48.9
Difference	+2.0	+0.1	+0.9	-0.2	+0.4	-0.7	-2.4	+1.3	+1.9	+0.3	-3.2	-1.6	-0.2	
Ignacio	36.2	26.0	19.4	28.6	34.9	42.7	49.6	62.1	68.4	66.2	55.3	45.2	44.6	N.A.
Difference	+1.0	-0.9	-4.0	+0.2	-1.5	-2.6	-3.8	+0.3	+0.1	-0.6	+0.2	+2.1	-	

APPENDIX B

PRECIPITATION

NOVEMBER 1970, TO OCTOBER, 1971 INCLUSIVE

STATION	1970 NOV.	1970 DEC.	1971 JAN.	FEB.	MAR.	APR.	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	1971 TOTAL	LONG TERM MEAN
Durango	0.96	0.45	0.26	0.14	1.14	0.71	1.69	0.00	1.16	4.14	2.16	2.63	15.44	18.02
Difference	-.02	-1.18	-1.35	-1.16	+0.01	-0.58	+0.56	-0.85	-0.65	+1.78	-0.43	+1.65	-2.58	
Ft. Lewis	0.97	0.71	0.30	0.65	0.04	1.10	2.48	T	1.40	5.21	1.77	2.92	17.55	18.79
Difference	-.02	-.89	-1.34	-1.06	-1.51	-.38	+1.29	-.90	-.35	+3.07	-.03	+.89	-1.24	
Silverton	1.31	0.61	0.76	2.20	1.80	1.17	2.08	T	2.83	3.98	3.86	2.25	22.85	28.02
Difference	+.15	-.89	-.70	+.53	-.47	-.59	+.69	-.69	+.36	+1.16	+1.60	-.01	-5.17	
Pagosa Springs	1.06	0.53	0.25	0.62	0.12	1.32	1.25	0.05	1.31	2.68	2.66	2.27	-	N.A.
Difference	-	-	-	-	-	-	-	-	-	-	-	-		
Cortez	0.86	0.30	0.28	0.65	0.04	0.82	1.56	0.00	0.23	3.30	0.68	2.12	10.84	14.20
Difference	+.11	-.62	-.78	-1.06	-1.05	-.27	+.70	-.54	-.98	+1.79	-.73	+.56	-3.36	
Ignacio	0.40	0.68	0.30	0.71	0.06	0.54	0.97	0.03	1.05	1.84	1.72	2.46	10.76	N.R.
Difference	-.35	-.51	-1.00	-.46	-1.13	-.53	-.03	-.69	-.35	+.07	+.35	+1.71		