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COLORADO DIVISION OF WATER RESOURCES

DIVISION 3 ANNUAL REPORT - 1975

## I. INTRODUCTORY STATEMENT

Water Division 3 includes about five million acres of land. Approximately one-half of this land is federally owned, including national forests, public domain, wildlife refuges and the Great Sand Dunes National Monument.

Of the remaining 2 1/2 million acres of private land in the area, about 500,000 acres is irrigated crop land, 250,000 acres permanent pasture or hay, 500,000 acres woodland and 1,250,000 acres is range land consisting of sage, chico, and natural grasses.

Division 3 includes all land in Colorado which drains into the Rio Grande river. The area is more specifically referred to as the San Luis Valley. It is located in south central Colorado and includes all or part of the counties of Saguache, Rio Grande, Alamosa, Conejos, Costilla, San Juan, Hinsdale, Mineral, and Archuleta. The Division is bounded on the north and west by the Continental Divide, on the east by the Sangre De Cristo mountains, and on the south by the Colorado-New Mexico state line. The Valley floor, at an average elevation of 7,600' is nearly flat, sloping generally from north to south at a grade of 4 to 10 feet per mile. The area along the Rio Grande in the vicinity of Alamosa has a slope of only 0.6 of a foot per mile.

Soils of the Valley range from coarse gravel and rock next to the mountains to a fine blow-sand texture toward the center. The finer textured soils are underlain by sand and gravel with clay lenses beginning generally at a depth of 60 feet. During most years a substantial part of the land is subwatered.

The growing season between frosts ranges from a minimum of 90 to a maximum of 120 days. Precipitation averages about seven inches a year on the Valley floor. Hail storms are

common during the growing season and weather modification has been practiced in previous years to reduce crop damage. The prevailing winds blow from south to west and are strongest in the spring.

The main crops raised by irrigation are alfalfa, potatoes, barley oats, natural grasses, hay, and pasture. Cattle and sheep are feed-lot fed in the winter months and transported to mountain ranges in the summer. Crop yields are high and the quality is good.

The headwaters of the Rio Grande river are in Hinsdale county on the west side of the Valley. The Rio Grande flows generally west to east through the Valley turning south at Alamosa. Major tributaries to the main stem of the Rio Grande are the South Fork at South Fork, Colorado, the Alamosa River, La Jara and Trinchera Creeks between Alamosa and La Sauses, and the Conejos River at La Sauses. The Los Pinos and San Antonio rivers are tributary to the Conejos river east of the town of Manassa. The San Antonio river heads in New Mexico and flows into Colorado. The Los Pinos heads in the Cumbres pass area in Colorado, flows into New Mexico and then back into Colorado. The Conejos river heads in the San Juan Range near Platoro. The streams flowing into the Closed Basin (Saguache, San Luis, La Garita, Carnero creeks and their tributaries) are not tributary as surface water to the Rio Grande. Costilla and Culebra Creeks and their tributaries are not now considered tributary to the Rio Grande above Lobatos, although future studies could change the status of Culebra Creek.

Agriculture continues to be the predominant economic factor in the San Luis Valley. Several small towns exist as supply centers for the agricultural industry. Adams State College, a liberal arts college offering both graduate and undergraduate decrees, is at Alamosa, the largest town in the Valley.

Manufacturing is primarily based on the region's resources. Perlite is processed in the Antonito area by Grefco, Johns-Manville, and Silbrico Corp. The Homestake, Emperius, and Summitville mines produce silver, lead and copper. Lumber mills and potato starch plants round out the major part of the manufacturing sector. In 1970, the Gerry Division of Outdoor Industries, Inc. located in a new plant to manufacture ski parkas in Alamosa. With the vast amount of high quality potatoes grown in the San Luis Valley, local officials are attempting to find a major processor to locate in the area.

Subdivision developers continue to be active in the San Luis Valley, involving the Division of Water Resources in the evaluation of water resource availability. The Planning Section in Denver and this office have spent a considerable amount of time and effort in this evaluation as required by statutes, and in the review of Plans of Augmentation submitted to the Water Court. Fortunately, input from the Division of Water Resources is both sought and carefully considered by the Division III Water Court.

The difficulties of water administration in the San Luis Valley continue to increase. The principal underlying cause seems to be the change in attitude from from one of a conciliation or compromise to one of a rigid "hard line" stand by the various water user entities in the valley. This non-compromising attitude, although not necessarily due to the influence of certain attorneys representing these groups, has not been softened by their presence. Substantial sums of money will be spent on legal (and engineering) fees during the next several years. It is disheartening to consider what the probable cost/benefit ration in dollars/acre feet will be.

## WATER RESOURCE RELATED PROJECTS

A. Projects Carried Over from Previous Years.

| Sponsor | Owner/Project | Work | Status |
|---|---|---|---|
| Rio Grande Water Conservation Dist. | Artesian well programs | Valving, capping, plugging flowing wells | As of Dec 2 1,946 wells serviced |
| Rio Grande Water Cons. Dist. plus CWCB, DWR | BUREC- Closed Basin | Water Salvage | $125,000 EIS-FDR funding OK'd in House |
| Rio Grande Water Conservation Dist. | Obs. well network S L Valley | 1st stage-6 mi grid 73 well to monitor static water level | 52 wells drilled & monitored. 21 to be drilled |
| San Luis Valley Res. Cons. & Dev. | McDonald Ditch | 3 mi concrete ditch lining/ Parshall & 4 turnouts w/ metal Parshalls | Completed |
| ASCS/RGWCD | Sentry Box Mutual (formerly LaGarita Res.) | On stream (LaGarita Cr) Reservoir | Planning, appl. in Water Court for change to storage decree |
| ASCS/RGWCD | Rito Seco Flood Control | Change diversions wks. in town of San Luis | Pre-planning |
| ASCS/RGWCD | Sanchez Irrig. Co. | 9 mi concrete ditch lining 2 in-line conc. Parshalls & 13 turnouts w/metal Parshalls | Completed |
| ASCS/SLVRC&D | Trinchera Irrig. Co. | Watershed work 5 mi. conc. ditch lining | Planning Completed |
| Conejos WCD & DWR | Telemetry at Mogote Gaging Station | Installation of equipment | Completed |
| San Luis Valley Irrig. Well Owners Association | Plan of Augmentatin | Use of Middle-mist Taos Valley #3 Canal Water for augmentation (W-3394) | 1st phase determination of amt. of augmentation heard in court No decision as yet. |

B. New Projects

| Sponsor | Owner/Project | Work | Status |
|---|---|---|---|
| RCWCD | Saguache Creek-Werner Arroya | Channel Clearing | 5 mi. completed |
| SLVRC&D-RGWCD | Rio Grande Channel | Rip-rap earth dikes | Planning completed, constr. next spring |
| DWR | Exploration test hole | Drilling & logging of 1334' test hole | Drilled and logged, Litho log & testing to be completed |
| DWR | Geothermal test wells | Drilling & logging of 3 holes | Drilled and logged. Evaluation not complete. |

II. PERSONNEL (November 1, 1974 - October 31, 1975)

| NAME | POSITION 1/ | DIST. | MO. WORKED 2/ | MILEAGE |
|---|---|---|---|---|
| McFadden, D. H. | Supv. Wtr. Res. Engr. | Div | FTE | 990* |
| Waddington, L. A. | Prin. Wtr. Res. Engr. | Div | FTE<br>(6 mo. Engr.)<br>(6 mo. Hydro) | 0<br>0* |
| Tipton, C. | Admin. Clerk Typist A | Div | FTE | 0 |
| Hernandez, D. | Clerk Typist | Div | 6 mo. (6) | 0 |
| Alspaugh, L. R. | Water Comm C | 20 | FTE | 0* |
| Nash, M. E. | Water Comm A | 20 | FTE | 5,753* |
| Phillips, W. | Water Comm A | 20 | 2 mo. (6) | 0 |
| Holslag, T. | Water Comm A | 20 | 3 mo. (3) | 0 |
| Gonzales, L. B. | Water Comm B | 21 | 10 mo. (8) | 11,826 |
| Morch, K. S. | Water Comm A | 21 | 11 mo. (9) | 7,712 |
| Parker, E. | Water Comm C | Div | FTE | 5,175* |
| Sorensen, D. M. | Water Comm A | 22 | FTE<br>(7 mos. - 5 mos. leave of absence) | 11,227 |
| Simons, L. | Water Comm C | 22 | FTE | 15,513* |
| Hamilton, J. | Water Comm A | 22 | 6 mo. (6) | 4,412 |
| O'Cana, G. | Water Comm A | 24 | 6 1/2 mo. (6)<br>Temporary Appt. | 11,086 |
| Espinoza, J. | Water Comm B | 24 | (10) | 1,767 |
| Lamm, H. | Water Comm B | 25 | 12 mo. (12) | 11,579 |
| Crowley, G. | Water Comm B | 26 | 1 mo.(Retired) | 987 |
| Voth, D. R. | Water Comm B | 26 | 9 mo. (8) | 7,937 |
| Watts, G. R. | Water Comm B | 27 | 11 mo. (6) | 5,715 |
| Smith, W. B. | Water Comm B | 35 | 12 mo. (8) | 5,551 |
| Armstrong, M. | Engr. Aid B | Div | 3 mo. (3) | 0 |
| Vandiver, S. E. | WRE C | Div | FTE | 0* |
| McDanold, J. | Civil Engr A | Div | FTE | 0* |
| Beegles, K. | Civil Engr A | Div | FTE | 0* |
| Walker, R. | WRE II | Div | FTE<br>(Transferred to Glenwood Springs. | 0* |
| Kragel, R. | Civil Engr A | Div. | 4 mo.(Terminated) | 0* |

Month actually worked include annual leave taken

1/ Status on November 1, 1975

2/ Working months - November 1974 through October 31, 1975

3/ Asterisk indicates that some mileage was by a state-owned vehicle. Where both an asterisk and miles are shown, the mileage shown is by privately owned vehicle.

D. H. McFadden, Acting Division Engineer became Division Engineer on January 7, 1975.

L. A. Waddington became Assistant Division Engineer on April 15, 1975.

Ray D. Walker transferred to Glenwood Springs to become Assistant Division Engineer in Division 5.

R. D. Kragel terminated in our Hydro Section. In June 1975 we added Jim McDanold and Ken Beegles to our Hydro Section, and Steve Vandiver became "Head of the Hydro Section".

Gilbert O'Cana became acting Water Commissioner for former District #24 during Joe Espinoza's illness.

III. A. SNOW PACK

Extremely high snow depths were recorded beginning in late January and continuing into early May. Well above average to near record accumulations were recorded at all snow courses on May 1st, and the annual yield forecast for all streams in the Valley were quite high. Abnormally cold and windy weather continued into June, and as a result, the annual yield forecast was revised downward during this period.

COMPARISON OF ANNUAL YIELD FORECASTS FOR 1975
(Thousand of Acre - Feet)

| Index Station | May 1 | June 1 | July 1 | Nov 21 (Est.) |
|---|---|---|---|---|
| Conejos nr Mogote | 300 | 280 | 290 | 293 |
| Los Pinos nr Ortiz | 110 | 90 | 90 | 97 |
| San Antonio nr Ortiz | 40 | 30 | 30 | 26 |
| Combined Conejos Index | 450 | 400 | 410 | 416 |
| Rio Grande @ Del Norte | 870 | 840 | 830 | 810 1/ |

1/ An additional 14,400 AF of out-of-priority storage will be held in Rio Grande and Santa Maria Reservoirs, both are pre-compact reservoirs, and not included in the November 21 estimated yield for the Rio Grande.

B. PRECIPITATION - SUMMER

The period reported is the summer growing season from May 1 through September 30. Normal precipitation (1931-1960 acerages) for the period, at National Oceanic and Atmospherics Administration reporting stations, is 5.72 inches.

The average annual precipitation is approximately 7" on the Valley floor.

PRECIPITATION AND DEVIATION FROM NORMAL (FROM NOAA REPORTS)
(Inches of precipitation)

| Station | May 1/ 1 | May 1/ 2 | June 1 | June 2 | July 1 | July 2 | August 1 | August 2 | Sept 1 | Sept 2 |
|---|---|---|---|---|---|---|---|---|---|---|
| Alamosa | .01 | -.61 | .65 | .13 | .51 | -.66 | .90 | -.25 | 1.47 | .76 |
| Blanca | .00 | -.87 | .45 | -.26 | .62 | -.79 | .79 | -.87 | 1.02 | .29 |
| Center | .01 | -.70 | .43 | -.18 | 1.19 | .19 | .83 | -.43 | 1.42 | .73 |
| Del Norte | .08 | -.68 | .41 | -.33 | 2.02 | .54 | .64 | -1.05 | 1.13 | .27 |
| Great Sand Dunes | .02 | --- | .80 | --- | 2.23 | --- | 1.01 | --- | 3.42 | --- |
| Hermit | .50 | -.62 | .80 | -.08 | 4.15 | 2.02 | .30 | -1.89 | 1.15 | -.21 |
| Manassa | T | -.64 | .21 | -.43 | 1.18 | .02 | .78 | -.67 | 1.68 | .97 |
| Monte Vista | T | -.55 | .41 | -.15 | 1.24 | .06 | .87 | -.46 | 1.99 | 1.24 |
| Saguache | .01 | -.74 | .67 | -.04 | 1.39 | -.14 | .76 | -.77 | .51 | -.33 |
| Wolf Creek | 1.42 | --- | 1.95 | --- | 5.53 | --- | 1.54 | --- | 2.31 | --- |
| Average | .21 | -.69 | .68 | -.09 | 2.01 | .33 | .84 | -.98 | 1.61 | .50 |

1/ Column 1 - Precipitation.
Column 2 - Deviation from normal.

Data from the table indicate about 83% of normal precipitation for the period. No major storms occurred.

No hail suppression work was done in Division 3 this year.

C. FLOODS

No flooding of consequence occurred during the run-off period, although there was real concern prior to this period by those living along the main stem of the Grande that damaging flooding could occur. Several meetings were held in April and May to formulate a plan of operations for the expected high water. Fortunately, there was no need to put the plan into operation, but the real value of the time spent in drawing up this plan of emergency operation may pay off at some time in the future. Our real flooding problems historically occur during the late summer and fall, with little or no advance warning. Having this plan and putting it into operation at such a time could certainly minimize losses in life and in property, and with some modification be useful in any disaster emergency.

D. GENERAL

WATER BUDGET - DIVISION 3
Nov 1, 1973 thru Oct 31, 1974

WATER YIELD:

| Water Source | Yield (1000 AF) |
|---|---|
| 1. Inflow from gaged and estimates on ungaged streams. 1/ | 801.4 |
| 2. Valley floor precipitation not accounted for in previous item. | 993.7 |
| Total | 1795.1 |

Diversions and Depletions:

| Item | Diversion (1000AF) | Depletions (1000AF) |
|---|---|---|
| Directflow diversions | 751.2 | 390.0 |
| Wells | 1000.0 | 667.0 |
| Non-beneficial use (ET) | -- | 1060.0 |
| Municipal | 12.0 2/ | 4.0 |
| State line delivery | | 146.8 |
| Underflow leaving division | | 55.0 |
| | Total | 2,322.8 |

Summary:

| Item | AF |
|---|---|
| Total water yield | +1795.1 |
| Total water depletion | -2322.8 |
| Change in underground storage Total | - 527.7 |

1/ Estimated at entrance to Valley floor.
2/ Estimated for towns in the Valley on the basis of withdrawals from Alamosa Municipal Wells.

E. UNDERGROUND WATER

In past annual reports we have dealt with the physical aspects of underground water emphasizing the lack of detailed knowledge about an extremely complex hydro-geologic system. We have, in past years, also made the point that this knowledge is vitally necessary to proper administration of water in Division 3.

The Proposed Rules and Regulations, Section III, Underground Water Administration outlines a progressive curtailment of all non-exempt wells which are hydraulically connected to surface streams. The statutory provision for relief from this curtailment are cited, and these provisions will provide relief to well owners in many instances. Unfortunately, there is simply not sufficient water available in the valley to provide all of the augmentation or replacement water necessary to allow wells to be used as in the past. Without a change in the underground water law, (which seems unlikely) a drastic change in the agricultural practices in the valley, and a resulting detrimental economic impact, must be anticipated.

The Closed Basin Project has the potential as a source for the required replacement water. This salvage project is to be built by BUREC in stages requiring roughly 15 years for completion. It is doubtful that the necessary replacement water could be made available to underground water users prior to this time. At this time, however, the project has a somewhat doubtful future.

The question most often asked regarding the administration of underground water is "what constitutes a reasonable lessening of the damage to the Senior Vested rights, " or "what amount (and at what time and place) of water must the diverter of underground water replace in order to continue to use his well!" It seems that the Division of Water Resources may ultimately have to answer these questions and others in the evaluation of plans of augmentation submitted to the State

Engineer or to the Water Court.

Limited investigations with participation by the Division of Water Resources continue as allowed by our austere budget. An exploration hole located in the SW 1/4, NW 1/4 of Section 14, Township 33N, Range 11E, NMPM was drilled to a total depth of 1334 feet. This hole was a joint effort, with the Division of Water Resources and the USGS contributing. The USGS furnished a geologist and their logging truck and logger. Five logs were run: (1) SP Resistivity, (2) Caliper Log, (3) Natural Gamma (4) Gamma Gamma, and (5) Nuetron. A detailed lethologic log will be run by Dr. Richard Burroughs, Head of the Geology Dept. at Adams State College.

This hole was the first in what hopefully will be a series of exploration holes which will contribute much needed information.

There is continued interest in the geothermal possibilities of the San Luis Valley. It was reported that the MAPCO well, drilled last year, had been re-entered by a Midland Texas firm, but no information on this reentry has been released. Three test holes were drilled under the supervision of the Investigation Unit, Groundwater Section, Division of Water Resources during the month of November, 1975. These holes were all located in the northern end of the Valley in the Villa Grove - Mineral Hot Springs area, and will undoubtedly yield valuable information other than in the geothermal field.

F. TRANS-MOUNTAIN DIVERSIONS (November 1, 1974 thru October 31, 1975

| Ditch | | Source | District From | To | Acre Feet |
|---|---|---|---|---|---|
| Don La Font No. 1 | 1/ | Piedra R | 78 | 20 | 317 |
| Don La Font No. 2 | 2/ | Piedra R | 78 | 20 | 94 |
| Pine River Weminuche Pass | 3/ | Pine R | 31 | 20 | 131 |
| Tabor Diversion | 4/ | Spring Cr | 62 | 20 | 972 |
| Treasure Pass Diversion | 5/ | San Juan R | 29 | 20 | 468 |
| Weminuche Pass | 6/ | Pine R | 31 | 20 | 1548 |
| Williams Squaw Pass | 7/ | Williams Cr | 29 | 20 | 196 |
| Tarbell | 8/ | Cochetopa Cr | 28 | 26 | |
| Medano and Hudson Ditches | 9/ | Medano Cr | 35 | 16 | 880 est 10/ |

Recipient

1/ Colorado Division of Wildlife
2/ Colorado Division of Wildlife
3/ Paul Weaver, L. B. McClung, Bill Buttman
4/ Colorado Division of Wildlife
5/ Falk Brothers
6/ Leon Raber
7/ Seaborn Collins
8/ Mel Coleman, Ted Goehl, George Ward
9/ Cuerno Verde Ranch, Gardner, Colorado
10/ Water exported to Division 2, District 16

## G. RESERVOIRS

| Name | Capacity in A. F. | Water District Number |
|---|---|---|
| Alberta Park | 598 | 20 |
| Beaver Park | 4,434 | 20 |
| Big Meadows | 2,437 | 20 |
| Big Ruby | 94 | 20 |
| Bristol Head No. 1 | 121 | 20 |
| Bristol Head No. 2 | 804 | 20 |
| Continental | 22,679 | 20 |
| Cove Lake | 6,380 | 22 |
| Downing | 30 | 20 |
| Eastdale No. 1 | 3,519 | 24 |
| Eastdale No. 2 | 3,041 | 24 |
| Fuchs | 238 | 20 |
| Goose Lake | 232 | 20 |
| Grace | - | 20 |
| Hay Press Park | 200 | 20 |
| Hermit No. 1 | 385 | 20 |
| Hermit No. 2 | 407 | 20 |
| Hermit No. 3 | 192 | 20 |
| Hot Springs | 3 | 20 |
| Humphreys | 842 | 20 |
| Hunters Lake | 39 | 20 |
| Jumper Creek | 38 | 20 |
| La Jara | 14,056 | 21 |
| Loch Laven | 24 | 20 |
| Lost Lake (Lower) | 966 | 20 |
| Lost Lake (Upper) | 68 | 20 |
| Love Lake | 24 | 20 |
| Meadow Lake (McCrone) | 174 | 20 |
| Meadow Lake (Wright) | 115 | 20 |
| Metroz (Lower Basin) | 396 | 20 |
| Metroz (Upper Basin) | 84 | 20 |
| Mill Creek | 43 | 20 |
| Mountain Home | 18,595 | 35 |
| Platoro | 60,000 | 22 |
| Poage | 261 | 20 |
| Regan's Lake | 823 | 20 |
| Rio Grande | 51,113 | 20 |
| Rito Hondo | 561 | 20 |
| Road Canyon No. 1 | 1,367 | 20 |
| Road Canyon No. 2 | 84 | 20 |
| Saguache | 294 | 26 |
| Salazar No. 1 | 234 | 24 |
| Salazar No. 2 | 35 | 24 |
| Sanchez | 103,155 | 24 |
| Santa Maria | 45,070 | 20 |
| Shaw Lake | 681 | 20 |
| S. Lazy U. Dude Ranch | 106 | 20 |
| S. Lazy U. Dude No. 2 | 42 | 20 |
| Smith | 5,651 | 35 |
| Sowards No. 1-A | 8 | 20 |
| Sowards | 35 | 20 |
| Sowards No. 3 | 19 | 20 |
| Sowards No. 4 | 45 | 20 |
| Spring Creek | 97 | 20 |
| Spruce Lake No. 1 | 98 | 20 |
| Spruce Lake No. 2 | 105 | 20 |
| Squaw Lake | 162 | 20 |
| Stabilization (Head) | 260 | 24 |
| Streams Lake | 41 | 20 |
| Terrace | 17,233 | 21 |
| Trout Lake | 198 | 20 |
| Troutvale No. 1 | 201 | 20 |
| Troutvale No. 2 | 257 | 20 |
| Trujillo Meadows | 913 | 22 |
| Wee Ruby | 186 | 20 |
| Willow Creek | - | 24 |

## G. RESERVOIRS

The amount of storage during the irrigating season has been entered in the data bank and these values will be included in the 1975 summaries for the different districts. Many of the reservoirs are used exclusively for fish culture and recreation and were full all season. A few of the privately owned reservoirs have entered agreements with the Colorado Division of Wildlife to maintain minimum pools. The Division of Wildlife uses their water from Beaver Park reservoir on an exchange basis for these pools. The amounts exchanged will be shown in the district summaries.

IV. A. AGRICULTURE SUMMARY for SAN LUIS VALLEY, 1975

A late cool and windy spring, together with late frosts in June, combined to limit most drop yields to below average level.

Small grains suffered freeze and wind damage, alfalfa and potatoes suffered late June frosts and all were set back by a below normal temperature during the growing season. A delayed frost in the fall compensated somewhat, but not enough to bring yields up to normal. Above average water supply helped a lot, but was late reaching its peak and delayed crops on land with a low surface right priority.

The increase in the number of acres under sprinklers prevented an even lower average yield for small grains.

| Crop | Acres | Yield | Estimate Total Value |
|---|---|---|---|
| Barley | 91,000 | 54 bu. | $9,250,000 |
| Wheat | 5,500 | 52 bu. | 690,000 |
| Oats | 6,400 | 58 bu. | 285,000 |
| Alfalfa | 1 8,000 | 1.6 | 6,350,000 |
| Grass Hay | 86,000 | 1.4 | 4,166,000 |
| Potatoes | 32,000 | 248 cwt. | 24,394,000 |
| Spinach | 3,250 | 60 cwt. | 2,340,000 |
| Lettuce | 5,130 | 245 cwt. | 11,330,000 |
| Cabbage | 320 | 278 cwt. | 848,800 |
| Carrots | 120 | 230 cwt. | 165,000 |

The above report was submitted by Abe Relyea, San Luis Valley Extension Agronomist.

## V. COMPACTS AND COURT STIPULATIONS

### A. Costilla Creek Compact

The thirtieth annual meeting of the Costilla Creek Compact Commission was held April 28, 1975 in Alamosa, Colorado. The following items have been extracted from the Watermaster's 1974 report, the minutes of the annual meeting, and the report of the Engineer Advisors:

Eastdale Reservoir: 1125 AF delivered to the reservoir between March 1, 1974 and May 10, 1974. No additional water was available during the rest of the season.

Costilla Reservoir: The commission granted a pre-season irrigation release starting on May 5, 1974 and continuing through May 15, 1974 except on weekends.

The maximum storage during 1974 was 8,106.6 AF on May 5. Because of the dry year, the Reservoir storage was reduced to 100 AF on August 9. The allocation to the two states, based on the amount of water that would have been stored in the reservoir if pre-season releases had not been made, was 8,576 AF (New Mexico 5,446 AF and Colorado 3,130 AF). Computation on the delivery of storage water indicated an under delivery of 444 AF of Costilla Reservoir water to Colorado. This apparently was caused by a change in the loss in the Cerro Canal and the Watermaster delivered to Colorado users the requested quantity less the 10% loss. The balance was delivered to New Mexico users which gave them the benefit of an apparent loss of less than 10%. As a result of this injury to Colorado water users, a letter of reprimand was presented by Commissioner Kuiper directed to Watermaster Charles Miller.

Costilla Creek Direct Flow: The commission authorized delivery of direct flow originating below Costilla Reservoir to the direct flow users starting on May 11, 1974.

Costilla Creek near Costilla New Mexico Gage:

The runoff of Costilla Creek was 18,320 AF for the calendar year 1974, which is 69% of the 20 year average.

Preliminary figures show a runoff at this gage of 21,400 AF between May 13, 1975 and September 15, 1975 compared to 14,272 AF for May thru September 1974.

Other Business:

Water users presented the following at the annual meeting:

Mr. Filimon Sanchez of Costilla, New Mexico explained a project for a new reservoir above Costilla.

Mr. Reed from Sanford, Colorado informed the commission that Eastdale objects to storage under Article V (c) and that they plan to have this resolved by the Court. He also asked for earlier forecasts of runoff.

Mr. Don Anderson from Jaroso, Colorado asked if the commission had jurisdiction to pro-rate the expenses of the new diversion works in proportion to the use of the water. Both Commissioners agreed that it was not under their jurisdiction.

B. Rio Grande Compact

Water administration in Division 3 continues to be a difficult and time consuming task at all concerned levels of the Division of Water Resources, primarily as a result of the Supreme Court stipulation regarding Colorado's obligation under the Rio Grande Compact. This stipulation requires that Colorado each and every year meet it's delivery obligation to the downstream states, which obviates the flexibility on annual delivery allowed in the compact itself. With no margin of error allowed on the negative side of the required delivery, those responsible for the operating criteria are forced to engage in a frustrating game of crystal ball gazing. This game begins in early spring, either April 1 or May 1, depending upon the weather, when we try to forecast a yield of the Rio Grande system. From this yield, we obtain an estimated delivery requirement, and then attempt to set a reasonable estimate of water available during the irrigation season for Colorado appropriators. The 1975 Forecast Yield for the Compact is covered in III-A and a copy of the 1975 Operating Criteria is included in the Appendix.

During the critical annual yield forecast period, we had abnormally heavy snow pack accumulations on all watersheds in the Rio Grande Basin. Since the Compact schedules of deliveries requires an escalating percentage as the yield increases, this obligation must be met by curtailing Colorado appropriators during the irrigation season.

The changes in the annual yield forecasts for the 1975 year are covered in III A, Page 8 . Setting the curtailment schedule during the peak run-off period was complicated by these changes, and further complications were introduced by a significant diminution of historic return flow quantities in the reach of the Rio Grande between the Alamosa and the

Lobatos gages. This change was first noted by this office in the month of June, and indicated a need for additional curtailment of diversions by Colorado appropriators. Because of the difference in forecast procedures between this office and those in the Denver office, no additional curtailment was imposed until the latter part of the irrigation period. The percentage of curtailment was of necessity quite high at this time due to the amount of obligation water required as a percentage of the remaining index water available. The curtailment of Colorado appropriators for the 1975 irrigation season was as follows:

| Date | % Curtailment Rio Grande | % Curtailment Conejos |
|---|---|---|
| Apr 10 | | 40 (Began diversions) |
| Apr 21 | 15 (Began diversions) | 40 |
| June 20 | 20 | 40 |
| June 23 | 15 | 35 |
| July 23 | 15 | 45 |
| Aug 2 | 25 | 60 |
| Aug 23 | 50 | 70 |
| Sept 11 | 40 | 70 |
| Sept 29 | 30 | 30 cfs to #1 decrees |
| Oct 9 | 15 | 20 cfs to #1 decrees |
| Oct 15 | 15 | 100 (Cease diversions) |
| Nov 1 | 100 (Cease diversions) | |

During the highest runoff period on the Grande "out of priority" storage as provided for under CRS 1973, 37-80-120 was allowed in Rio Grande, Continental, and Santa Maria Reservoirs. This water was actually that which would ordinarily have gone across the gage at Lobatos as delivery to the Compact obligation. The total amount (including the 15% compact water storage as required by the 1975 Operating Criteria) was 26,472 AF; as follows: 18,163 AF in Rio Grande Reservoir, 7,585 AF in Santa Maria, and 724 AF in Continental Reservoirs. Release of this water began on October 22, at a rate of 175 cfs from Rio Grande Reservoir and 75 cfs from Santa Maria. This rate was increased to 350 cfs from Rio Grande and 150 cfs from Santa Maria on November 1, which

continued until November 7, at which time the releases were stopped, and the reservoirs went into storage. The release was stopped after consultations with representatives of the various interests (Rio Grande Reservoir, Santa Maria Reservoir, and the Association of Senior Water Rights) within the Rio Grande Water Users Association, resulted in a tentative (and tenuous) agreement.

Under the terms of this agreement, approximately 4,000 AF of the 1973 flood waters still in Platoro was to be released, and paper transferred into Santa Maria and Rio Grande Reservoirs, and designated as "river water". Ownership of the remaining amount of out-of-priority storage was to revert to the reservoirs. This appears to be an agreement benefitting all concerned, but may well lead to further controversy.

Placing compact designated water in pre-compact reservoirs has been assumed to be a useful tool in minimizing Colorado's compact overdelivery. Our experience this year has pointed out several serious problems with this "tool", certainly not the least being the dissension it caused between the "senior" rights, "junior rights, and the reservoir interests on the river. Another problem is the high percentage of such water released and indexed at Del Norte that must go to pay its own compact obligation. The next problem concerned the demands made in time and effort on the administrative and hydrographic staff in this office, which always is reflected in similar demands on the Denver staff.

Provision for this tool is contained in the Proposed Rules and Regulations, and its eventual fate under judgment and decree remains to be seen. At present, there seems to be no broad based support by the water users for it. Perhaps,

with the experience we have gained in 1975, and a realization of the problems it entails, we may yet find a way to utilize this tool to the benefit of the Colorado appropriators.

The operation of Platoro as a flood control reservoir under the control of the BUREC began on June 3 when the flows at Mogote exceeded the limit of 2,000 cfs. A total of 18,100 AF was picked up during the runoff period. This water was released at a rate of 500 cfs beginning on October 31, and was evacuated on November 18. 4,300 AF of the 1973 flood water was released on the tail-end of the 1975 water, also at the rate of 500 cfs. The gates on Platoro were shut at noon on November 22, with the release from Platoro totaling 22,400 AF. Transportation losses were lower than anticipated, which may increase the amount of overpayment on the Compact.

The 36th annual meeting of the Rio Grande Compact Commission was held in Las Cruces, New Mexico on March 26 and 27, 1975. This meeting was comparatively free from controversy in contrast to the last several years. However, comment made by the Compact Commissioner from Texas left no doubt as to his reaction in the event of an underdelivery "in any amount" by the State of Colorado on its Compact obligation. This position is stated annually, but was expanded to include Texas's position that they were going to require additional water to support a 12 month agricultural season, which he felt they must have for the lower Rio Grande to maintain its economy. One might speculate that Mr. Gilmer has his eye on Colorado's alleged debit water as the source for this additional water.

## VI. DAMS

### A. State and Federal Dam Roster

Roster available in Data Bank.

### B. Inspections, Failures, Restrictions and Stop Orders

These matters are usually handled entirely by the Dams and Reservoir Section in Denver. On occasion, however, the Division personnel may be the first ones aware of a possible problem with a reservoir. On July 29th, 1975 this office was notified by Lyle Alspaugh and Max Nash, Water Commissioners in WD 20, that the South Fork of the Rio Grande was carrying an unusual amount of silt, which was traced to the mouth of Beaver Creek, and indicated a problem upstream on Beaver Creek. Beaver Creek Reservoir is located on Beaver Creek approximately 6 miles above its confluence with the South Fork of the Rio Grande. Lyle and Max had also contacted Tom Martin, a WCO with the Colorado Division of Wildlife, owners of the dam, and the Dams and Reservoir Section in Denver was notified by this office, and we were directed to investigate and report the results. An inspection showed that the outlet tube at Beaver Park Reservoir was discharging approximately 35 cfs, heavily silt laden, and this was reported to Denver. Eric Wilkinson and John Schurer, inspectors from the Dams and Reservoir Section, were on the scene quickly with personnel from the Division 3 helping as needed. It now appears that the silt load was a result of the failure of a large beaver dam 5 miles upstream from the dam, but as a result of the thoroughness of the inspection, some potentially serious problems were found in the valve chamber. It is our understanding that the reservoir will be drained to a level where a more thorough inspection of the valve chamber can be made.

## VII. WATER RIGHTS

### A. Tabulations

New legislation (CRS 1973, 37-92-401 and 37-92-402) provided that the 1974 tabulation should be used by the State Engineer and his staff for administrative purposes, and for the purpose of preparing the 1978 tabulation.

The Act defines the items, when concluded by judgment and decree, which shall be conclusive; and those items which shall not create presumptions or shall not be conclusive even though a part of the decree.

The Act also provided that no proceeding previously initiated before the water judge pertaining to the 1974 tabulation shall be maintained.

B. Referree's findings and decrees

SUMMARY OF WATER COURT DECREES

| Category | 1969 thru Oct 1972 | Nov 1, 1972 thru Oct 31, 1974 | Nov 1, 1974 thru Oct 31, 1975 |
|---|---|---|---|
| Underground Water Right | 52 | 3889 | 3627 |
| Change of Water Right | 2 | 5 | 5 |
| Plan of Augmentation | 0 | 4 | 4 |
| Surface Water Right | 5 | 16 | 38 |
| Diligence (Conditional Decree) | 2 | 3 | 4 |
| Water Storage Right | 1 | 7 | 2 |
| Total Decrees | 62 | 3924 | 3680 |
| Applications Rec'd by the Water Court | 2915 | 420 | 142 |
| Number of Referee Consultations | 62 | 4144 | 3466 |

Total W-Cases received 1969 thru October 31, 1975 is 3,476.

Total W-Cases terminated 1969 thru October 31, 1975 is 1,126.

The accelerated rate of processing W-applications is is a result of long overdue changes in water court procedures. Applications can now be reviewed by water court personnel. Conferences with the referee are regularly held in this office and require approximately 10 to 12 hours a week. It appears that we have processed roughly one-half of the total W-applications received to date. Estimated time to become current is two years.

Plans of Augmentations as decreed by the Court involving changes in water rights and exchanges for subdivision water supplies may well present problems in effective administration. We are consulted by the water court at the time these Plans of Augmentation are heard, but are not aware of how the decree reads until it is signed by the Judge. It is our feeling that the decrees issued to date require the division engineer to be responsible for determinations as to how the decrees will

be administered to fully protect prior vested rights.

In view of the problems outlined in the preceding paragraph, the Division of Water Resources has, during the past year, entered objections to several applications to the Water Court. These applications by large subdividers are for plans of augmentation including water exchange to provide domestic water for the lot purchasers. It is our opinion that our presence as objectors is unofficially sanctioned and appreciated by the court.

C. Proposed Rules and Regulations

The State Engineer filed the Proposed Rules and Regulations with the Water Court for Division III in September, 1975, as application W-3466.

The case, when concluded by judgment and decree, will provide definite rules for the administration of the surface and underground waters of the Division, and the procedures required to meet Colorado's Rio Grande Compact obligation. It will eliminate the necessity of issuing Operating Criteria each year.

There were seventy-two protests filed by the November 30, 1975 deadline. The Water Judge has indicated that he will set a trial date in early 1976.

A copy of the Proposed Rules and Regulations is included in the Appendix.

## VIII. ORGANIZATIONS

### A. Water Conservation and Water Conservancy Districts

Rio Grande Water Conservation District
Mr. Franklin Eddy, Manager
Alamosa, Colorado 81101

Conejos Water Conservancy District
Mr. Leland Holman, Secretary
Manassa, Colorado 81141

San Luis Valley Conservation District
Mr. William DeSouchet, Attorney
Alamosa, Colorado 81101

Trinchera Water Conservancy District
Mr. Carl Escheman, Secretary
Blanca, Colorado 81123

### B. Water Users Associations

Alamosa-La Jara Creeks Water Users Protective Ass'n.
Mr. John Shawcroft, President
Alamosa, Colorado 81101

Association of Senior Water Rights
Mr. James Higel, President
Alamosa, Colorado 81101

Monte Vista Water Users Association
Mr. Leland Ullstrom, President
La Jara, Colorado 81140

Rio Grande Canal Water Users Association
Mr. John Wright, President
Monte Vista, Colorado 81144

### C. Ditch Companies and Irrigation Districts

The listing of ditch companies and irrigation districts is no longer a part of this report. All of the information carried under this heading is in the data bank and will be available in the print-out of the district summaries.

## IX. WATER COMMISSIONERS' SUMMARY

The Water Commissioner's Summary is no longer a part of this report. All of the information carried under this heading is in the data bank and will be avaiable in the print-out of the district summaries.

## X. RECOMMENDATIONS AND SUGGESTIONS

In reviewing this portion of the last several annual reports we are impressed by the progress made in the interim on many of the matters of concern previously mentioned. There is, however, one recommendation from the 1974 report which we feel is important enough to repeat, with minor modifications as follows:

We hope to have effective means to administer underground water within 3 years. To be in this position, certain programs need to be initiated immediately. We strongly recommend the following steps be taken immediately.

1. Issuance of blanket orders requiring that all non-emempt wells have controlling devices (valves) installed, and where necessary, repairs made to the existing well appurtenances to prevent waste of water.

Addendum (1) We are planning a vigorous campaign directed against wasting water from flowing wells. We feel that we would be severly criticized in implementing a beneficial use well curtailment program (as proposed in Rules and Regulations) if we have not made every effort to control a non-beneficial use.

2. Require the installation of an approved totalizing meter on each new well. This could be included on the permit under "Conditions of Approval".

3. Require the installation of totalizing meters on existing non-exempt wells on a phase basis in some manner similar to:

| Period in which well drilled | Deadline for meter installation |
|---|---|
| Jan 1, 1970 - to date | Jan 1, 1976 |
| Jan 1, 1960 - Dec 31, 1969 | Jan 1, 1977 |
| Prior to Dec 31, 1959 | Jan 1, 1978 |

Addendum (2) See "Basic Water Resource Data, Page 32 , section of this report, for related comments.

Data Bank

The daily diversion in the form of keypunched cards have been submitted to the Denver office. The lack of any printout of this information has created some problems in filling diversion information requests.

We were fortunate in finding a local company to do our data bank keypunching when the data processing center at Adams State College told us they could no longer handle this work. The local company requested a different layout for the basic data to be keypunched. This was easily accomplished by using the copying machine to delete the non-keypunched items and to rearrange the keypunched items in columnar order. One of the benefits derived from the rearrangement was far fewer errors in the keypunching.

It has also given a different insight into the preparation of the input data to the keypunching system. We estimate over 10,000 adjudication cards will be required for the W cases which have been filed. The average is three cards per case, but we have already had cases with over forty cards. Most of the information on the cards is duplicated---this could be handled by "ditto" marks on a modification of the 80 columnar fortran coding form with a considerable saving in time for the preparation of the tabulation input data, and a far easier form for the keypunch operator to use.

Basic Water Resource Data

The surface water records are readily available and most have a long historical base, but records of groundwater withdrawals are almost non-existent. Compiling records for past withdrawals using USGS data and power com company records would be a start in establishing a historical base. These records could be kept current using electric power consumption or engine hour meters as a temporary measure until totalizing meters are installed.

We had great difficulty in accounting for the unusual changes in the return flows during 1975. It is a known fact that groundwater withdrawals from tributary acquifers effect streamflows, but the time and magnitude of the effect are difficult to determine. Records of withdrawals would be another tool to use in future years to estimate streamflows.

General Comments

Due to the increasingly complex nature of water administration, our personnel spends more and more time in an educational or "PR" role. We consider this as time well spent, and are willing to devote more of our own time, if necessary, in this facet of the job. Appearances in the Valley by the State Engineer and members of his staff do much to promote a better understanding, and lend considerable support to this office. We are hopeful, that with the continued blessing and support from Denver, we can continue to make progress in the educational process.

We are attempting to put together a series of presentations to the public, with the emphasis on the effect of geology on the hydrology, and on the administration of water in the San Luis Valley. The initial presentation

would be to the State Engineer and his staff for review and approval.

There are some areas of mutual interest and responsibilities shared by this office and the Denver staff where certain difference of opinion, or in engineering judgment, exist. Such differences have resulted in situations detrimental to the aims of the Division of Water Resources, and we find ourselves in an extremely uncomfortable position. We are confident that these differences can be resolved to the benefit of the Division of Water Resources as a whole.

The successful performance of a division office (and the division engineer) is highly dependent upon the office staff, the hydrographic staff, and the water commissioners and deputies. Division 3 has had, in my opinion, a "successful" year, even though it was a water year beset with many unusual problems. This office has also received more than its fair share of help from personnel in the Denver office. To the Division 3 staff, and to the Denver staff, a sincere "I thank you".

# OPERATING CRITERIA FOR CALENDAR YEAR 1975

(These operating criteria are to be effective for the year 1975 and are not to be considered a precedent for future operating criteria or rules and regulations which may be promulgated.)

## SECTION A
## GENERAL CRITERIA - RIO GRANDE AND CONEJOS RIVER AND TRIBUTARIES

I

These operating criteria shall affect all surface and underground water tributary to the Rio Grande at Lobatos gaging station and as defined in Colorado Revised Statutes 1973, 37-92-103 (13) and (11) as follows:

> "(13) 'Waters of the state' means all surface and underground water in or tributary to all natural streams within the State of Colorado, except waters referred to in Sec. 37-90-103(6).
>
> "(11) 'Underground water' as applied in this act for the purpose of defining the waters of a natural stream, means that water in the unconsolidated alluvial aquifer of sand, gravel, and other sedimentary materials, and all other waters hydraulically connected thereto which can influence the rate or direction of movement of the water in that alluvial aquifer or natural stream. Such 'underground water' is considered different from 'designated ground water' as defined in Sec. 37-90-103(6)."

except water withdrawn from wells, such as domestic and livestock, exempted from administration under CRS 1973, 37-92-602.

II

Administration of all water, both surface and underground, will be based on the fact that the delivery of certain quantities of water pursuant to the Rio Grande Compact constitutes the most senior water commitment in the Rio Grande Basin. As a result, all water diversions, whether deriving from surface water or underground water, which are tributary to the Rio Grande system above Lobatos, may be regulated at those times and to the extent necessary to deliver the amount of water required pursuant to the terms of that compact and in accordance with CRS 1973, 37-80-104, which states as follows:

"Compact requirements - state engineer's duties. The state engineer shall make and enforce such regulations with respect to deliveries of water as will enable the state of Colorado to meet its compact commitments. In those cases where the compact is deficient in establishing standards for administration within Colorado to provide for meeting its terms, the state engineer shall make such regulations as will be legal and equitable to regulate distribution among the appropriators within Colorado obligated to curtail diversions to meet compact commitments, so as to restore lawful use conditions as they were before the effective date of the compact insofar as possible."

III

Any diversion of water from an aquifer hydraulically connected to surface streams shall be prohibited except at those times, and in those quantities necessary for the permitted beneficial use of such water. Such times shall be described as follows: for irrigation purposes, those times during which direct flow diversions are allowed from the Rio Grande or Conejos River or their tributaries, whichever is applicable; for stock or domestic uses as exempted by CRS 1973, 37-92-602, only in those quantities allowed by said section, and necessary for such uses; for all other purposes, including fish and wildlife propagation, only at those times and in those quantities necessary for the application thereof to permitted beneficial use, and when such does not constitute waste of water. Further, unless other provision is made pursuant to Articles IV and V hereunder, the diversion of ground water from aquifers hydraulically connected to surface streams shall be permitted on every Monday, Tuesday, Wednesday, Thursday, Friday and Saturday of each week in 1975. The Division Engineer shall administer this criterion so that the operator of a well or wells may have a cycle of operation to make more efficient use of the water available; provided that senior appropriators are not materially injured thereby. Decrees deriving their source of supply from drains are included under the interpretation of this criterion.

IV

Any injury to senior vested rights by appropriators of underground water must be reasonably lessened in order for the appropriators to continue to divert water. Appropriation of all or part of such junior right may be

permitted if the Division Engineer approves a temporary plan submitted to him whereby the amount of injury caused by that junior right will be reasonably lessened. In determining injury to the Rio Grande, the Conejos River and their tributaries, the Division Engineer shall take into account the effect, if any, appropriations of underground water may have upon the amount of water available for delivery at the Lobatos gaging station in satisfaction of the Rio Grande Compact.

V

Any appropriator may elect to treat any existing well or wells under a temporary plan of augmentation for part or all of any decreed surface right or any other valid water right, upon the approval of a written plan therefor by the State Engineer as provided for in CRS 1973, 37-92-307 as amended; provided that no material injury occurs to any other vested right.

VI

All compact index stations will be rated by state hydrographers as often as needed to maintain a currently accurate record of index flows and deliveries. Any adjustments will be made as soon as possible.

VII

The water users of the Rio Grande and Conejos River and their tributaries are encouraged to utilize any entity to make full use of these operating criteria to augment the runoff at the Lobatos Gaging Station and to attempt to remedy injury by junior appropriators so that maximum utilization can be made of all the waters available in the San Luis Valley. The Office of the State Engineer will give whatever assistance possible to implement plans of augmentation or replacement water.

VIII

In recognition of the depletion of stream flows caused by the extraction of ground water, both shallow and artesian, the State Engineer's Office shall pursue, in cooperation with any local agency or agencies, studies and projects which will help provide relief to those surface water

users so injured.

IX

The return flow between the gaging stations "Rio Grande above La Jara Creek" and "Rio Grande at Lobatos", exclusive of any actual stream flow contributions or return flow from Trinchera Creek, shall be credited in equal proportions to the Conejos River and Rio Grande.

X

The 10,000 acre-foot credit to Colorado under Article III of the Rio Grande Compact shall be equally apportioned to the Conejos and Rio Grande deliveries, at Los Sauses and Lobatos, respectively.

XI

In recognition of the approximately 15,600 acre-feet of flood water currently in storage in Platoro Reservoir, said water being stored during calendar year 1973, one hundred (100) percent of that water shall be considered as available for application to the Rio Grande delivery schedule. This water shall be released from Platoro Reservoir for delivery at Lobatos when requested by the Rio Grande Water Users Association and when such delivery will not interfer with deliveries to Conejos appropriators. Delivery schedules of the Conejos River and Rio Grande will be adjusted to reflect these credits at such time as the water is actually released from Platoro Reservoir.

XII

Variances to these criteria will be allowed by the Division Engineer when so authorized by the State Engineer after consultation with local advisory groups.

SECTION B

DETAILED CRITERIA - RIO GRANDE EXCEPT THE CONEJOS RIVER

1. Runoff Estimate

a. Estimate total annual runoff at Del Norte from Soil Conservation Service and other estimates for April-September

on May 1, and, using a long term average monthly runoff pattern, extend the estimate to a full year.

2. January, February and March

a. There will be no direct flow diversions from the Rio Grande or its tributaries during the months of January, February and March except for those rights decreed for use throughout the year including reservoirs. In the event of unusual hydrologic or climatic conditions, limited diversions may be permitted in March on a case by case basis upon concurrence of the Division Engineer, the Rio Grande Water Users Association, and any other affected water user organization. Storage in pre-compact reservoirs will be permitted during this period in 1975 provided that, as a temporary expedient for 1975, 15 percent of all water stored shall be considered as stored out of priority in accordance with the CRS 1973, 37-80-120. This water may be called by the State Engineer for compact commitments if required, but any water so stored will revert to absolute ownership of the reservoir in which it was held for its use as soon as it can be determined that the out-of-priority water will not be required to meet Compact commitments. In the event any reservoir should spill, the out-of-priority water will be the first to spill.

3. April through October

a. Direct flow diversions may commence upon a date to be determined annually by the State Engineer after consultation with the Rio Grande Water Users Association and other interested entities.

b. Actual runoff at the Del Norte Index Station for the months of January, February and March and the estimated runoff for November and December will be combined to provide an estimated supply at the index station during the non-irrigation months of the calendar year. The actual Rio Grande deliveries at the

Lobatos Gaging Station, less the Conejos at Los Sauses, for January, February and March will be combined with the estimated Rio Grande deliveries at Lobatos, less the Conejos at Los Sauses, at that station for November and December and deducted from the estimated annual requirements to provide an estimated compact delivery requirement for the remainder of the year.

c. From the estimated monthly runoff pattern at the Del Norte Index Station, as computed in 1a and 3b above, monthly delivery requirements will be projected for the months of April through October.

d. If the total annual estimated index at Del Norte is 700,000 acre feet or greater, deliveries to Colorado appropriators on the main stem will commence at 85 percent of the amount of the discharge at the Del Norte Index Station. This amount will be used to determine a working priority date for the main stem in order of priority until the entire amount is delivered.

e. If the total annual estimated index at Del Norte is less than 600,000 acre feet, deliveries to Colorado appropriators on the mainstem will commence at 100 percent of the amount of the discharge at the Del Norte Station. This amount will be used to determine a working priority date for the main stem in order of priority until the entire amount is delivered.

f. If the total annual estimated index at Del Norte is between 600,000 acre-feet and 700,000 acre-feet, deliveries to Colorado appropriators on the mainstem will commence at a percentage determined by proportional parts beginning with 100% for an estimate of 600,000 acre-feet and 85% for an estimate of 700,000 acre-feet.

g. If at any time, this delivery schedule results in a flow at Alamosa in excess of 2,000 cubic feet per second, delivery to Colorado appropriators may be increased temporarily to include deliveries to additional decrees within the priority system to

prevent flooding in Alamosa.

h. Every ten days throughout this period, a status report will be made by the Division Engineer to reflect the accuracy of the monthly and annual estimates of both the supply at the Del Norte Index Station and the delivery at the Lobatos Gaging Station and deliveries to Colorado appropriators adjusted, when necessary. When adjustments of 10% or more are proposed, the Division Engineer will notify the President of the Board of Directors of the Rio Grande Water Users Association.

i. Storage in pre-compact reservoirs will be permitted during this period as follows: During the months of April and May {June & July if he wants} for the year 1975, as a temporary expedient for 1975, 15 percent of all water stored shall be considered as stored out of priority in accordance with CRS 1973, 37-80-120. This water may be called by the State Engineer for compact commitments if required, but any water so stored will revert to absolute ownership of the reservoir in which it was held for its use as soon as it can be determined that the out-of-priority water will not be required to meet Compact commitments. In the event any reservoir should spill, the out-of-priority water will be the first to spill.

4. November and December

a. There will be no direct flow or ground water diversions from the Rio Grande or its tributaries during the months of November and December (except for those rights decreed for use throughout the year) unless it is determined that such curtailment is not necessary to meet compact delivery requirements at the Lobatos Gaging Station.

## SECTION C

## DETAILED CRITERIA - CONEJOS RIVER AND ITS TRIBUTARIES

1. Runoff Estimate

a. Estimate total runoff from Soil Conservation Service and other estimates for April through September on May 1 and using

the long term average monthly runoff pattern, extend the estimate for the index stations to a full year.

2. January, February and March

a. There will be no direct flow diversions from the Conejos River and its tributaries during the months of January, February and March except for those rights decreed for use throughout the year (provided there is no other source of supply available). In the event of unusual hydrologic or climatic conditions, limited diversions may be permitted in March on a case by case basis upon concurrence of the Division Engineer, the Conejos River Water Conservancy District, and any other affected water user organization.

3. April through October

a. Direct flow diversions may commence upon a date to be determined annually by the State Engineer after consultation with the Conejos River Water Conservancy District and other interested entities.

b. Actual runoff at the Mogote Index Stations for the months of January, February and March and the estimated runoff for November and December will be combined to provide an estimated supply at that station during the non-irrigation season. The actual Conejos River deliveries at Los Sauses gaging station for January, February and March will be combined with the estimated deliveries at Los Sauses for November and December, and deducted from the estimated annual delivery requirement to provide an estimated delivery requirement for the remainder of the year.

c. From the estimated monthly runoff pattern for the Conejos River near Mogote, the Los Pinos near Ortiz and the San Antonio River at Ortiz, monthly delivery requirements at the Los Sauses gaging station will be projected for the months of April through October.

d. Deliveries to Colorado appropriators will total 105% of the amount of discharge at the Conejos, Los Pinos and San Antonio River index stations less the percentage of the remaining amount (April through October, 3b above) to be delivered to Los Sauses in the current year. This amount will be distributed to decrees in order of priority until the entire amount is delivered.

e. If, at any time, this delivery schedule results in a flow in the Conejos River Channel in excess of its capacity, delivery to Colorado appropriators may be increased temporarily to include deliveries to additional decrees within the priority system to prevent such flooding.

f. Every ten days throughout this period, a status report will be made by the Division Engineer to reflect the accuracy of the monthly and annual estimates of the supply at the three index stations and the delivery at the Los Sauses gaging station and the deliveries adjusted when necessary. When adjustments of 10% or more are proposed, the Division Engineer will notify the President of the Conejos River Water Conservancy District.

4. November and December

a. There will be no direct flow or ground water diversions from the Conejos River or its tributaries during the months of November and December (except for those rights decreed for use throughout the year provided there is no other source of supply available) unless it is determined that such curtailment is not required to meet compact delivery requirements at the Los Sauses gaging station.

| | | |
|---|---|---|
| IN THE MATTER OF RULES AND REGULATIONS GOVERNING THE USE, CONTROL, AND PROTECTION OF WATER RIGHTS FOR BOTH SURFACE AND UNDERGROUND WATER LOCATED IN THE RIO GRANDE AND CONEJOS RIVER BASINS AND THEIR TRIBUTARIES. | ) | Proposed Rules and Regulations of the State Engineer |

IT IS ORDERED that the following proposed rules and regulations be adopted and approved as the rules and regulations of the State Engineer in accordance with Section 37-92-501, Colorado Revised Statutes, 1973.

Any person desiring to protest any of these proposed rules and regulations may do so in the manner provided in Section 37-92-304, CRS 1973. Any protests to said proposed rules and regulations must be filed with the Water Clerk in and for the District Court of Water Division III, Alamosa, Colorado, by the end of the month following the month in which said proposed rules and regulations are published.

## PROPOSED RULES AND REGULATIONS

I. Definitions and Citations

A. These proposed rules and regulations shall affect all "waters of the state" as defined in Section 37-92-103(13), CRS 1973, which states as follows:

> "(13) 'Waters of the state' means all surface and underground water in or tributary to all natural streams within the state of Colorado, except waters referred to in section 37-90-103(6)."

and underground water is defined in Section 37-92-103(11), CRS 1973, as follows:

> "(11) 'Underground water' as applied in this article for the purpose of defining the waters of a natural stream, means that water in the unconsolidated alluvial aquifer of sand, gravel, and other sedimentary materials, and all other waters hydraulically connected thereto which can influence the rate or direction of movement of the water in that alluvial aquifer or natural stream. Such 'underground water' is considered

fferent from 'designated ground water' as defined in section 37-90-103(6)."

Wells as defined in Section 37-92-602, CRS 1973, such as those used for domestic and stock watering, shall be exempt from the provisions of these rules and regulations except for Rule III F.

B. The "Compact" referred to in these rules and regulations means the Rio Grande River Compact, as specified in Section 37-66-101, CRS 1973.

C. The stipulation agreed to by Texas, New Mexico and Colorado before the United States Supreme Court in the case of Texas, et. al. v. Colorado, Original No. 29, October term, 1966, of the Supreme Court and the resultant Order cited in 391 U. S. 901 (May 6, 1968) is that stipulation wherein the states agreed to a continuance of the case, providing in paragraph 1 as follows:

> "The State of Colorado undertakes to deliver water at the Colorado-New Mexico state line to meet every year the delivery obligation established by the schedules of Article III of the Rio Grande Compact. To this end the State of Colorado shall exercise its best efforts and use all available administrative and legal powers including, if necessary, the curtailment of diversions enforced by agents of the State. The State of Colorado shall make frequent and regular reports to the plaintiffs of all measures taken to effect compliance." (emphasis added)

D. In those instances where the Compact is deficient in establishing standards for administration within Colorado, the provisions of Section 37-80-104, CRS 1973, which state as follows, shall be applicable:

> "Compact requirements - state engineer's duties. The state engineer shall make and enforce such regulations with respect to deliveries of water as will enable the state of Colorado to meet its compact commitments. In those cases where the compact is deficient in establishing standards for administration within Colorado to provide for meeting its terms, the state engineer shall make such regulations as will be legal and equitable to regulate distribution among the appropriators within Colorado obligated to curtail diversions to meet compact commitments, so as to restore lawful use conditions as they were before the effective date of the compact insofar as possible."

E. The term "hydraulic divide" means that ridge in the ground water table which lies north of the Rio Grande in Colorado and which extends generally from northwest of Monte Vista to east of Alamosa. It is the approximate southern boundary of the Closed Basin as shown on Plate 1, Colorado Water Resources Circular 18, U. S. Geological Survey. Its location is

subject to change as more information becomes available. This ridge prevents the natural movement of unconfined ground water from the Closed Basin into the Rio Grande mainstem and instead causes such ground water to move toward the sump area of the Closed Basin.

F. The term "confined aquifer" means that aquifer deriving its principal recharge from peripheral inflow to the Rio Grande Basin in Colorado. The confined aquifer is separated from the unconfined aquifers of the Rio Grande Basin by an aquiclude generally referred to as the blue-clay layer. The approximate limits of the blue-clay layer is as shown on Plate 2, Colorade Water Resources Circular 18, U. S. Geological Survey. These limits are subject to change as more information becomes available.

G. The term "tributary water" means any water occurring either on the surface or underground which influences the rate or direction of movement of water in a stream system.

H. The term "percentage curtailment" means that percentage of the flow at the upper index stations; i.e., Rio Grande near Del Norte, Conejos River near Mogote, Los Pinos River near Ortiz and San Antonio River at Ortiz, determined by the state engineer to be necessary to meet Compact commitments as measured at gaging stations located on the Rio Grande near Lobatos and on the Conejos River at its mouths near Los Sauces.

II. Surface Water Administration

A. Administration of all surface water tributary to the Rio Grande or the Conejos River will be based on the fact that the delivery of certain quantities of water pursuant to the Compact constitutes the most senior water commitment in the Rio Grande and Conejos River Basins. As a result, all surface water diversions from the aforementioned systems may be regulated at those times and to the extent necessary to deliver the amount of water required pursuant to the terms of the Compact.

B. The diversion of surface water from the Conejos River and its tributaries shall be in accordance with the doctrine of prior appropriation provided that curtailment of any or all decrees in the Conejos River system

may be required in order to assure that the delivery requirement as set forth in Article III of the Compact is satisfied. The contribution of the Conejos River system to meet Compact commitments shall be determined as being the combined discharge of the branches of the Conejos River as measured at its mouths near Los Sauces. The water required for Compact delivery on a calendar year basis for the Conejos River shall be as defined in the first table of Article III of the Compact except as modified in E and F below.

C. The diversion of surface water from the Rio Grande and its tributaries, except the Conejos River, shall be in accordance with the doctrine of prior appropriation provided that curtailment of any or all decrees in the Rio Grande system may be required in order to assure that the delivery requirement as set forth in Article III of the Rio Grande Compact is satisfied. The contribution of the Rio Grande system to meet Compact commitments shall be determined as being the discharge of the Rio Grande near Lobatos less the discharge of the Conejos River at its mouths near Los Sauces. The water required for Compact delivery on a calendar year basis for the Rio Grande system, less the Conejos River, shall be as defined in the second table of Article III of the Compact except as modified in E and F below.

D. Diversion of surface waters from the Rio Grande and Conejos River systems and their tributaries shall be prohibited during the months of January, February, March, November and December except for storage in pre-compact reservoirs and for those rights decreed for beneficial use throughout the year. In the event of unusual hydrologic or climatic conditions, limited diversions during the above months may be permitted by the Division Engineer on a case by case basis.

E. The 10,000 acre-foot credit established in Article III of the Compact for credit to Colorado shall be allocated to the Conejos River and Rio Grande systems on the same percentage that each river system's delivery requirement (as determined by Article III of the Compact) to said Compact bears to the sum of such requirements. The required delivery by the Conejos River system at the mouths near Los Sauces shall be reduced by that portion of the 10,000 acre-foot credit allocable to the Conejos River and the required

delivery by the Rio Grande system at the gaging station near Lobatos shall be reduced by that portion of the 10,000 acre-foot credit allocable to the Rio Grande.

F. If, because of unusual hydrologic or climatic conditions which may occur in a particular year, either the Conejos River system or the Rio Grande system appears to be unavoidably exceeding its required delivery to the Compact as defined in the respective tables in Article III of the Compact, the State Engineer may elect to credit any over-delivery in one system to the other system in order to minimize Colorado's total over-delivery at the gaging station on the Rio Grande near Lobatos.

G. Streams in the Rio Grande Basin which are found by the State Engineer to be non-tributary either on the surface or underground to either the Conejos River or to the Rio Grande shall be administered in the priority system under separate priority tabulations and shall not be required to provide water to meet Compact commitments.

H. In order to maximize the amount of water available for use by Colorado appropriators and still meet the requirements of the Compact, the State Engineer may authorize pre-compact reservoirs to store water which otherwise would have been delivered for credit at the gaging station on the Rio Grande near Lobatos; provided, that such water will remain in storage under administrative control of the State Engineer until he determines that said water is not required to meet Compact commitments. If such determination is made, the water stored for anticipated Compact delivery requirements shall revert to the ownership of the reservoir which captured such water.

If the State Engineer determines that water stored for anticipated Compact delivery requirements is needed to meet Compact requirements, such water shall be released upon demand of the State Engineer and shall be allowed to flow downstream unimpeded in any manner to the gaging station on the Rio Grande near Lobatos.

I. All water stored in pre-compact reservoirs prior to the start of the direct flow irrigation season shall be subject to the percentage curtailment

in effect at the time such stored water is measured at the gaging station on the Rio Grande near Del Norte.

III. Underground Water Administration

A. Administration of all underground water tributary to the Rio Grande or the Conejos River will be based on the fact that the delivery of certain quantities of water pursuant to the Compact constitutes the most senior water commitment in the Rio Grande Basin. As a result, all tributary underground water diversions from the aforementioned systems may be regulated at those times and to the extent necessary to deliver the amount of water required pursuant to the terms of the Compact.

B. Diversion of underground water from an aquifer hydraulically connected to surface streams (whether said aquifer be confined or unconfined) shall be permitted at those times and in those quantities necessary for the permitted beneficial use of such water except as provided in C below. Such times shall be defined as follows: For irrigation purposes, those times during which direct flow diversions are allowed from the Rio Grande or Conejos River or their tributaries, whichever is applicable; for stock or domestic uses, as exempted by Section 37-92-602, CRS 1973, only in those quantities allowed by said section, and necessary for such uses; for municipal use, on a year-round basis; for all other beneficial uses, including fish and wildlife propagation, only at those times and in those quantities necessary for the application thereof to permitted beneficial use, and when such does not constitute waste of water.

C. Unless provision is made pursuant to D and E below, the diversion of underground water from aquifers hydraulically connected to surface streams will be limited to the following schedule to provide for a reasonable lessening of material injury to senior surface appropriators.

(1) During calendar year 1976 pumping will be allowed on Monday, Tuesday, Wednesday, Thursday and Friday.

(2) During calendar year 1977 pumping will be allowed on Monday, Tuesday, Wednesday and Thursday.

(3) During calendar year 1978 pumping will be allowed on Monday, Tuesday and Wednesday.

(4) During calendar year 1979 pumping will be allowed on Monday and Tuesday.

(5) During calendar year 1980 pumping will be allowed on Monday only.

(6) During calendar year 1981 and thereafter, pumping will be totally curtailed.

This schedule shall apply to all uses of underground water, except those exempted in Section 37-92-602, CRS 1973. Water rights deriving their supply from drains or any structure or device used for the purpose or with the effect of obtaining underground water for beneficial use from an aquifer are considered to be in the same category as diversion of underground water by wells and are subject to the provisions of this section. Upon approval of a written plan, the Division Engineer shall administer this curtailment schedule so that an underground water appropriator may have a cycle of operation to make more efficient use of the water available; provided, that senior appropriators are not materially injured thereby.

D. Underground water diversions shall be curtailed as provided under C, above, unless the underground water appropriator submits proof to the Division Engineer and upon the basis of that proof the Division Engineer shall find:

(1) That the well or wells are operating pursuant to a decreed plan of augmentation or to a decree as an alternate point of diversion, or that a change in point of diversion to the well has been decreed for a surface water right. The well or wells will then be administered in the priority system on the basis of the seniority of the associated surface decree; or

(2) That the underground water appropriation can be operated under its own priority within the priority system without impairing the right of a senior appropriator or

(3) That the water produced by a well does not come within the definition of underground water as found in Section 37-92-103(11), CRS 1973, as set forth in paragraph I-A of these rules and regulations.

E. Any underground water appropriator affected by these rules and regulations may use a part or all of the water produced by his well or wells without curtailment described in III-C, above, to the extent that such diversion is in compliance with a temporary plan of augmentation approved in accordance with Section 37-92-307, CRS 1973, as amended.

F. All owners or users of flowing wells located in the Rio Grande Basin shall ensure that any such well be equipped with a suitable control device or be permanently capped or plugged to prevent the unlawful waste of water from such well.

The effective date of these rules and regulations is January 1, 1976.

Dated this 21st day of AUGUST, 1975.

C. J. Kuiper
State Engineer