

IRRIGATION DIVISION THREE
ANNUAL REPORT FOR
1969
BY

Wayne M. Crosby
Division Engineer

Enclosure: Tables 1 - 15

Alamosa, Colorado
December 11, 1969

Mr. C. J. Kuiper, State Engineer
101 Columbine Building
1845 Sherman Street
Denver, Colorado 80203

Dear Mr. Kuiper:

Let me take this opportunity to officially welcome you to the office of State Engineer. By this time you are well baptized by the unique though, most time, harassed function of water administration. With this in mind, please consider this report.

The following commentary and tabulation is submitted as my annual report for the period October 1, 1968 through September 30, 1969. It covers records of diversion by ditches, canals, reservoirs and trans-mountain importation of water, together with a brief summary of the operation of the Rio Grande Compact for the calendar year 1969.

I. WATER SUPPLY

1. Rio Grande & Conejos Rivers

Reports as of May 1, indicated run-off from snow melt to be above normal in both the Rio Grande and Conejos River Basins. The Rio Grande 112% and the Conejos 126%, and indeed they were. Coupled with the above average snow fall was a very wet summer with heavy precipitation starting in June and continuing into the month of October. The moisture prevented many from getting into their fields for harvest.

(a) Calendar year

Four new snow courses were laid out and operated this year by the Alamosa office. They were on the San Antonio, Los Pinos, South Fork of the Rio Grande Rivers and Embargo Creek Drainages. They are named respectively San Antonio Sink, Pinos Mill, Big Meadows and Embargo. In addition to these

the course at Platoro, flown by S.C.S., was measured monthly. Computation of the results, of these courses, indicated a run-off of 336,000 Acre Feet for the Conejos River and 601,000 Acre Feet for the Rio Grande River, for the calendar year. Computation was made using 112% of the normal for the periods January thru March and October thru December for the Rio Grande Drainage and 126% for the Conejos. To this was added the actual water content of the snow pack in Acre Feet, correcting for 50% soil saturation, on the Conejos and 55% on the Rio Grande. This was considered high when compared with results by the U. S. Soil Conservation Service. However, the actual run-off was very close as indicated by the computation of results of snow courses measured by this office.

The unforeseen heavy precipitation mentioned above contributed further to expand the run-off results. At this writing it would seem the Conejos will yield approximately 390,000 Acre Feet and the Rio Grande 660,000 Acre Feet, making the annual yield for the Conejos 135% of normal and the Rio Grande 121%. These averages are based on the years 1953 through 1968.

(b) Irrigation Season

Keeping in mind the stream flow forecasts of the Conejos 230,000 Acre Feet, and the Rio Grande 490,000 Acre Feet for the period April through September, the following is a tabulation of actual run-off for that period.

Month	Rio Grande River Near Del Norte	Conejos River Near Mogote
April	44,160 A.F.	17,870 A.F.
May	172,700 A.F.	75,210 A.F.
June	144,100 A.F.	74,220 A.F.
July	104,700 A.F.	35,960 A.F.
August	46,560 A.F.	20,330 A.F.
September	34,070 A.F.	12,100 A.F.
Total	546,290 A.F.	235,690 A.F.

The discharge for the Rio Grande was 111% of the forecast and 125% of the 15 year average. The Conejos River was 102% of the forecast and 130% of the 15 year average for the period April through September, generally the irrigation season.

(c) Water Year

The stream flow forecast for the Rio Grande River at the Del Norte Station was 570,000 Acre Feet for the period October 1, 1968 through September 30, 1969. This is 86% of the all time average. The actual yield for the period was 625,000 or 110% of the average. The forecast for the Conejos River at the Mogote Station was 270,000 for the same period or 110% of the all time average. The actual flow was 267,000 or 99% of the forecast.

The total flow on the Rio Grande is measured at the Del Norte Station. However, the total flow for the Conejos River must include the Los Pinos and San Antonio Rivers. These streams flow into the Conejos below the Mogote Station. The total Conejos River yield for the period October 1 through September 30, would then be 383,000 Acre Feet. The all-time average is 353,000 Acre Feet; therefore, this water year was 108% of normal.

(d) River Comparisons

Table No. 5 of this report shows the 1969 flow of the Rio Grande to be 95% of the 1968 and 107% of the past 10 year mean.

Table No. 7 compares the Conejos River at the Mogote Station with last year, 114% and 119% of the 10 year average.

The 20 year average figure was compared on monthly basis and included in the report to your office concerning Rio Grande Compact deliveries.

2. Reservoirs

Reservoirs on the Rio Grande carried approximately 116% of normal storage as of May 1. The Sanchez on Culebra Creek was 100% while the Terrace Reservoir on the Alamosa River was 184%.

Table No. 1 lists the monthly storage of major reservoirs in the San Luis Valley.

The total reservoir capacity in Division No. 3 of 370,272 Acre Feet was filled to 31% or 112,956 Acre Feet. There was 77,215 Acre Feet of reservoir water delivered to ditches in 1968, Table No. 2.

3. Trans-Mountain Diversions

The Trans-Mountain Diversion records show in Table No. 3, a total of 4,474 Acre Feet imported from other water divisions and of the import water, 3,433 Acre Feet was delivered to ditches. 670 Acre Feet imported by the Tabor Ditch on Spring Creek Pass, was used to help complete the filling of Big Meadows Reservoir.

The Trans-Mountain Diversion record does not include the Medano Diversion in District No. 35, which, by decree, runs into Division 3 from the Arkansas River Basin July 15 through the winter. The water from this diversion is completely used by each recipient in turn, on either side of the divide.

II. IRRIGATION

There was 1,254,036 Acre Feet of water diverted to ditches in this division during the 1969 Water Year, compared to 1,263,935 Acre Feet diverted in 1968, or 93%. As compared with the 10 year average it would be 120%. There were 547,213 acres irrigated in 1969. (106% of 1968) The 10 year average is 517,676, making 1969, 105% of that average. The acre feet used per acre was 90% of last year or 2.29 Acre Feet per acre. This is 111% of the past 10 year average. See Table No. 13 for actual figures and Table No. 14 for percentages.

There were 631 ditches receiving water in 1969 (Table 15) compared to 616 in 1968. Total acre feet diverted on the Rio Grande was 99% of last year, while, the flow at Del Norte was only 95%. Total acre feet diverted on the Conejos was 112% of last year, while, the river flow at Mogote was 114%. The amounts and location of precipitation were effective here in making the two rivers inconsistent.

Curtailment of irrigation was due to weather and not this administration, in the months of November and December, 1968. We were in a credit situation with the Rio Grande Compact and therefore, allowed diversions for beneficial use. Generally, irrigation did not begin this spring until around the middle of April.

Ditch diversions were compared on a percentage basis, both for the division (discussed previously) and for each district, in Table No. 14. Districts 22 and 25 were high with 112% of last year. District No. 26 was low with 55%. It must be remembered that District 26 had a record year in 1968 running 188% of average. Comparing 1969 with the past 10 years, ditch diversions were highest in District No. 27 with 182% and lowest in 26 with 95%. "Acres Irrigated", and "Acre Feet Per Acre" are also compared in this table. Comparisons being made between 1969 and last year and 1969 and the past 10 year average with some interesting results; all indicating above average precipitation again this year.

III. WEATHER

This was a very unusual year weather wise, as it was over most of the state. We in the San Luis Valley, have become used to a consistency in the change of seasons. We believe this is due to the altitude more than age. The Valley floor was relatively void of precipitation last Winter and Spring. June normally a dry month surprised the agriculturists with heavy precipitation beginning in the middle and continuing into July---August and September, then when everyone was ready to begin harvest, it rained---and continued to rain and snow through October and into November. The deluge ended about the middle of November. The Old Timers (?) stated they had never seen an October like this one. Personally, with a water officials somewhat slanted out-look, I grinned. The Saguache area received 13.91 inches for the year according to the government rain gauge. This is the largest amount, in any particular area of the Valley. I believe the average there, is about 6.5 inches per year. The area around

Alamosa was driest with about 11 inches, and a normal of about 6.9.

It wasn't the amount, just that the timing was bad.

IV. CROPS

There was virtually no shortage of water this year. Reports in late summer were that the San Luis Valley was due for a crop unequaled in the past 10 years. The crops did materialize and were abundantly awaiting the reaper, when heavy precipitation began and continued into and through October, keeping the machines out of the fields.

The weather cleared about the second week in November and with it, cold weather and frost. Losses were quite heavy for some, and relatively light for others. Some figures have been made public, but were restricted to certain ~~areas~~ areas and no general comparisons were made.

1. Potatoes

The crop loss tends to make those harvested at a premium. Consequently, the price of potatoes is fluctuating rapidly and depending on where and how many you want to purchase. Generally, Russetts are running \$4.25 per hundred weight and Red McClures \$3.25 to \$3.50 per c.w.t. There was a new type of potatoes tried this year and seemed to do well. I am not sure whether or not a fair test was achieved due to the excessive amount of moisture.

2. Barley

There was also some loss to the Moravian Barley. This is beer barley for Coors. At this writing I understand Coors is planning to accept barley of a lesser standard, due to the shortage. Maravian Barley brings \$4.00 per bushel-top.

3. Hay

Most of the hay was excellent again this year. Some remained in the field too wet to bale or stack. Mountain pastures remain abundant with left over forage again this year.

Pumping for supplemental water was at a minimum this year due to the above average moisture. There was some concern over a shortage of water for fire protection in the Manassa - Sanford area if curtailment of surface flows was made for the Rio Grande Compact, October 1. These are shallow wells and are recharged mainly from surface irrigation. The fear was of no substance due to the high sub-water table, again attributed to the heavy precipitation.

V. RIO GRANDE COMPACT

A meeting was held with the water users of the San Luis Valley prior to the start of the irrigation season. Mr. Kuiper, State Engineer, and Mr. Smith, Deputy State Engineer, attended. Also present was Mr. Brees, Chief Hydrographer, and Mr. Erker, Chief of the Ground Water Section.

A proposed plan was developed in Denver prior to the meeting and submitted at this time. The plan proposed (1) delaying the start of Spring irrigation as long as possible (2) An "Irrigation Period" consisting of 60 day duration to be started upon demand of the majority of users, and (3) making the fullest use of the return flows, determined to be 20% of the Del Norte Index. The delivery schedule was set according to the forecast "Annual Yield". The deliveries were to be guaranteed using part of the return flows, all of the return flows, or all of the return flows and a percentage of the Del Norte Supply. Only in an emergency was the percentage cut of the Del Norte Supply to exceed 10%.

We had a short but sufficient trial period prior to the advent of the heavy precipitation. The plan worked extremely well and beyond the expectations of some.

As mentioned before, irrigation did not start until about the 15th of April (Reservoir storage stopped the 14th). The 60 day Irrigation Period commenced May 3rd. By this time we had a sufficient cushion on our deliveries, that, had not the rains come, we could have made scheduled deliveries. This, of

course, would be by curtailing the Irrigation Period on July 3rd (60 days). However, the rains did come and deliveries will be in excess of those scheduled, some 50,000 to 60,000 Acre Feet. The over-delivery is from the Rio Grande River. The Conejos River will meet their commitment almost exactly. The deliveries were 28% of the annual yield on the Rio Grande River and 46% on the Conejos.

A project was outlined by this office to determine the return flows lost to the Conejos River. Generally stated, credit is given the Conejos River and for deliveries of water measured at the La Sauses gages. There are several ditches that flow around these Gaging Stations and return flows from irrigation enter the Rio Grande that also by-pass those gages.

In the meeting with the water users, those on the Rio Grande agreed to give the Conejos the full amount of annual credit this year (10,000 Acre Feet) and discuss the return flows again after data had been collected by this office. The Rio Grande people felt reluctant to give credit for return flow water to the Conejos River, when so much was being wasted on the San Antonio River. This waste is due to deterioration of the channel. I am happy to report that ~~rectification~~ rectification of the San Antonio River channel is under way.

To date the Gaging Stations for data collection are not installed.

Plans and equipment needs were submitted to the Denver office where they bogged down. Original plans were changed in order to install more durable stations with continuous A-35 recorders. Now, upon my request for delivery, the recorders are not available. The remainder of the equipment has been ordered through the Alamosa office.

Some of the difficulties concerning the compact releases of stored water from Platoro Reservoir were resolved this year. Mr. Robert Wymer, representing Mr. Leon Hill of the Bureau of Reclamation, came to Alamosa via Pueblo. (Frontier Air Transportation via Bus) to work with me in solving our

differences over these releases. It was resolved that the Water Commissioner and the Dam Tender work together and coordinate the releases as requested, by the Water Commissioner. It was done and a smooth operation resulted. I also discussed storage of flood water's with Mr. Wymer. He concurred that this was probably a matter to be taken up at the Compact Commissioner level. My intention is to store all water over and above that needed for daily compact deliveries and ditches. Consequently, in the event of a hard rain most or all of the ditches turn off and at present, the releases from Platoro can not be adjusted by this office except via approval of the Army-Engineers. Mr. Phil Mutz of the State Engineer's Office, Santa Fe, New Mexico tells me this would only take a few minutes. I plan to give this system a diligent trial, the next time need for storage arises. I still feel that storage control should lie with this office. Almost all the water that overflows the banks is lost. The feeling of Texas and New Mexico last year, at the Compact Meeting, was not to allow any storage other than involuntary. I believe if properly presented this control could be here in the Valley, as all water stored in excess of 3,000 acre feet in Platoro Reservoir, is released to cross the state line.

VI. INSTALLATION, REPAIR AND CONSTRUCTION

1. Installation's

Approximately 50 new flumes and headgates were installed in the division this year. Concern is voiced over the indtallation of meters on wells. However, after explaining how meters can benefit the owner, most are won over. A few hard cases need only to be reminded that a water diversion is required, by law, to have a measuring device.

2. Repair

Mr. Kuiper and Mr. Paddock (State Dam's Engineer) were accompanied by me to Rio Grande Reservoir, where plans were formulated for the repair of the spillway. This to be undertaken as soon as funds are available.

The slope gage or reservoir level gage on the upstream face of the dam, was also in poor shape here. I was ask to design a gage to resist ice stress if possible. One was installed using trapazoid cement pillars to which was attached a cable. The cable was marked in one foot intervals and strung between the pillars. The pillars are embedded in the dam face four feet with the large part of the trapazoid buried. Levels were run tying the cement pillars in with the present control. The elevation's of the pillars will be used as a check on the marked cable. The cable gage is permanently attached at the lower pillar with a turn-buckle at the upper one. It can be loosened in the winter, to give way with the ice, and tightened again in the spring, checked by level, and put back in operation. This winter should be a pretty good test.

A contract was let by the Fish, Game and Parks Department for repair of the Beaver Park Reservoir Outlet Tunnel. All the repair work completed last year failed. Mr. Paddock determined failure was probably due to lack of air or venting in the outlet tunnel. New plan's were drawn by the F.G.&P. Department and approved by the State Engineer. Then the F.G.&P. began to phase out parts of the approved plan. This is a bad situation, in that the F.G.&P. lets the contract and as far as the contractor is concerned, has jurisdiction over the job. None of the Engineers (?) from F.G.&P. were on the job until the day of completion. No concrete tests were made. It was doubtful if the rebar as specified was installed. It was confirmed by the contractor that it was not. No vertical ties were made.

3. Construction

The design for the installation of a radial gate to be placed at the divergence of the North and South Channels of the San Antonio River is in process by this office. The purpose is to control the flow of the South Channel to only that water called for and thereby prevent overflow of water that has no way of returning to the stream.

As mentioned before in this report, Channel retification has been

started on the Rio San Antonio. Mr. George Crowley as shooter and Mr. Jake Parker and his deputy, Donald Sorensen, as powder monkey's, started the work on the "T-Bone" Ranch by straightening and deepening a section of channel with blasting powder, furnished by the T-Bone Ranch. The Ranch is doing their own channel work, according to specifications set by this office. The Conejos Water Conservancy District has offered to fund another tractor to help the one furnished by the T-Bone Ranch. Mr. Romeo was opposed to channel rectification until the Conejos Water Conservancy District voted to condemn channel right-of-way through his land. Opposition was removed and it was suggested work start here immediately, as Mr. Romeo might change his mind.

The Chicago Ditch Company has installed a new diversion dam. Originally the dam was to sufficiently pass 3,000 cfs. of flow and according to the data presented this office would have. However, the contractor did not follow the design and the diversion structure was ordered remodled to facilitate passage of this amount of water. There was quite a bit of "buck passing" until payment was to be refused by the Soil Conservation Service. A meeting was held in my office with S.C.S., U.S. Fish and Wildlife and members of the Chicago Ditch Company Board attending. At this time all problems seem to be resolved. The S.C.S. will make payment on the work already done and the remodling ordered by this office will also be funded and considered as the second phase of a two phase project.

VII. PERSONEL

Mr. Thomas "Pat" Trent tendered his resignation as Deputy Water Commissioner in District No. 22 upon completing work for his Masters Degree at Adams State College. He resigned to take a teaching position in Las Vegas, Nevada. Pat did an excellent job for us during his tenure.

Miss Janet Lamm was employed as Intermediate Clerk Typist and is doing an excellent job, as can be seen by this report.

VIII. FINALE

The fiscal portion of this report is reserved for submission at a later date, due to the harassed condition of our Fiscal Section.

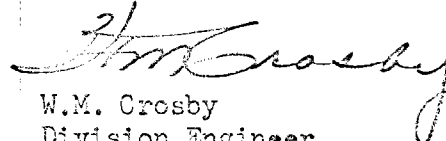
Excellent cooperation was in evidence this year between the water users and this administration, largely through the efforts expended by Mr. Kuiper, Mr. Smith and all of the staff in Denver.

Mr. "Bill" Kopfman was elected President of the Board of the Rio Grande Water Users Association. An outstanding spirit of cooperation between "Kupe" and "Bill" developed.

A deeper and more sincere understanding of our problems was achieved with Mr. Kelly Sowards and the members of the Conejos Water Conservancy District, as evidenced in this report.

Again the time returns that enables me to express my sincere thanks and appreciation to all co-workers and acquaintances that have made the job interesting and worthwhile.

Sincerely and
respectfully submitted,



W.M. Crosby
Division Engineer
Irrigation Division No. 3

WMD/jl

Encl:

Table No. 1

RESERVOIR STORAGE IN ACRE FEET

Date	Rio Grande	Santa Maria	Continental	Beaver Park	Terrace
Nov. 1, 1968	16,080	2,230	3,991	3,576	11,953
Dec. 1, 1968	17,659	2,696	4,722	3,509	12,275
Jan. 1, 1969	18,858	3,077	5,297	2,661	11,589
Feb. 1, 1969	20,056	3,508	5,885	3,026	11,303
Mar. 1, 1969	21,279	3,823	6,385	3,231	11,209
Apr. 1, 1969	22,400	4,317	6,897	3,341	11,256
May 1, 1969	23,323	4,654	7,215	3,576	9,875
June 1, 1969	23,323	4,654	7,215	3,840	9,280
July 1, 1969	20,657	4,659	7,886	4,434	11,091
Aug. 1, 1969	5,823	653	3,666	2,470	10,859
Sept. 1, 1969	5,295	323	2,676	0	9,490
Oct. 1, 1969	10,053	2,919	1,266	0	12,475

Date	Platoro	Cove Lake	Sanchez	Mountain Home	Smith
Nov. 1, 1968	12,600	570	11,470	2,154	2,551
Dec. 1, 1968	3,000	341	11,614	2,393	2,852
Jan. 1, 1969	3,000	55	11,686	2,584	3,125
Feb. 1, 1969	3,000	0	11,713	2,772	3,322
Mar. 1, 1969	3,000	0	12,736	2,937	3,518
Apr. 1, 1969	3,000	0	11,759	3,239	4,516
May 1, 1969	4,600	1,060	12,736	3,332	5,415
June 1, 1969	5,300	6,223	13,127	3,313	4,453
July 1, 1969	5,600	4,875	16,056	4,215	3,963
Aug. 1, 1969	5,600	2,880	13,127	3,389	2,764
Sept. 1, 1969	5,600	1,500	14,819	2,214	2,808
Oct. 1, 1969	5,600	972	16,514	2,271	2,589

Table No. 2

RESERVOIRS

Name	Capacity in A.F.	Quantity of Water 5-1 1969 in A.F.	Quantity of Water Oct. 1 in A.F.	Quantity of Water Delivered to Ditches in A.F.
Alberta Park	598	598	598	0
Beaver Park	4,434	3,576 (4434)	0	*2,553
Big Meadows	2,437	2,437	2,437	0
Big Ruby	94	87	61	20
Bristol Head No. 1	121	0	0	0
Bristol Head No. 2	804	0	0	0
Continental	22,679	7,215 (7886)	1,266	4,902
Cove Lake	6,380	1,060 (6223)	972	8,138
Downing	30	30	30	0
Eastdale No. 1	3,519	0	0	0
Eastdale No. 2	3,041	2,085	12	624
Fuchs	238	21	21	0
Goose Lake	232	232	51	163
Hay Press Park	200	200	200	0
Hermit No. 1	385	385	385	0
Hermit No. 2	407	407	407	0
Hermit No. 3	192	192	192	0 (Hermit total)
Humphreys	842	842	842	0
Hunters Lake	19	19	19	0
Jumper Creek	38	38	38	0
La Jara	14,052	7,404	7,630	0
Loch Laven	24	0	0	0 (No Lake)
Lost Lake (Lower)	966	521	41	436
Lost Lake (Upper)	68	68	68	0
Love Lake	24	24	24	0
Meadow Lake (McCrone)	174	174	174	0
Meadow Lake (Wright)	115	115	115	0
Metroz (Lower Basin)	396	297	297	0
Metroz (Upper Basin)	84	84	84	0
Mill Creek	43	34	34	0
Mountain Home	18,595	3,332 (4215)	2,271	4,029
Platoro	60,000	4,600 (5600)	5,600	0
Poage	261	261	134	115
Regan's Lake	823	255	131	22
Rio Grande	51,113	23,323	10,053	21,783
Rito Hondo	561	561	561	0

* 1598 A.F. to Rio Grande Res.

Table No. 2

RESERVOIRS CONTINUED

Name	Capacity in A.F.	Quantity of Water 5-1 1969 in A.F.	Quantity of Water Oct. 1 in A.F.	Quantity of Water Delivered to Ditches in A.F.
Road Canyon No. 1	1,367	1,367	1,367	0
Road Canyon No. 2	84	84	84	0
Salazar No. 1	234	200	210	165
Salazar No. 2	35	20	20	0
Sanchez	103,155	12,736 (16514)	17,794	21,882
Santa Maria	45,070	4,654	2,919	* 4,255
Shaw Lake	631	564	452	204
S. Lazy U. Dude Ranch	106	106	106	0
S. Lazy U No. 2	42	42	42	0
Smith	5,651	5,415	2,589	2,322
Sowards No. 1-A	8	8	8	0
Sowards No. 2	35	35	35	0
Sowards No. 3	19	19	19	0
Sowards No. 4	45	45	45	0
Spring Creek	97	97	97	0
Spruce Lake No. 1	98	98	98	0
Spruce Lake No. 2	105	105	105	0
Squaw Lake	162	0	0	0
Stabilization (Head)	260	260	See Sanchez Res.	
Streams Lake	41	41	41	0
Terrace	17,233	9,875 (12475)	12,475	5,602
Trout Lake	198	198	198	0
Troutvale No. 1	201	201	201	0
Troutvale No. 2	257	257	257	0
Trujillo Meadows	913	913	913	0
Wee Ruby	186	186	186	0
*1587 A.F. transferred from Continental Res.				
TOTAL	370,272	98,003 (112956)	75,059	77,215

Table No. 3

TRANS-MOUNTAIN DIVERSIONS

Name of Diversion	Acre Feet Imported	Acre Feet Delivered to Ditches	Acre Feet Delivered to Reservoirs	Evap. and/or Transportation Loss (Ac.Ft.)	Total Acre Feet Del.
Fuchs Ditch @ Weminuche Pass	847	770	0	77	770
Piedra Pass Ditch (East) @ Piedra Pass	0	0	0	0	0
Piedra Pass Ditch (West) @ Piedra Pass	0	0	0	0	0
Raber-Lohr Ditch @ Weminuche Pass	2,227	2,025	0	202	2,025
Squaw Pass Ditch @ Squaw Pass	133	121	0	12	121
Tabor Ditch @ Spring Creek Pass	670	0	670	0	670
Tarbell Ditch Near Cochetopa Pass	294	267	0	27	267
Treasure Pass Ditch @ Wolf Creek Pass	303	250	0	53	250
TOTAL	4,474	3,433	670	371	4,103

Table No. 4

DIVERSIONS TO CANALS AND DITCHES DISTRICT NO. 20

Diverted From	Direct A.F.	Trans-Mt. Diversions A.F.	Reservoir A.F.	Total A.F.	Acres Irrigated	A.F. Per Acre
Rio Grande	582,418	3,836	37,799	624,053	312,632	2.00
Pinos, San Francisco & Schrader	17,289	0	0	17,289	6,262	2.76
Rock & Spring*	11,812	0	0	11,812	7,335	1.61
Other Streams*	21,267	0	0	21,267	6,859	3.10
TOTAL	632,786	3,836	37,799	674,421	333,088	2.02

*Lower Rock Creek deleted from "Rock and Spring", included with "Other Streams"

Table No. 5

COMPARISON OF RIVER DISCHARGE, DITCH DIVERSIONS,
AND ACRES IRRIGATED IN DISTRICT NO. 20

Year	Total Acre Feet Discharge of Rio Grande River Near Del Norte Water Yr. Ending Sept. 30	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1960	624,200	637,986	326,884	1.95
1961	478,200	558,410	318,591	1.75
1962	771,600	761,901	341,205	2.23
1963	341,400	364,825	281,629	1.30
1964	372,200	425,723	293,293	1.45
1965	880,000	903,847	333,185	2.71
1966	625,700	628,473	334,336	1.88
1967	444,300	432,989	316,756	2.57
1968	656,400	678,231	311,450	2.18
1969	625,300	632,786	333,088	1.90
Total	5,819,300	6,025,171	3,190,417	
Mean	581,930	602,517	319,041	1.99

Table No. 6

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 21

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1960	86,736	45,248	1.92
1961	72,908	45,417	1.61
1962	116,178	47,109	2.47
1963	39,486	24,587	1.61
1964	56,390	35,755	1.58
1965	136,454	51,806	2.63
1966	105,076	43,163	2.43
1967	84,827	40,472	2.10
1968	104,858	43,067	2.38
1969	110,989	47,822	2.32
Total	913,902	425,346	
Mean	91,390	42,535	2.10

Table No. 7

COMPARISON OF RIVER DISCHARGE, DITCH DIVERSIONS,
AND ACRES IRRIGATED IN DISTRICT NO. 22

Year	Total Acre Feet Discharge of Conejos River Near Mogote Yr. Ending Sept. 30	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1960	208,300	222,302	89,094	2.50
1961	201,600	248,348	94,781	2.62
1962	255,300	271,729	93,823	2.90
1963	132,600	135,835	76,228	1.78
1964	155,500	181,686	86,966	2.09
1965	305,500	308,980	100,412	3.08
1966	236,900	231,226	101,004	2.29
1967	243,200	244,148	100,349	2.43
1968	234,200	224,238	98,829	2.27
1969	267,300	252,164	100,699	2.50
Total	2,240,400	2,320,656	942,185	
Mean	224,040	232,066	94,218	2.45

Table No. 8

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 24

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1960	57,993	22,720	2.55
1961	58,882	22,205	2.65
1962	54,973	21,654	2.54
1963	31,426	16,885	1.86
1964	39,226	16,735	2.34
1965	66,173	19,562	3.38
1966	60,864	20,303	2.98
1967	45,891	14,091	3.26
1968	61,842	20,969	2.95
1969	63,594	19,699	3.23
Total	540,864	194,825	
Mean	54,086	19,482	2.77

Table No. 9

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 25

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1960	44,530	12,467	3.57
1961	43,633	12,755	3.42
1962	38,655	10,102	3.83
1963	11,795	2,099	5.62
1964	33,961	8,021	4.23
1965	73,552	16,299	4.51
1966	30,320	13,632	2.22
1967	44,084	12,825	3.44
1968	48,481	15,199	3.19
1969	54,154	16,009	3.38
Total	423,165	119,408	
Mean	42,316	11,941	3.74

Table No. 10

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 26

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1960	40,036	15,535	2.58
1961	24,624	10,034	2.45
1962	45,624	17,490	2.61
1963	12,718	5,513	2.31
1964	30,063	9,189	3.27
1965	78,474	26,939	2.91
1966	33,542	13,921	2.41
1967	22,074	8,821	2.50
1968	72,407	15,221	4.76
1969	37,755	14,116	2.67
Total	397,317	136,779	
Mean	39,732	13,673	2.85

Table No. 11

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 27

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1960	7,341	4,420	1.66
1961	7,047	2,555	2.76
1962	6,785	3,088	2.20
1963	2,710	785	3.45
1964	7,509	1,100	6.83
1965	13,139	1,885	6.97
1966	9,619	3,325	2.89
1967	8,217	1,301	6.32
1968	23,318	1,450	16.08
1969	19,013	1,865	10.19
Total	104,696	21,774	
Mean	10,470	2,177	5.94

Table No. 12

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DISTRICT NO. 35

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1960	56,324	18,227	3.09
1961	47,511	17,225	2.76
1962	56,882	18,215	3.12
1963	21,069	11,912	1.77
1964	20,805	9,580	2.17
1965	52,611	18,345	2.87
1966	33,035	14,535	2.27
1967	29,882	10,405	2.87
1968	50,560	13,250	3.37
1969	41,946	13,915	3.01
Total	410,625	145,609	
Mean	41,062	14,561	2.73

Table No. 13

COMPARISON OF DITCH DIVERSIONS
AND ACRES IRRIGATED IN DIVISION NO. 3

Year	Total Acre Feet Diverted From All Streams	Total No. of Acres Irrigated	Acre Feet Per Acre
1960	1,153,248	534,595	2.16
1961	1,061,317	523,553	2.03
1962	1,352,711	553,111	2.45
1963	619,864	419,638	1.48
1964	795,363	460,811	1.73
1965	1,633,230	568,433	2.87
1966	1,132,155	544,219	2.08
1967	912,112	505,020	1.81
1968	1,263,935	520,335	2.43
1969	1,254,036	547,213	2.29
Total	11,177,971	5,176,756	
Mean	1,117,797	517,676	2.13

Table No. 14

PERCENTAGE COMPARISONS

District	Ditch Diversions in 1969 Compared to 1968	Ditch Diversions in 1969 Compared to Past 10 Years	Acres Irrigated in 1969 Compared to 1968	Acres Irrigated in 1969 Compared to Past 10 Years	No. of A.F. Used Per Acre in 1969 Compared to 1968	No. of A.F. Used Per Acre in 1969 Compared to Past 10 Years
20	93%	105%	107%	104%	87%	95%
21	106	121	109	112	97	110
22	112	109	102	107	110	102
24	103	118	94	101	109	117
25	112	128	105	134	106	90
26	55	95	93	103	56	94
27	82	182	129	86	63	172
35	83	102	105	96	89	110
DIVISION No. 3	93%	120%	106%	103%	90%	111%

Table No. 15

WATER COMMISSIONER'S DITCH REPORTS
IRRIGATION DIVISION No. 3

Water District	Number of Ditches Using Water	First Day Water Was Used	Last Day Water Was Used	No. of Days Water Was Carried	No. of Acre Feet Used	No. of Acres Irrigated
20	217	Oct. 1, 1968	Sept. 30, 1969	365	674,421	333,088
21	64	Oct. 1, 1968	Sept. 30, 1969	365	110,989	47,822
22	97	Oct. 1, 1968	Sept. 30, 1969	365	252,164	100,699
24	58	Oct. 1, 1968	Sept. 30, 1969	365	63,594	19,699
25	70	Oct. 1, 1968	Sept. 30, 1969	365	54,154	16,009
26	63	Oct. 1, 1968	Sept. 30, 1969	365	37,755	14,116
27	19	Oct. 1, 1968	Sept. 30, 1969	365	19,013	1,865
35	43	Oct. 1, 1968	Sept. 30, 1969	365	41,946	13,915
DIVISION No. 3	631	Oct. 1, 1968	Sept. 30, 1969	365	1,254,036	547,213