

ROSWELL BASIN WATERMASTER

5th

ANNUAL REPORT

Calendar

Year

1970

Glenn W. Brim, Watermaster

909 East Second Street

Roswell, New Mexico

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INTRODUCTION

On January 10, 1966 Partial Final Judgment and Decree was entered under Causes Nos. 20294 and 22600 Consolidated in Chaves County, New Mexico. This Decree, which adjudicated all ground water rights for irrigation, municipal, and industrial purposes in the Roswell Artesian Basin in Chaves and Eddy Counties, further provided for the metering of wells, to commence January 1, 1967 and the establishment of a Watermaster as follows:

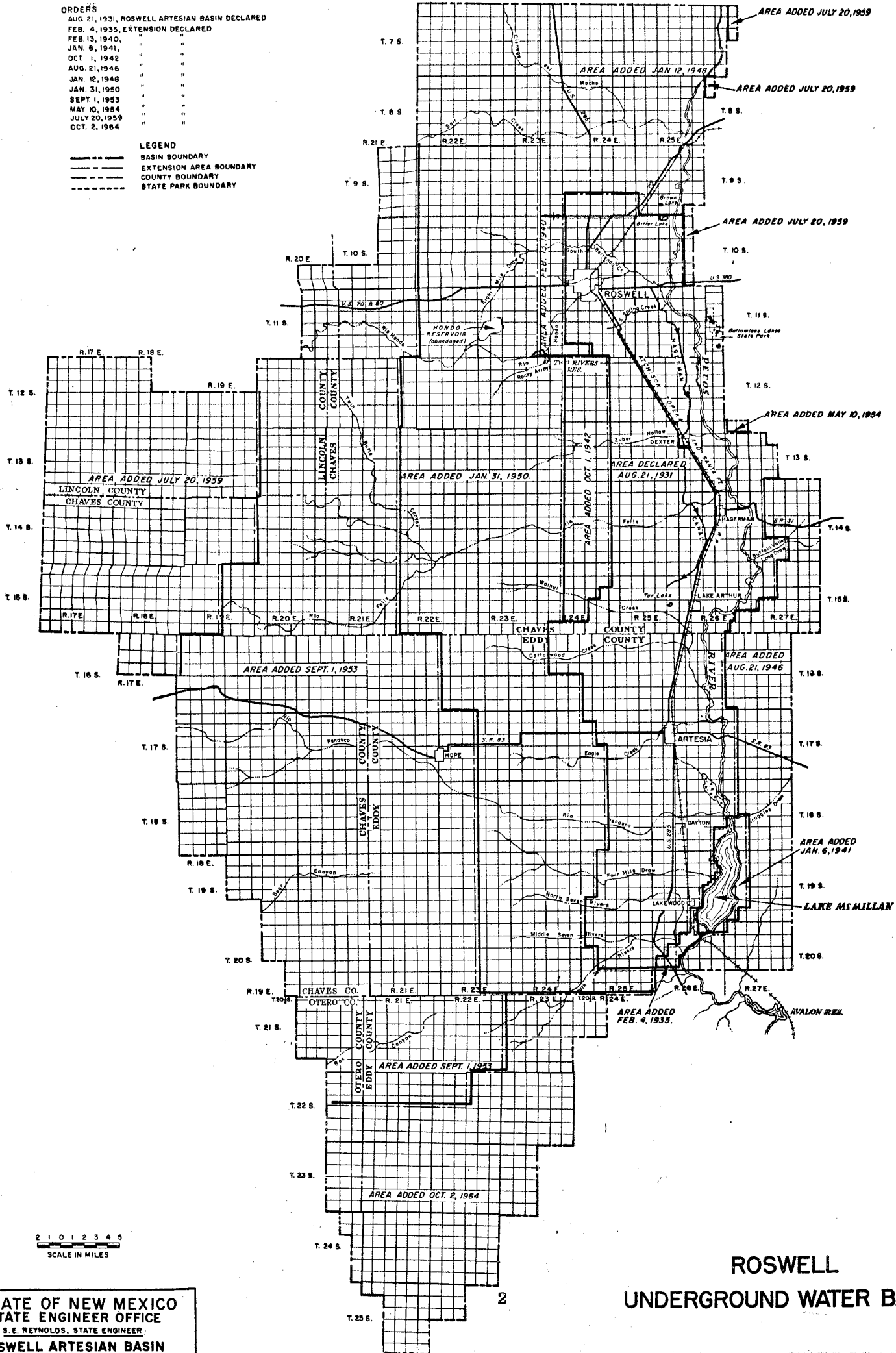
"5. The state engineer shall appoint and employ a watermaster and such assistants as are necessary in the administration and enforcement of this judgment and decree, provided that the appointment of the watermaster shall be subject to the approval of the Court. Such watermaster shall be appointed to commence work not later than July 1, 1966. The watermaster and any assistants appointed shall serve under the direction of the state engineer and under the general supervision of the Court."

The Office was established with the appointment of a Watermaster on February 2, 1966. This is the 5th Annual Report of that office.

- ORDERS**
- AUG. 21, 1931, ROSWELL ARTESIAN BASIN DECLARED
 - FEB. 4, 1935, EXTENSION DECLARED
 - FEB. 13, 1940, " " " "
 - JAN. 6, 1941, " " " "
 - OCT. 1, 1942, " " " "
 - AUG. 21, 1946, " " " "
 - JAN. 12, 1949, " " " "
 - JAN. 31, 1950, " " " "
 - SEPT. 1, 1953, " " " "
 - MAY 10, 1954, " " " "
 - JULY 20, 1959, " " " "
 - OCT. 2, 1964, " " " "

LEGEND

- BASIN BOUNDARY
- - - - - EXTENSION AREA BOUNDARY
- COUNTY BOUNDARY
- STATE PARK BOUNDARY



2 1 0 1 2 3 4 5
SCALE IN MILES

STATE OF NEW MEXICO
STATE ENGINEER OFFICE
S. E. REYNOLDS, STATE ENGINEER
ROSWELL ARTESIAN BASIN

**ROSWELL
UNDERGROUND WATER BASIN**

ADMINISTRATION

GENERAL

The Roswell Basin Watermaster administers the diversion of water, under the Adjudication Decree in an area extending, in general, six to eighteen miles west of the Pecos River and from 20 miles north of Roswell in Chaves County to 20 miles south of Artesia in Eddy County, a distance of about 80 miles. The principle use of water in the area is for agricultural purposes which accounts for about 95% of the total diverted. Municipal use accounts for less than 5% and the remainder is used for commercial and industrial purposes.

Groundwater is the principal source of water diverted under the Decree and this is further divided into the artesian and shallow source. About 63% of the water is diverted from the artesian source, about 34% from the shallow source and about 3% is diverted from a combination of surface and well waters primarily through the Hagerman Canal.

Approximately 130,000 acres are irrigated with rights adjudicated under the decree. This figure of acreage irrigated varies from year to year, as some rights have, since metering began, been spread over larger acreages, a few rights have been "stacked" to permit larger diversions on reduced acreages, some rights have been transferred to municipal and industrial use, and a few rights have been "retired" by the Pecos Valley Artesian Conservancy District.

The Honorable Lafel E. Oman, Judge of the New Mexico Court of Appeals, served by designation as judge in the adjudication suit during the period.

Personnel of the Watermaster Office at the beginning of 1970 consisted of Glenn Brim, Watermaster, Kathryn H. Kendall, Secretary Clerk, and Allen Holloway, Assistant. On July 1, 1970, Rex Mann was hired as a second assistant to the Watermaster; on October 23, 1970 Allen Holloway resigned and was replaced by Charles Marson. On November 30, 1970 Rex Mann resigned and will be replaced early in 1971.

Watermaster personnel worked closely with personnel of the Water Rights Division of the State Engineer Office for purposes of correlating records and field work and to prevent duplication of effort.

The working relationship between personnel of the Pecos Valley Artesian Conservancy District and the Watermaster Office has been satisfactory.

METERING PROGRAM

Five hundred and twenty eight inoperative meters were found during the 1970 irrigation season. Based on a total of 1553 meters installed on irrigation and feed pen wells and Hagerman Canal laterals this is 34.00% as compared to 34.15% (515 inoperative of a total of 1508 meters) in 1969. Many of the meters found inoperative were meters which had been previously inoperative and thus the figures do not necessarily represent the total number out. During 1970 the 1553 meters were read an average of 4.74 times each by personnel of the Watermaster's office.

The four major brands of totalizing meters and the number of each installed on irrigation wells and feed pen wells in addition to the number of each brand found to be inoperative during the 1970 irrigation season, are listed as follows:

| Make of Meter | Installed | | Inoperative | | |
|---------------|-------------|---------------|-------------------|---------|----------------------|
| | Total | % of Total | Total Inoperative | % Brand | % of Total Installed |
| FC Brand A | 730 | 47.01 | 312 | 42.73 | 20.09 |
| MC Brand B | 322 | 20.73 | 46 | 14.29 | 2.96 |
| SB Brand C | 326 | 20.99 | 142 | 43.56 | 9.14 |
| B. Brand D | 154 | 9.92 | 28 | 18.18 | 1.81 |
| Misc. | 21 | 1.35 | 0 | 0 | 0 |
| | <u>1553</u> | <u>100.00</u> | <u>528</u> | | <u>34.00</u> |

Adjustments in amounts of water diverted through inoperative meters for 1970 totaled 3,366.3 acre feet; 2,022.9 acre feet of which was artesian and 1,343.4 acre feet of which was shallow. This is 0.94% of the total

diverted.

The majority of the problems with inoperative meters occur at the beginning of each irrigation season after the meters have been unused through the winter months. It is believed that an extensive program of winter maintenance would alleviate most of this problem.

Cards were mailed to water users on December 23, 1970 requesting year end totalizing meter readings.

Meters are now maintained, repaired and/or replaced by field personnel of the Pecos Valley Artesian Conservancy District, at no cost to the water user.

CHANGES IN THE ADJUDICATION DECREE

On January 9, 1970, Order in Sub-File No. 1838 (W.L. Pennington & Cliff L. Henderson) was entered wherein rights to 66 acre feet per annum of artesian water was adjudicated at two former Atlas Missile sites for industrial use. These rights had been previously adjudicated but inadvertently cancelled when the missile sites were phased out. Rights (33 acre feet) at a third missile site were readjudicated under Sub-File No. 181 (Robert G. Wolfson) on November 26, 1969 and rights (33 acre feet) at a fourth missile site were adjudicated in Sub-File No. 1842 (Bonham Farms, Inc.) under order entered August 10, 1970.

On May 21, 1970 Order in Sub-File No. 1841 (Bogle Farms, Inc.) was entered wherein artesian rights to 295.0 acres of land previously decreed rights in Eddy County Cause No. 15549 were made a part of the adjudication decree.

Following a motion filed in November of 1969 by the Pecos Valley Artesian Conservancy District to add to the duty of water of 3 acre feet per acre an additional 0.75 acre foot per acre for carriage losses, eight days of testimony and arguments were presented to the Court in February 1970. The Pecos Valley Water Users Association had requested that the duty be raised to four or more acre feet per acre and the State Engineer's Office and a group of local farmers contended that the limit should be left at 3 acre feet per acre measured at the well. In the Order entered May 28, 1970 the Court stated that:

"NOW, THEREFORE, IT IS HEREBY ORDERED that the duty of water for all irrigation water rights herein be, and the same is hereby,

confirmed in the amount of three (3.0) acre-feet per acre per annum, except for those water rights specifically adjudicated a different duty in the individual sub-files hereof, the said duty in all instances to be delivered upon the land.

IT IS FURTHER ORDERED that, to compensate for carriage loss, there be added to the duty of water of the irrigation water rights adjudicated herein an additional two (2.0) acre-inches of water, measured at the well, for each acre-foot of duty adjudicated to those rights, said additional amount to be added for the year 1967 and for each year thereafter, unless otherwise ordered by the Court upon the proper motion by any party to this proceeding.

IT IS FURTHER ORDERED that the duty of water and the carriage-loss allowance shall be measured at the well.

IT IS FURTHER ORDERED that Paragraph 4 of the Order section of the Partial Final Judgment and Decree, as amended, permitting a water user to carry forward into the following five-year period up to two-thirds of the duty for one year, has no application to the carriage loss granted hereunder."

The Pecos Valley Water Users Association filed Notice of Appeal of the Order on June 2, 1970 and a Notice of Cross Appeal was filed by the State Engineer Office on June 29, 1970. Hearings on the appeals had not been set at the end of the year.

On June 24, 1970 Judge Oman granted, after hearing, a motion of the Pecos Valley Artesian Conservancy District delegating to it the responsibility for the maintenance, repair, and replacement of meters in the Roswell Basin.

On December 23, 1970 Judge Oman, after hearing, entered "Partial Final Judgment and Decree of December 1970" wherein he reaffirmed earlier Orders as entered in the adjudication suit and further ordered that

"12. As among all defendants herein the priority date of each and every water right adjudicated in this cause is fixed and established as the same priority date set forth in the order entered in each sub-file herein, except that the priority dates of the rights of the defendant Hagerman Irrigation Company in the underground waters of the Roswell Artesian Basin shall be the dates which are set forth in finding of fact No. 9 of the Report of Special Master entered in sub-file No. 1 in Cause No. 22600, and any findings or conclusions in that report inconsistent herewith are hereby rejected; provided, that this adjudication of priority among defendants shall not preclude or estop the owner of any water right, including the Hagerman Irrigation Company, from establishing in any other proceeding that such water right has an earlier priority on the basis of the relation back of such water right to an antecedent water right."

VIOLATION ACTIONS

In October and November of 1970, following filing of complaints by the Watermaster alleging excessive diversion of water with meters inoperative, Consent Orders were filed by Judge Oman in two cases. In the Orders, defendants H. C. Berry and Rosendo Casarez acknowledged and reconfirmed their affirmative legal obligation to maintain the water meters on their wells and were ordered to at all times exert their best efforts and all reasonable diligence to maintain and keep in good order and repair their water meters and to cease and desist from pumping any of their wells except when the meters are in operation.

WATER DIVERSION

QUANTITIES DIVERTED

The total water diverted under the jurisdiction of the Roswell Basin Watermaster in the Roswell Ground Water Basin for the year 1970 was 375,491.6 acre feet. The total diverted was more (by 13,918.5 a.f.) than that diverted in 1969, and more (36,367.1 a.f.) than the total quantity diverted in 1968, but less (11,869.9 a.f.) than that diverted in 1967.

Of the total of 360,656.0 acre feet diverted from wells, 233,510.5 acre feet was diverted from the artesian source and 127,145.5 acre feet was diverted from the shallow source. An additional 14,835.6 acre feet was diverted primarily from surface water sources under the Hagerman Canal.

The use for irrigation purposes was 358,686.8 acre feet (95.5%), the use for municipal purposes was 15,888.5 acre feet (4.3%) and for commercial, industrial and other sanitary and miscellaneous uses 916.3 acre feet (0.2%).

The irrigation use on total metered farm water rights of 126,002 equivalent water right acres (acres as originally adjudicated) permitted an average diversion of 2.85 acre feet per acre for the basin as a whole and compared to an average diversion of 2.85 acre feet in 1967, 2.53 acre feet in 1968, and 2.69 acre feet per acre in 1969. Averages varied during 1970 from a high of 3.08 acre feet per water right acre in the Dexter-Hagerman area to a low of 2.16 acre feet per water right acre in the Northern Extension. The greatest total diversion was in the Dexter-Hagerman area where 109,695.4 acre feet was diverted with an average use of 3.08 acre feet per water right acre.

The use per acre figures are expressed in water right equivalent

acreage figures as, with the use of metered water, many water rights have been spread, by permit, over greater areas to facilitate farming operations and a few have been "stacked" to permit more use per acre. Equivalent acreage figures and pumpage figures do not include water rights retired from irrigation under the program of the Pecos Valley Artesian Conservancy District, unmetered domestic and stock uses, and a very small acreage (not exceeding 200 acres) not metered and not farmed but having rights.

Total annual rainfall in Chaves and Eddy Counties was considerably below average for the year; the average of the Roswell and Artesia stations being 9.31 inches compared to a long-time average of 11.47 inches.

The total number of farms in the basin with separate distinct water rights decreased from 1,037 in 1967 to 1,011 in 1968, 998 in 1969 and 984 in 1970, due to consolidations and combining of water rights.

Following hereto are tabulations and a map showing the metered use by areas within the basin.

NEW MEXICO STATE ENGINEER
METERED PUMPAGE SUMMARY SHEET
1970

TOWNSHIP _____ RANGE _____ SECTIONS _____

| Water Right No. | Well No. | Source | Use | Well Location | Right Acre Feet | PUMPAGE - ACRE FEET | | | | Date | Remarks |
|-----------------|----------|--------|-----|------------------|-----------------|---------------------|-----------|-----------|-----------|------|------------|
| | | | | | | Surface | Shallow | Artesian | Total | | |
| | | | | Northern | 30,520.1 af | | | | | | |
| | | | | Extension | 10,173.4 ac | --0-- | 1030.5 | 20,968.7 | 21,999.2 | | 2.16 af/ac |
| | | | | Roswell - East | 108,622.2 af | | | | | | |
| | | | | Grand Plains | 36,207.5 ac | 273.5 | 27,300.0 | 72,224.9 | 99,798.4 | | 2.76 af/ac |
| | | | | Dexter-Hagerman | 106,949.1 af | | | | | | |
| | | | | Area | 35,649.7 ac | 14,562.1 | 49,988.2 | 45,145.1 | 109,695.4 | | 3.08 af/ac |
| | | | | Cottonwood | 61,446.0 af | | | | | | |
| | | | | Area | 20,482.0 ac | -0- | 20,964.2 | 38,120.2 | 59,084.4 | | 2.88 af/ac |
| | | | | Upper Rio | 2,281.0 af | | | | | | |
| | | | | Felix | 760.3 ac | -0- | -0- | 1,808.1 | 1,808.1 | | 2.38 af/ac |
| | | | | Artesia | 56,146.6 af | | | | | | |
| | | | | Area | 18,715.5 ac | -0- | 20,987.4 | 33,277.4 | 54,264.8 | | 2.90 af/ac |
| | | | | Lakewood - | 12,041.9 af | | | | | | |
| | | | | Seven Rivers | 4,014.0 ac | -0- | 6,495.1 | 5,541.4 | 12,036.5 | | 3.00 af/ac |
| | | | | Total Irrigation | 378,006.9 af | | | | | | |
| | | | | Use | 126,002.4 ac | 14,835.6 | 126,765.4 | 217,085.8 | 358,686.8 | | 2.85 af/ac |

NEW MEXICO STATE ENGINEER
METERED PUMPAGE SUMMARY SHEET
ROSWELL BASIN - 1970

TOWNSHIP _____ RANGE _____ SECTIONS _____

| Water Right No. | Well No. | Source | Use | Well Location | Right Acre Feet | PUMPAGE - ACRE FEET | | | | Date | Remarks |
|-----------------|----------|--------|-----|--------------------|-----------------|---------------------|-----------|-----------|-----------|------|---------------------|
| | | | | | | Surface | Shallow | Artesian | Total | | |
| | | | | Irrigation | 378,006.9af | | | | | | 2.85 af/ac |
| | | | | | 126,002.4ac | 14,835.6 | 126,765.4 | 217,085.8 | 358,686.8 | | (95.5%) |
| | | | | Municipal | | | 186.1 | 15,702.4 | 15,888.5 | | (4.3%) |
| | | | | Comm. & Industrial | | | 194.0 | 722.3 | 916.3 | | (0.2 %) |
| | | | | Total | | 14,835.6 | 127,145.5 | 233,510.5 | 375,491.6 | | |
| | | | | | | | | | | | |
| | | | | Irrigation-Public | 5,270 ac. | 9,676.5 | 3,490.2 | | 13,166.7 | | |
| | | | | Carriage Loss | | 967.6 | | | 967.6 | | 2.68 af/ac |
| | | | | Irrigation-Drain | 1,700 | 3,929.5 | | | 3,929.5 | | 2.31 af/ac |
| | | | | | | | | | | | |
| | | | | Irrigation | 132,972.4 | 29,409.2 | 130,255.6 | 217,085.8 | 376,750.6 | | 2.83 af/ac (95.73%) |
| | | | | Municipal | | | 186.1 | 15,702.4 | 15,888.5 | | (4.04%) |
| | | | | Comm. & Industrial | | | 194.0 | 722.3 | 916.3 | | (0.23%) |
| | | | | Total Use | | 29,409.2 | 130,635.7 | 233,510.5 | 393,555.4 | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

1970 METERED USE
(IRRIGATION)

NORTHERN EXTENSION
21,999.2 AC/FT
2.16 AC. FT./AC.

ROSWELL -
EAST GRAND PLAINS
99,798.4 AC. FT
2.76 AC. FT./AC.

DEXTER - HAGERMAN
109,695.4 AC.-FT.
3.08 AC. FT./AC.

UPPER FELIX
1,808.1 AC. FT.
2.38 AC. FT./AC

COTTONWOOD
59,084.4 AC. FT.
2.88 AC. FT./AC.

ARTESIA
54,264.8 AC. FT.
2.90 AC. FT./AC.

LAKWOOD - SEVEN RIVERS
12,036.5 AC. FT.
3.00 AC. FT./AC.

BASIN WIDE
346,114.3 AC. FT.
2.85 AC. FT./AC.


FINANCIAL STATEMENTS

STATE OF NEW MEXICO
 Operating Budget
 for the
 Roswell Basin Watermaster
 Glenn W. Brim, Watermaster

Estimated Expenditures for Fiscal Year Ending June 30, 1971

| | <u>Amount</u> | <u>Total</u> |
|-------------------------------------|---------------|---------------|
| Salaries: | | |
| Watermaster | \$7860.00 | |
| Assistant | 4640.00 | |
| Assistant | 4440.00 | |
| Clerk-Secretary | 6900.00 | |
| Temporary | 1400.00 | |
| | | \$25,240.00 |
| | | |
| Group Insurance - State's Share | 550.00 | |
| Retirement | 1262.00 | |
| F.I.C.A. | 1262.00 | |
| Workmen's Compensation | 88.00 | |
| | | 3,162.00 |
| | | |
| Mileage and Fares | 6400.00 | |
| Per Diem | 1200.00 | |
| | | 7,600.00 |
| | | |
| Maintenance Service | 100.00 | |
| Office Supplies | 110.00 | |
| Miscellaneous Supplies, Tools, etc. | 250.00 | |
| | | 460.00 |
| | | |
| Services to Other Agencies | 202.00 | |
| Communications | 450.00 | |
| Rent | 1200.00 | |
| | | 1,852.00 |
| | | |
| Capital Outlay - Equipment | 200.00 | |
| | | <u>200.00</u> |
| | Total | \$38,514.00 |

It is anticipated that the individual line items will vary but that the total expenditure will not exceed \$38,500.00.


 Fred H. Hennighausen
 District II Supervisor
 May 5, 1970

ROSWELL BASIN WATERMASTER

ITEMIZED EXPENDITURES

| | 1970 | | | | | | | | | | | Totals | | | |
|----------------------------|-----------|---------|-----------|---------|------------|----------|--------------|-----------|--|--|--|--------|--|--|--|
| | July | August | September | October | November | December | Last Half 70 | Year 1970 | | | | | | | |
| Salaries | | | | | | | | | | | | | | | |
| Watermaster | \$660.00 | 690.00 | 690.00 | 690.00 | 690.00 | 690.00 | 4110.00 | 7710.00 | | | | | | | |
| Assistant Watermaster (AH) | 400.00 | 440.00 | 440.00 | 525.32 | -0- | -0- | 1805.32 | 3950.32 | | | | | | | |
| Assistant Watermaster (RM) | 400.00 | 400.00 | 400.00 | 400.00 | 400.00 | 4.61 | 2004.61 | 2004.61 | | | | | | | |
| Secretary | 575.00 | 575.00 | 575.00 | 575.00 | 575.00 | 575.00 | 3450.00 | 5175.00 | | | | | | | |
| Other | 431.36 | 53.50 | | | (CM)440.00 | 165.00 | 1089.86 | 2394.30 | | | | | | | |
| Insurance | | | | | | | | | | | | | | | |
| State Share | 21.10 | 33.07 | 36.52 | 36.52 | 23.94 | 18.26 | 169.41 | 230.78 | | | | | | | |
| Social Security | 104.59 | 103.61 | 101.04 | 105.14 | 101.04 | 68.86 | 584.28 | 1005.46 | | | | | | | |
| Retirement | 108.95 | 107.94 | 105.26 | 109.53 | 105.26 | 71.74 | 608.68 | 1047.44 | | | | | | | |
| Mileage | 821.40 | 759.60 | 399.59 | 307.70 | 272.50 | 170.10 | 2730.89 | 5398.49 | | | | | | | |
| Per Diem | 20.00 | 182.50 | 90.00 | 52.50 | 37.50 | 47.50 | 430.00 | 917.50 | | | | | | | |
| Communications | 33.33 | 66.88 | 37.31 | 34.25 | 34.13 | 33.73 | 239.63 | 448.02 | | | | | | | |
| Capitol Outlay | | | | | | | | | | | | | | | |
| Rent | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 100.00 | 600.00 | 1200.00 | | | | | | | |
| Maint., Fixt., Equip. | | | | | | | | | | | | | | | |
| Supplies | | 27.30 | | 21.90 | | | 49.20 | 49.60 | | | | | | | |
| TOTALS | \$3675.73 | 3539.40 | 2974.72 | 2957.86 | 2779.37 | 1944.80 | 17,871.88 | 31,531.52 | | | | | | | |

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SUMMARY AND RECOMMENDATIONS

SUMMARY AND RECOMMENDATIONS

Generally, operations of the Watermaster Office progressed satisfactorily during the year. Meter inoperation continued to be somewhat of a problem but improvements have been made. Office records continued to be updated.

Metered use of water during 1970 resulted in an average diversion of 2.85 acre feet per equivalent water right acre which was more than that diverted in 1969 (2.69) and 68 (2.53) but was the same as that diverted in 1967. Rainfall during 1970 in the irrigated area was considerably below the long time average.

It appears very obvious that a winter maintenance program of servicing meters would drastically reduce the number of inoperative meters found during the irrigation season. It is the recommendation of the Watermaster that such a program receive a high priority in the work schedule of the Pecos Valley Artesian Conservancy District.

Multiple use of a single meter has caused problems among the individuals using a single well as well as problems in accounting the uses from such wells. It is the belief of the Watermaster that the only practical solution to this problem is the installation of additional meters on such wells and the Watermaster recommends that such a policy be initiated by the Pecos Valley Artesian Conservancy District.

The calendar year end method of computing the years water use and remaining water available has caused considerable problems in completing

and making available the necessary information required by the water users as well as causing duplication of work when individuals require the information before tabulations are completed. Many water users require the information usually during December or shortly after the first of the year in order to obtain financing, work out tenant arrangements or otherwise plan the next years crop. Inasmuch as almost all irrigation for the normal cropping season is completed by the last of October of each year it is the recommendation of the Watermaster that the accounting period be changed accordingly. Records could then be prepared in time to make the information available for water users in December and January.