

WATERMASTER REPORT  
PECOS VALLEY SURFACE WATER DISTRICT  
1991

ROBERT C. TURNER  
WATERMASTER



**STATE OF NEW MEXICO**

**STATE ENGINEER OFFICE**

**ELUID MARTINEZ**  
STATE ENGINEER

**ROSWELL**

**DISTRICT II**  
1900 West Second St.  
Roswell, New Mexico 88201  
(505) 622-6521

May 19, 1992

Mr. Eluid Martinez  
State Engineer of New Mexico  
Santa Fe, New Mexico

Dear Mr. Martinez:

I herewith transmit to you, in accordance with New Mexico Statutes Annotated Section 72-3-5 (1985 Repl. pamph.), the Annual Report of the Watermaster of the Pecos Valley Surface Water District for the Calendar year 1991. This report covers activities of the watermaster and his assistants during the irrigation season.

Respectfully submitted,

Robert C. Turner, Watermaster  
Pecos Valley Surface Water District

RCT/amg

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MAP OF THE DISTRICT

## INTRODUCTION

The Pecos Valley Surface Water District was declared by Order of the State Engineer on July 1, 1952. On January 20, 1956 the State Engineer issued an Order extending the District and on May 11, 1959 and June 4, 1963, orders were issued reducing the District, for economical and satisfactory operation, to its present boundaries. The District now includes the Pecos River and most of the tributaries from a line south of Santa Rosa dividing Sections 19 and 30 in Township 3 North, Range 22 East, N.M.P.M., south to the New Mexico-Texas State line.

The waters of the District are administered in conformance with permits and licenses issued by the State Engineer and adjudication by the Courts, including the following cases:

United States v. Hope Community Ditch et al., No. 712 Equity, United States District Court for the District of New Mexico (1933).

Livingston v. Neeson et al., No. 5144, Fifth Judicial District in and for Eddy County, New Mexico (1931).

United States v. Harkey et al., No. 1610 Equity, United States District Court for the District of New Mexico.

Harkey v. Parkhurst et al., No. 3258, District Court for Eddy County, New Mexico (1920).

United States v. Judkins et al., No. 112, Fifth Judicial District for the Territory of New Mexico (1912).

The waters in the District are administered by the watermaster, appointed by the State Engineer, who maintains offices in the District II office of the State Engineer at 1900 West Second Street in Roswell.

## GENERAL

Robert C. Turner served as Pecos River Watermaster for the year 1991. Angela M. Gutierrez served as Secretary-Computer.

The operation of the Pecos Valley Surface Water District is financed by assessment of the water users in the District. The rate of assessment is determined by dividing the total approved budget for the next fiscal year by the total acre feet of water diverted in the past calendar year. Each user is then assessed his proportionate share based on the quantity of water he diverted.

The field work of the Watermaster consisted generally of apportioning water among the users, servicing automatic water-stage recorders, making discharge measurements, and making field inspections for water use, supply and unauthorized diversions and waste.

Office work consisted of computing and checking current meter measurement notes and discharge records; computing, tabulating and distributing records of drain water supply and use; computing and compiling assessment rolls; compiling reports, operating budgets and records of water analysis; routine correspondence; and conferences with water users.

Personnel of the District II office of the State Engineer assisted in analyzing water samples, servicing water-stage recorders, and conducting various field investigations. District II personnel also assisted with some of the necessary office work.

As in the past, personnel of the Water Resources Branch of the United States Geological Survey were most cooperative, especially U.S.G.S. personnel within the Carlsbad office. They furnished equipment, records, and technical information which were of great value in the apportionment of water.

The Board of Directors and personnel of the Carlsbad Irrigation District and the Ft. Sumner Irrigation District extended full cooperation to the Watermaster.

PECOS RIVER PUMPERS  
ASSOCIATION DRAIN POOL

The Pecos River Pumpers Association drain pool (common fund of drain rights) consists of farm owners in the Dexter-Hagerman area who own private water and was formed in 1956 when the quantity of flow in individual drain lines became insufficient for efficient use. The drain pool comes under the Watermaster's jurisdiction as the river is used as a carrier. All of the drain lines are equipped with Parshall flumes or other approved measuring devices, and all of the water diverted is metered and recorded. The flow available for use is considered to be the combined flow of the drains at any time, less ten percent loss in transit. The owners of the drain pool designate scheduled pumping times for the various users so that several can be diverting a total quantity equal to, or less than the flow available.

In 1991, approximately 4.309 acre feet of private drain water was contributed to the Pecos River, and 1.767.6 acre feet of this was diverted by the users from the Pecos River Pumpers Association drain pool. In 1990, approximately 2.885 acre feet of private water was contributed and 1.990.3 acre feet diverted.

A tabulation of the drain measurements is contained in Table 8, Page 34 of this report.



## SPECIAL INVESTIGATIONS

Inspections were made each month of land, irrigation ditches, and diversion points in that reach of the Pecos River between the town of Santa Rosa and the East and West Puerto de Luna Community Ditches. This area was removed from the Pecos Valley Surface Water District in June, 1963, and the inspections were to determine if any new diversions or other changes were being made. No new diversions or changes were noted during the year.

Inspections were made of the Harroun Canal Sluiceways (no flow was noted) and staff gage elevations at the Harroun reservoir were recorded on a monthly basis during the Watermaster's regularly scheduled trips to the Carlsbad area.

## MEETINGS AND OTHER ACTIVITIES

No pipeline crossings were witnessed in 1991. Many unscheduled meetings were held in 1991. These meetings were generally held with water users, in the field. Discussions dealt mainly with water usage, recorder and flume operation and general ditch, flume and recorder maintenance.

ADDENDUM TO FOLLOW

## PRECIPITATION AND EVAPORATION

The normal or average precipitation at United States Weather Bureau Stations in the Pecos Valley in New Mexico ranges from 12.05 inches at Bitter Lake Wildlife Refuge near Roswell to 16.11 inches at the Pecos Ranger Station near Pecos. During 1991, the annual precipitation as recorded at three selected United States Weather Bureau Stations in the Pecos Valley ranged from 5.43 inches above normal at the Pecos Ranger Station near Pecos to 7.69 inches above normal at Bitter Lake Wildlife Refuge near Roswell.

Monthly precipitation and evaporation recorded during 1991 at the selected weather bureau stations are tabulated in Tables 1 and 2 following herewith. The 1991 data were obtained from Climatological Reports published by the United States Weather Bureau and annual averages and departures from averages were computed from the Climatological Reports and data from State Engineer Reports Numbers 5 and 6.

Table 1  
Precipitation  
SUMNER LAKE  
BITTER LAKE  
WILDLIFE REFUGE

| 1991                   | BITTER LAKE<br>WILDLIFE REFUGE | INCHES        | SUMNER LAKE   | INCHES | PECOS<br>RANGER STATION | INCHES | BITTER LAKE<br>WILDLIFE REFUGE | INCHES | SUMNER LAKE   | INCHES |
|------------------------|--------------------------------|---------------|---------------|--------|-------------------------|--------|--------------------------------|--------|---------------|--------|
| January                | .16                            |               | .36           |        | .24                     |        | --                             |        | --            |        |
| February               | .42                            |               | .00           |        | .10                     |        | --                             |        | --            |        |
| March                  | .09                            | T             |               |        | .95                     |        | --                             |        | --            |        |
| April                  | .01                            | T             |               |        | .00                     |        | --                             |        | 13.73         | B      |
| May                    | .49                            |               | 2.01          |        | 2.35                    |        | 14.83                          | B      | 16.39         |        |
| June                   | .22                            |               | .27           |        | 2.75                    |        | 15.70                          | B      | 15.51         |        |
| July                   | 7.75                           |               | 6.12          | M      | 5.96                    |        | 12.11                          | B      | 11.38         | B      |
| August                 | 1.99                           |               | 4.65          |        | 5.30                    |        | 10.28                          | B      | 10.14         | B      |
| September              | 3.74                           |               | 4.16          |        | 3.30                    |        | 7.37                           | B      | 8.22          |        |
| October                | .19                            |               | .21           |        | .16                     |        | 7.16                           | B      | 7.81          | B      |
| November               | 1.40                           |               | 1.42          |        | 1.20                    |        | --                             |        | --            |        |
| December               | 2.53                           |               | 1.86          |        | 1.60                    |        | --                             |        | --            |        |
|                        | <b>TOTAL</b>                   | <b>18.99</b>  | <b>21.06</b>  |        | <b>23.91</b>            |        | <b>67.45</b>                   |        | <b>83.18</b>  |        |
|                        | <b>AVERAGE</b>                 | <b>12.05</b>  | <b>12.98</b>  |        | <b>16.11</b>            |        | <b>93.53</b>                   |        | <b>109.21</b> |        |
|                        |                                | (1950 - 1985) | (1939 - 1985) |        | (1923 - 1985)           |        | (1951 - 1985)                  |        | (1939 - 1985) |        |
| Departure<br>from Avg. | 7.69                           | --            | --            |        | 5.43                    |        | I                              |        | I             |        |

Note: Information from Monthly Climatological Reports

- T - indicates trace
- indicates no record
- I - indicates incomplete
- B - indicates adjusted to a full month

Table 2  
Evaporation

| BITTER LAKE<br>WILDLIFE REFUGE | INCHES        | PECOS<br>RANGER STATION | INCHES | BITTER LAKE<br>WILDLIFE REFUGE | INCHES        | SUMNER LAKE | INCHES |
|--------------------------------|---------------|-------------------------|--------|--------------------------------|---------------|-------------|--------|
|                                | --            |                         |        |                                | --            |             | --     |
|                                | --            |                         |        |                                | --            |             | --     |
|                                | --            |                         |        |                                | --            |             | --     |
|                                | --            |                         |        |                                | --            |             | 13.73  |
|                                | 14.83         | B                       |        |                                | 16.39         |             |        |
|                                | 15.70         | B                       |        |                                | 15.51         |             |        |
|                                | 12.11         | B                       |        |                                | 11.38         | B           |        |
|                                | 10.28         | B                       |        |                                | 10.14         | B           |        |
|                                | 7.37          | B                       |        |                                | 8.22          |             |        |
|                                | 7.16          | B                       |        |                                | 7.81          | B           |        |
|                                | --            |                         |        |                                | --            |             | --     |
|                                | <b>67.45</b>  |                         |        |                                | <b>83.18</b>  |             |        |
|                                | <b>93.53</b>  |                         |        |                                | <b>109.21</b> |             |        |
|                                | (1951 - 1985) |                         |        |                                | (1939 - 1985) |             |        |
|                                | I             |                         |        |                                | I             |             |        |

## SUPPLY AND STORAGE

Data on daily gage heights, contents of reservoirs and flow of the Pecos River at various points are collected and tabulated by the United States Geological Survey, Water Resources Branch, in cooperation with the New Mexico State Engineer and other state, local and federal agencies. These data are published annually.

The recorded runoff in the upper Pecos River basin above Santa Rosa was 106,300 acre feet for 1991, which is 142 percent of the average (74,620 acre feet for the current 20-year period). The peak flow at the Santa Rosa gage was 1,900 c.f.s. recorded on September 14, 1991. The flows at Santa Rosa gage are regulated by Santa Rosa Dam since April 1980.

The recorded runoff in the lower part of the Hondo River watershed, a major tributary of the Pecos River, was 17,460 acre feet in 1991. This runoff was recorded at Rio Hondo at Roswell. The gage at Rio Hondo at Roswell recorded the maximum daily flow of 275 c.f.s. on July 18, 1991.

Stream flow in the lower Pecos River Basin (in New Mexico) as recorded at the Artesia gage was 193,800 acre feet or 153 percent of the average (126,800 acre feet for the current 20-year period). The amount recorded at this station in 1990 was 83,530 acre feet. Peak flow for 1991 at the Artesia gage was 4,060 c.f.s. and occurred on July 18, 1991.

The quantities measured at the Artesia gage include releases from Sumner Reservoir made by the Carlsbad Irrigation District. Releases to Carlsbad from Sumner Lake began April 25, 1991 through May 24, 1991, then again September 10, 1991 through September 27, 1991, at varying rates of discharge.

Below Carlsbad, the flow of Black River above Malaga in 1991 was 10.250 acre feet, or 122 percent of average (8,400 acre feet for the current 20-year period). The amount recorded at this station in 1990 was 10.490 acre feet. The peak flow was 545 c.f.s. on July 25, 1991. The Carlsbad Irrigation District received the total of their decreed right of 2800 acre feet on August 18, 1991.

The flow of the Pecos River from Carlsbad to the Texas State line as measured at the Red Bluff gage was 107.300 acre feet or 149 percent of average (72,090 acre feet for the current 20-year period). Recorded at this gage in 1990 was 32,790 acre feet. The peak flow of 1,750 c.f.s. occurred on September 7, 1991.

Summaries of reservoir content and stream flow during 1991 are shown in Tables 3 and 4 following herewith.

TABLE 3 - SUMMARY OF RESERVOIR CONTENT

1991

| CONTENT IN ACRE FEET |                    |                  |                               |                       |                  |
|----------------------|--------------------|------------------|-------------------------------|-----------------------|------------------|
| Reservoir            | Reservoir capacity | 12/31/90 storage | 1991 maximum and date         | 1991 minimum and date | 12/31/91 storage |
| Santa Rosa Lake      | 447,100            | 24.610           | 98,630<br>Sept. 13            | 2,080<br>May 16       | 92,590           |
| Lake Sumner          | 101,600            | 16.130           | 56,770<br>Dec. 31             | 2,600<br>Jul. 12-13   | 56,770           |
| Brantley Lake        | 966,360            | 11.050           | 49,270<br>Sept. 22-24         | 5,940<br>Apr. 28-29   | 20,630           |
| Lake Avalon          | 4,330              | 1,610            | 3,620<br>Sept. 29 -<br>Oct. 4 | 573<br>Oct. 31        | 1,340            |
| Red Fluff            | 289,700            | 72,080           | 123,000<br>Dec. 30-31         | 50,950<br>Sept. 3     | 123,000          |



TABLE 4 - SUMMARY OF STREAM FLOW - PECOS RIVER IN NEW MEXICO AT U.S.G.S. STATIONS - 1991

| STATION   | AVERAGES                    |              |                     | 1991           |              | 1990           |              |
|---|-----------------------------|--------------|---------------------|----------------|--------------|----------------|--------------|
|   | MEAN<br>C.F.S.              | ACRE<br>FEET | CURRENT<br>20 YEARS | MEAN<br>C.F.S. | ACRE<br>FEET | MEAN<br>C.F.S. | ACRE<br>FEET |
| At Santa Rosa<br>(Sec. 3, T.8N., R.21E.)                      | 130.2<br>(1912-24, 1928-85) | 94,185       | 71,440              | 147.0          | 106,300      | 73.7           | 53,350       |
| Near Puerto de Luna<br>(Sec. 20, T.6N., R.23E.)               | 203.1<br>(1938-1955)        | 147,100      | 131,900             | 227.0          | 164,100      | 152.0          | 110,300      |
| Below Sumner Lake<br>(Sec. 2, T.4N., R.24E.)                  | 199.7<br>(1936-1985)        | 144,200      | 127,500             | 169.0          | 122,700      | 142.0          | 102,800      |
| Near Acme<br>(Sec. 14, T.9S., R.25E.)                         | 178.5<br>(1937-1985)        | 129,000      | 102,900             | 222.0          | 160,600      | 108.0          | 77,880       |
| Near Artesia<br>(Sec. 18, T.17S., R.27E.)                     | 236.7<br>(1963-1985)        | 173,900      | 121,700             | 268.0          | 193,800      | 115.0          | 83,530       |
| Near Lakewood<br>(Kaiser Channel)<br>(Sec. 5, T.19S., R.27E.) | 149.6<br>(1950-1985)        | 108,371      | -----               | 251.0          | 181,600      | 111.0          | 80,520       |
| Below Brantley Dam  |                             |              |                     | 224.0          | 162,300      | 97.8           | 70,800       |
| Below Dark Canyon at Carlsbad<br>(Sec. 6, T.22S., R.27E.)     | 128.3<br>(1936-1985)        | 44,270       | 44,190              | 94.4           | 68,310       | 15.3           | 11,090       |
| Near Malaga<br>(Sec. 19, T.24S., R.29E.)                      | 166.0<br>(1936-1985)        | 123,200      | 63,180              | 145.0          | 105,200      | 39.5           | 28,580       |
| At Red Bluff<br>(Sec. 1, T.26S., R.28E.)                      | 159.8<br>(1937-1985)        | 118,800      | 67,520              | 148.0          | 107,300      | 45.3           | 32,790       |

## QUALITY OF WATER

The Watermaster continued a program of water sampling for Chloride Analysis in 1991. Samples were obtained from the Pecos River and its tributaries in March, and again in August. These samples were analyzed by field crew personnel from the District II Office for chlorides and specific conductance and were as shown in Table 5. following:

Table 5 - PARTIAL ANALYSIS OF WATER SAMPLES  
FROM SELECTED STATIONS - 1991

| Location   | Date         | Chlorides<br>ppm | Specific<br>Conductance |
|--|--------------|------------------|-------------------------|
| Above Santa Rosa Reservoir<br>At U.S.G.S. Station<br>10.20.25.442          | 8-8          | 50               | 260                     |
| Pecos River Below<br>Santa Rosa Dam<br>9.21.11.111                         | 3-21<br>8-22 | 130<br>50        | 1030<br>250             |
| East Puerto de Luna<br>Ditch Heading<br>8.22.30.210                        | 3-21<br>8-8  | 310<br>156       | 2240<br>2600            |
| Agua Negra Creek at<br>Fuerto de Luna West<br>Ditch Heading<br>8.21.36.230 | 3-21<br>8-8  | 380<br>290       | 2840<br>2620            |
| Below Sumner Dam<br>At U.S.G.S. Station<br>4.24.2 Lot 1                    | 3-22         | 180              | 2840                    |
| Pecos River Near<br>Puerto de Luna (USGS Gage)<br>6.23.20.140              | 3-21<br>8-22 | 180<br>46        | 2580<br>520             |
| Ft. Sumner Main Canal<br>at Head<br>3.25.1.330                             | 3-20         | 190              | 2820                    |
| Ft. Sumner Middle<br>Drain at Mouth<br>2.26.15.210                         | 3-20<br>8-7  | 220<br>450       | 2530<br>2750            |
| Ft. Sumner Lower Drain<br>at Mouth<br>2.26.36.310                          | 3-20<br>8-7  | 180<br>90        | 2640<br>1520            |
| Pecos River at<br>Atkins Pump<br>4.25.36.130                               | 3-4          | 850              | 3530                    |
| Portales Bridge<br>8.25.35.300   | 3-5<br>8-20  | 794<br>630       | 4890<br>3830            |
| Bitter Creek Drain<br>At Weir<br>10.25.28.321                              | 8-20         | 2840             | 11400                   |
| Tatum Bridge (U.S. 380)<br>10.25.34.332                                    | 3-5<br>8-20  | 3960<br>910      | 12840<br>4460           |

TABLE 5 (CON'T) - PARTIAL ANALYSIS OF WATER SAMPLES  
FROM SELECTED STATIONS - 1991

| Location   | Date         | Chlorides<br>ppm | Specific<br>Conductance |
|--|--------------|------------------|-------------------------|
| Hondo River at Pack/<br>Brown Bros. Diversion<br>12.23.5.214 | 3-22<br>8-5  | 120<br>110       | 1270<br>1080            |
| Dexter Bridge<br>13.26.10.113                                | 3-26<br>8-21 | 2650<br>814      | 9160<br>3790            |
| Hagerman Bridge<br>14.27.7.133                               | 3-28<br>8-21 | 2600<br>790      | 8470<br>4070            |
| Lake Arthur Bridge<br>16.26.27.231                           | 3-5<br>8-21  | 2150<br>942      | 7350<br>4040            |
| Pecos River Near<br>Karr Pumps<br>16.26.35.222               | 3-15         | 3000             | 9760                    |
| Artesia Bridge<br>17.27.13.110                               | 3-15<br>8-21 | 2830<br>1000     | 9140<br>4040            |
| Carlsbad Below<br>Tansil Dam<br>22.27.6.232                  | 3-14<br>8-28 | 420<br>620       | 2110<br>3320            |
| At Harroun Canal<br>Diversion<br>23.28.11.224                | 3-13<br>8-28 | 1180<br>1280     | 5210<br>5310            |
| Blue Springs at Blue<br>Springs Ranch Flume<br>24.26.27.320  | 3-14<br>8-23 | 33<br>32         | 1450<br>1410            |
| Black River at Black<br>River Canal Heading<br>24.27.12.410  | 3-15<br>8-28 | 100<br>410       | 1760<br>2660            |
| Pierce Canyon Crossing<br>24.29.27.311                       | 3-14<br>8-28 | 6430<br>5410     | 17610<br>15860          |
| Delaware River at<br>U.S.G.S. Station<br>26.28.23.400        | 3-13<br>8-28 | 220<br>270       | 3070<br>2850            |
| Pecos River Near<br>State Line<br>26.29.23.423               | 3-13<br>8-28 | 4220<br>4210     | 12820<br>13220          |

## WATER DIVERSION

The waters of the Pecos Valley Surface Water District are administered in accordance with licenses and court decrees as set forth in the introduction of this report. In these licenses and decrees the annual duties, or diversions per irrigated acre, vary from 2.0 to 4.0 acre feet. By reaches, the various general annual duties set out in the decrees are 2.0 acre feet per acre from the Puerto de Luna area to Sumner Lake; 2.5 acre feet per acre from Sumner Lake to the mouth of Salt creek; and 3.0 acre feet per acre (plus conveyance loss) from the mouth of Salt Creek to the Texas State line. Some individual rights in the reach below Carlsbad have decreed annual duties of 3.75 and 4.00 acre feet per acre.

At the end of the 1991 irrigation season there were 74 recording measuring devices serviced by the Watermaster in the Pecos Valley Surface Water District. This total includes four measuring devices of the United States Geological Survey in the Ft. Sumner area, and one on Black River near Malaga. No diversion of surface water was observed at those river and tributary diversion points in the district that were not equipped with recording measuring devices.

The water users under the Puerto de Luna community ditches below Santa Rosa, which divert from the Pecos River and tributaries, had a substantial flow all year and were able to divert flow to more than meet their requirements; that in excess of requirements was returned to the river through sluice-channels.

The Ft. Sumner Irrigation District had a very good supply of water available for project lands most of the irrigation season. The diversion right of the District during the regular irrigation season is the first 100 c.f.s. occurring at the Puerto de Luna gage. The average flow available during the entire irrigation season, March 1 to October 31, was 96.51 c.f.s. The Irrigation District also has a right to divert for two periods, not in the regular irrigation season and not to exceed eight days each, during the months of November through February. The District did not exercise this right in 1991.

The water users in that reach of the Pecos River from Roswell to Artesia (Pecos River Pumpers) had a good supply of water available when the Carlsbad Irrigation District made its releases from Sumner reservoir starting April 25 through May 24 and again September 10 through September 27, 1991.

The Carlsbad Irrigation District diverted 78,600 acre feet from the Pecos River in 1991, as compared with 59,400 acre feet diverted in 1990 and 94,580 in 1989. Some of the water-right acreage in this District also receives water from individually owned supplemental wells, and the District also has a decreed right of 2,900 acre feet from Black River.

A total of 1,902.2 acre feet was delivered to Willow Lake in 1991. Willow Lake contained 2,143.0 acre feet on December 19, 1991, and 2,257.0 acre feet on December 18, 1990.

City of Carlsbad, Harroun Farms, south of Carlsbad, diverted 6,594.2 acre feet in 1991, compared with 6,799.2 acre feet in 1990.

In 1991, a total of 180,435.3 acre feet of public surface water was diverted under the jurisdiction of the Pecos River Watermaster, of which 167,741.7 acre feet was diverted for irrigation purposes, 1,812.2 acre feet was diverted for irrigation storage and recreation, and 10,881.4 acre feet was available for municipal and commercial purposes. The municipal and commercial use included the water rights of the City of Carlsbad and Mississippi Chemical Corporation below Carlsbad. In addition, 1,767.6 acre feet of private water (Pecos River Drain Pool) and 616.6 acre feet of supplemental ground water was diverted under the Watermaster's jurisdiction.

The Red Bluff Water Power Control District, under Permit No. 3254 approved by the State Engineer on March 30, 1971, may divert Pecos River water in New Mexico for salinity alleviation of water entering Red Bluff reservoir and for industrial use in Texas. This permit was approved subject to an agreement signed by the Pecos River Commissioners for Texas and New Mexico and with the understanding that

water measured at the existing United States Geological Survey gage, "Pecos River at Red Bluff, New Mexico," which is upstream from the Red Bluff Water Power Control District diversion, shall be considered and accounted for as water delivered at the New Mexico-Texas State line, notwithstanding the fact that the water under Permit No. 3254 will be diverted upstream from the New Mexico-Texas State line. The Red Bluff Water Power Control District submitted the usage in gallons on a monthly basis which was 0 gallons in 1991.

A tabulation of water diverted within the District above Red Bluff gage during 1991 (Table 6) and a summation of annual water diverted, by various reaches, from 1956 through 1991 (Table 7) follows:



TABLE 6 - TABULATION OF WATER DIVERTED  
 PECOS VALLEY SURFACE WATER DISTRICT  
 1991

| <u>DIVERSION UNIT AND SOURCE</u>        | <u>ACRES OF WATER RIGHT</u> |                | <u>ACRE FEET DIVERTED(a)</u> |                | <u>ACRE FEET/ACRE(b)</u> |
|---|-----------------------------|----------------|------------------------------|----------------|--------------------------|
|   | <u>PUBLIC</u>               | <u>PRIVATE</u> | <u>PUBLIC</u>                | <u>PRIVATE</u> | <u>WELL(h)</u>           |
| <u>PECOS RIVER ABOVE SUMNER DAM</u>     |                             |                |                              |                |                          |
| East Puerto de Luna Ditch               | 351.50                      |                | 5,969.0                      |                | 17.0                     |
| West Puerto de Luna Ditch               | 301.00                      |                | 4,443.1                      |                | 14.8                     |
| TOTAL                                   | 652.50                      |                | 10,412.1                     |                |                          |
| <u>PECOS RIVER FROM SUMNER DAM</u>      |                             |                |                              |                |                          |
| <u>TO THE MOUTH OF SALT CREEK</u>       |                             |                |                              |                |                          |
| Ft. Sumner Irrigation District          | 6,500.00                    |                | 39,570.0                     |                | -0-                      |
| Atkins, Jackie                          | 174.10                      |                | -0-                          |                |                          |
| TOTAL                                   | 6,674.10                    |                | 39,570.0                     |                |                          |
| <u>PECOS RIVER FROM THE MOUTH OF</u>    |                             |                |                              |                |                          |
| <u>SALT CREEK TO MCMILLAN RESERVOIR</u> |                             |                |                              |                |                          |
| <u>BERRENDO CREEK</u>                   |                             |                |                              |                |                          |
| Bergshneider, Leo E.                    | 145.02                      |                |                              |                | -0-                      |
| Blackwell, E. Clyde                     | 38.30                       |                |                              |                | -0-                      |
| Brownings, M.A.                         | 127.06                      |                |                              |                | 35.6                     |
| Jennings, Emmitt M.                     | 188.00                      |                |                              |                | 95.1                     |
| <u>RIO HONDO</u>                        |                             |                |                              |                |                          |
| Hagerman Canal Co.(c,e)                 | 9,026.00                    |                | 17,451.2                     |                | 1.9                      |
| White, J.P.(e)                          | 320.00                      |                |                              |                | -0-                      |

TABLE 6 - TABULATION OF WATER DIVERTED  
 PECOS VALLEY SURFACE WATER DISTRICT  
 1991

| <u>DIVERSION UNIT AND SOURCE</u>   | <u>ACRES OF WATER RIGHT</u> |                | <u>ACRE FEET DIVERTED(a)</u> |                |                | <u>ACRE FEET/ACRE(b)</u> |
|------------------------------------|-----------------------------|----------------|------------------------------|----------------|----------------|--------------------------|
|                                    | <u>PUBLIC</u>               | <u>PRIVATE</u> | <u>PUBLIC</u>                | <u>PRIVATE</u> | <u>WELL(h)</u> | <u>PUBLIC</u>            |
| <u>ZUBER DRAW</u>                  |                             |                |                              |                |                |                          |
| Grassie, James I.                  | 284.00                      |                | -0-                          |                | 842.6          |                          |
| <u>PECOS RIVER</u>                 |                             |                |                              |                |                |                          |
| Angell, Darr(Menoud)(c,d)          | 80.00                       |                | 202.6                        | -0-            |                | 2.5                      |
| Angell, Darr                       |                             |                |                              |                |                |                          |
| Lake Arthur Farms(c,d)             | 303.31                      |                | 488.9                        | 5.0            |                | 1.6                      |
| Angell, Lewis(c,d)                 | 106.66                      | 155.30         | 251.3                        | 70.6           | 78.9           | 2.4                      |
| Barbe, Madeline                    | 80.00                       |                | 178.7                        | -0-            |                | 2.2                      |
| Choat, Roy(c,d)                    | 405.00                      | 54.40          | 602.8                        | 136.7          |                | 1.5                      |
| Derrick, R.S.                      |                             | 250.00         |                              | 60.1           |                |                          |
| Durand, Joe(d)                     |                             | 31.70          |                              | -0-            |                |                          |
| Game & Fish(Bureau of Recl.)(e)    | 429.80                      |                | -0-                          |                | -0-            |                          |
| Gomez, Gilbert                     | 174.00                      |                | 393.2                        | 20.0           |                | 2.3                      |
| Langenegger, Jim(c,d)              | 257.76                      |                | 502.7                        | 89.7           |                | 2.0                      |
| Lankford, Royce                    | 217.60                      |                | 692.2                        | 79.6           |                | 3.2                      |
| Lathrop, George Est.               | 13.33                       |                | -0-                          | -0-            |                |                          |
| Lincoln County Land & Cattle       |                             |                |                              |                |                |                          |
| Bramblett(d,e)                     | 111.40                      |                | 358.6                        | 297.3          |                | 3.2                      |
| Buffalo Valley & Parker Upper(c,d) | 886.20                      |                | 1778.2                       | 208.7          |                | 2.0                      |
| Miles, H.L. Est.(d)                |                             | 255.30         | .2                           | 226.3          |                |                          |
| Miles, Leroy(d)                    |                             | 88.60          | -0-                          | 23.0           |                |                          |
| Morris, Brad                       | 130.00                      |                | -0-                          | -0-            |                |                          |
| Pollard, H.B.                      | 60.00                       |                | 123.0                        | 22.6           |                | 2.1                      |
| Rhodes, M.L.(c,d)                  | 88.40                       | 123.00         | 128.5                        | 116.9          |                | 1.5                      |
| Rhodes, Wanda Haley(c,d)           | 29.35                       | 114.95         | 14.3                         | 233.6          |                | .5                       |
| Utterback, Robert(c,d)             | 224.66                      | 40.00          | 676.3                        | 135.0          |                | 3.0                      |
| Wiggins, Jackson H. Est.(c)        | 92.65                       |                | 276.4                        | 42.5           |                | 3.0                      |

TABLE 6 - TABULATION OF WATER DIVERTED  
 PECOS VALLEY SURFACE WATER DISTRICT  
 1991

| <u>DIVERSION UNIT AND SOURCE</u>     | <u>ACRES OF WATER RIGHT</u> |                  | <u>ACRE FEET DIVERTED(a)</u> |                | <u>ACRE FEET/ACRE(b)</u> |
|--------------------------------------|-----------------------------|------------------|------------------------------|----------------|--------------------------|
|                                      | <u>PUBLIC</u>               | <u>PRIVATE</u>   | <u>PUBLIC</u>                | <u>PRIVATE</u> |                          |
| <u>COTTONWOOD CREEK</u>              |                             |                  |                              |                |                          |
| Bogle, Bill                          |                             | 280.00           |                              | -0-            |                          |
| <u>RIO FELIX</u>                     |                             |                  |                              |                |                          |
| Bogle, Hal                           | 172.00                      |                  | -0-                          | -0-            |                          |
| Glass, David R.                      | 120.00                      |                  | -0-                          | 269.6          |                          |
| Greer, E.H.                          | 196.00                      |                  | -0-                          | -0-            |                          |
| Smith, Peggy L. (e)                  | 77.00                       |                  |                              |                |                          |
| TOTAL                                | 14,383.50                   | 1,480.35         | 24,119.10                    | 1,767.6        | 1,321.8                  |
| <u>PECOS RIVER FROM MCMILLAN</u>     |                             |                  |                              |                |                          |
| <u>RESERVOIR TO TEXAS STATE LINE</u> |                             |                  |                              |                |                          |
| <u>Irrigation</u>                    |                             |                  |                              |                |                          |
| Carlsbad Irrigation District(f)      | 25,055.00                   |                  | 78,600.0                     |                |                          |
| City of Carlsbad Golf Course         |                             |                  | 491.7                        |                | 6.4                      |
| North & South Pumps                  | 77.30                       |                  | 12.5                         |                | 1.2                      |
| Conquistador Council                 | 10.60                       |                  | 1.0                          |                | .5                       |
| Hines, E.J.                          | 2.00                        |                  | 645.5                        |                | 1.4                      |
| McDonald, Clarence                   | 473.00                      |                  |                              |                |                          |
| Sibley, William C.                   | 99.30                       | sup. underground |                              | 232.5          | 3.8                      |
| City of Carlsbad-Harroun Canal       | 1,918.70                    |                  | 7,338.8                      |                |                          |
| TOTAL                                | 27,635.90                   |                  | 87,089.5                     | 232.5          |                          |

TABLE 6 - TABULATION OF WATER DIVERTED  
 PECOS VALLEY SURFACE WATER DISTRICT  
 1991

| <u>DIVERSION UNIT AND SOURCE</u>   | <u>ACRES OF WATER RIGHT</u> |                | <u>ACRE FEET DIVERTED(a)</u> |                | <u>ACRE FEET/ACRE(b)</u> |
|------------------------------------|-----------------------------|----------------|------------------------------|----------------|--------------------------|
|                                    | <u>PUBLIC</u>               | <u>PRIVATE</u> | <u>PUBLIC</u>                | <u>PRIVATE</u> | <u>WELL(h)</u>           |
| <u>Commercial</u>                  |                             |                |                              |                |                          |
| Mississippi Chem. Corp.            | Comm.                       |                | 107.7                        |                |                          |
| City of Carlsbad                   | Comm.                       |                | 10,400.1                     |                |                          |
| Tansil Dam                         | Comm.                       |                | <u>373.6</u>                 |                |                          |
| Bataan Rec. Lake                   | Comm.                       |                | 10,881.4                     |                |                          |
| TOTAL                              |                             |                |                              |                |                          |
| <u>Black River</u>                 |                             |                |                              |                |                          |
| Blue Springs Ranch                 |                             |                | 3,586.5                      |                |                          |
| Carlsbad Irrigation Dist. (E)      |                             |                | 2,900.0                      |                |                          |
| Smith, Dean Est.                   | 20.00                       |                | 64.5                         |                |                          |
| Willow Lake (Storage & Irrigation) | <u>573.71</u>               |                | <u>1,812.2</u>               |                |                          |
| TOTAL                              | 1,669.91                    |                | 8,363.2                      |                |                          |
| <u>IRRIGATION TOTAL</u>            | 51,015.91                   | 1,480.35       | 169,553.9                    | 1,767.6        | 1,554.3                  |
| <u>COMMERCIAL TOTALS</u>           |                             |                | 10,881.4                     |                |                          |
| <u>GRAND TOTALS</u>                |                             |                | 180,435.3                    |                |                          |

EXPLANATIONS:

- a - Quantities diverted are inclusive of permitted carriage losses. In some cases, as at Puerto de Luna, quantities diverted include water returned, but not measured, to the river.
- b - Water per acre does not reflect private water used.
- c - Private water also used to supplement river right.
- d - Pecos River Pumpers Association drain pool members; acreage irrigated is included in both public and claimed private-right figures.
- e - Part of these rights, totaling 522.70 acres, in addition to the 9,026.00 under the Hagerman Canal are combined with decreed ground-water rights and are duplicated in the Roswell Basin Watermaster records.
- f - The acre-feet/acre figure includes both Pecos River and Black River diversions.
- g - Acreage under this right is part of the 25,055 acres of the C.I.D. shown as irrigated from Pecos River.
- h - Well water is supplemental to basic surface right.

TABLE 7  
SUMMATION OF ANNUAL WATER DIVERTED  
PECOS VALLEY SURFACE WATER DISTRICT

| AREA OF DIVERSION        | ACRES (1)    | YEAR OF DIVERSION |              |              |              |              | 5 YEAR<br>AVERAGE |
|--------------------------|--------------|-------------------|--------------|--------------|--------------|--------------|-------------------|
|                          |              | 1956              | 1957         | 1958         | 1959         | 1960         |                   |
| ABOVE ALAMOGORDO DAM (2) | 819          | I                 | I            | I            | 1,415        | 1,046        | 1,231             |
| FT. SUMNER IRR. DIST.    | 5,400        | 35,647            | 31,190       | 32,251       | 39,975       | 35,835       | 34,980            |
| ALAMOGORDO DAM TO ACME   | 174          | -0-               | -0-          | 348          | 55           | 50           | 151               |
| ACME TO AVALON (3)       |              |                   |              |              |              |              |                   |
| BERRENDO CREEK           | 452          | -0-               | 253          | 327          | 550          | 381          | 378               |
| RIO HONDO (4)            | 9,536        | -0-               | I            | I            | I            | I            | I                 |
| ZUBER DRAW               | 350          | 80                | I            | I            | I            | I            | I                 |
| RIO FELIX                | 850          | 1,886             | 1,454        | 1,340        | 784          | 874          | 1,268             |
| PECOS RIVER              | 6,045        | 16,632            | 12,987       | 12,563       | 15,573       | 12,221       | 13,995            |
| COTTONWOOD CREEK         | 761          | 1,197             | 1,717        | 1,829        | 1,200        | 1,500        | 1,489             |
| CARLSBAD IRR. DIST.      | 20,000       | 90,156            | 43,155       | 83,170       | 95,310       | 87,950       | 79,948            |
| AVALON TO STATE LINE     |              |                   |              |              |              |              |                   |
| PECOS RIVER              | 3,126        | 37,283            | 28,999       | 26,340       | 27,120       | 31,245       | 30,197            |
| BLACK RIVER              | <u>1,728</u> | <u>9,470</u>      | <u>7,877</u> | <u>8,659</u> | <u>7,282</u> | <u>9,729</u> | <u>8,657</u>      |
| TOTALS                   | 49,241       | I                 | I            | I            | I            | I            | I                 |

"I" Indicates incomplete. (1) Approximate acres irrigated or claimed. (2) Above Alamogordo Dam water was not metered until 1967; much of that diverted returns to the Pecos. (3) Quantities diverted include drain waters and supplemental well water. (4) Includes Hagerman Irrigation Company waters at diversion dam.

TABLE 7 - (CON'T)  
SUMMATION OF ANNUAL WATER DIVERTED  
PECOS VALLEY SURFACE WATER DISTRICT

| AREA OF DIVERSION        | ACRES (1)    | YEAR OF DIVERSION |              |              |              |              | 5 YEAR<br>AVERAGE |
|--------------------------|--------------|-------------------|--------------|--------------|--------------|--------------|-------------------|
|                          |              | 1961              | 1962         | 1963         | 1964         | 1965         |                   |
| ABOVE ALAMOGORDO DAM (2) | 721          | 1,265             | 1,187        | 1,395        | 1,270        | 1,270        | 1,277             |
| FT. SUMNER IRR. DIST.    | 5,400        | 39,950            | 33,800       | 35,656       | 38,250       | 32,900       | 36,111            |
| ALAMOGORDO DAM TO ACME   | 174          | 101               | 83           | 169          | 63           | 252          | 134               |
| ACME TO AVALON (3)       |              |                   |              |              |              |              |                   |
| BERRENDO CREEK           | 491          | 249               | 50           | 39           | 44           | -0-          | 96                |
| RIO HONDO (4)            | 9,536        | I                 | I            | 19,723       | 22,419       | 19,239       | 20,460            |
| ZUBER DRAW               | 350          | I                 | I            | I            | I            | I            | I                 |
| RIO FELIX                | 676          | 580               | 546          | 284          | 161          | 178          | 350               |
| PECOS RIVER              | 5,618        | 12,944            | 11,833       | 14,677       | 10,258       | 11,979       | 12,338            |
| COTTONWOOD CREEK         | 584          | 1,700             | 1,034        | 1,236        | 100          | 32           | 820               |
| CARLSBAD IRR. DIST.      | 20,000       | 97,158            | 91,272       | 71,670       | 37,590       | 44,890       | 68,516            |
| AVALON TO STATE LINE     |              |                   |              |              |              |              |                   |
| PECOS RIVER              | 3,553        | 28,443            | 22,903       | 51,956       | 39,171       | 26,970       | 33,889            |
| BLACK RIVER              | <u>1,755</u> | <u>7,166</u>      | <u>9,340</u> | <u>7,507</u> | <u>6,535</u> | <u>7,082</u> | <u>7,526</u>      |
| TOTALS (5)               | 48,858       | I                 | I            | 204,312      | 155,861      | 144,792      | 181,517           |

"I" Indicates incomplete. (1) Approximate acres irrigated or claimed. (2) Above Alamogordo Dam water was not metered until 1967; much of that diverted returns to the Pecos. (3) Quantities diverted include drain waters and supplemental well water. (4) Includes Hagerman Irrigation Company waters at diversion dam. (5) Totals do not include Zuber Draw diversions.

TABLE 7 - (CON'T)  
SUMMATION OF ANNUAL WATER DIVERTED  
PECOS VALLEY SURFACE WATER DISTRICT

| AREA OF DIVERSION        | ACRES (1)    | YEAR OF DIVERSION |              |              |              | 5 YEAR<br>AVERAGE |              |
|--------------------------|--------------|-------------------|--------------|--------------|--------------|-------------------|--------------|
|                          |              | 1966              | 1967         | 1968         | 1969         |                   |              |
| ABOVE ALAMOGORDO DAM (2) | 644          | 1,270             | 7,863        | 7,777        | 7,663        | 12,065            | 7,328        |
| FT. SUMNER IRR. DIST.    | 5,400        | 33,281            | 41,330       | 36,170       | 37,870       | 37,700            | 37,270       |
| ALAMOGORDO DAM TO ACME   | 174          | 183               | 222          | 311          | 316          | 53                | 217          |
| ACME TO AVALON (3)       |              |                   |              |              |              |                   |              |
| BERRENDO CREEK           | 498          | -0-               | -0-          | -0-          | 948          | 907               | 928          |
| RIO HONDO                | 9,409        | 13,809            | 9,548        | 7,311        | 10,500       | 6,226             | 9,479        |
| ZUBER DRAW               | 284          | I                 | I            | 400          | 624          | 492               | 505          |
| RIO FELIX                | 614          | 149               | 83           | 533          | 1,690        | 1,772             | 845          |
| PECOS RIVER              | 5,312        | 11,548            | 11,809       | 11,902       | 13,649       | 14,762            | 12,734       |
| COTTONWOOD CREEK         | 584          | 194               | 120          | 4            | -0-          | -0-               | 106          |
| CARLSBAD IRR. DIST.      | 20,000       | 53,660            | 72,770       | 67,270       | 75,650       | 71,360            | 68,142       |
| AVALON TO STATE LINE     |              |                   |              |              |              |                   |              |
| PECOS RIVER              | 3,387        | 28,282            | 40,170       | 37,744       | 31,782       | 28,600            | 33,316       |
| BLACK RIVER              | <u>1,673</u> | <u>8,956</u>      | <u>8,951</u> | <u>7,671</u> | <u>7,335</u> | <u>8,342</u>      | <u>8,251</u> |
| TOTALS (5)               | 47,979       | 151,332           | 192,866      | 177,093      | 188,027      | 182,279           | 179,121      |

"I" Indicates incomplete. (1) Approximate acres irrigated or claimed. (2) Above Alamogordo Dam water was not metered until 1967; much of that diverted returns to the Pecos. (3) Quantities diverted include drain waters and supplemental well water. (4) Includes Hagerman Irrigation Company waters at diversion dam. (5) Totals do not include Zuber Draw diversions through 1967.



TABLE 7 - (CON'T)  
SUMMATION OF ANNUAL WATER DIVERTED  
PECOS VALLEY SURFACE WATER DISTRICT

| AREA OF DIVERSION     | ACRES (1)    | YEAR OF DIVERSION |              |              |              |              | 5 YEAR<br>AVERAGE |
|-----------------------|--------------|-------------------|--------------|--------------|--------------|--------------|-------------------|
|                       |              | 1971              | 1972         | 1973         | 1974         | 1975         |                   |
| ABOVE SUMNER LAKE (2) | 648          | 8,837             | 10,933       | 7,720        | 9,167        | 11,599       | 9,651             |
| FT. SUMNER IRR. DIST. | 5,400        | 38,050            | 29,410       | 38,230       | 34,320       | 38,350       | 35,672            |
| SUMNER LAKE TO ACME   | 174          | -0-               | -0-          | 266          | -0-          | -0-          | 266               |
| ACME TO AVALON (3)    |              |                   |              |              |              |              |                   |
| BERRENDO CREEK        | 498          | 1,190             | 674          | 900          | 741          | 784          | 858               |
| RIO HONDO (4)         | 9,346        | 4,081             | 8,463        | 13,833       | 5,184        | 6,584        | 7,629             |
| ZUBER DRAW            | 284          | 353               | 540          | 745          | 553          | 701          | 578               |
| RIO FELIX             | 668          | 1,464             | 1,695        | 1,222        | 449          | 594          | 1,085             |
| PECOS RIVER           | 4,906        | 13,866            | 13,342       | 13,223       | 12,410       | 9,059        | 12,380            |
| COTTONWOOD CREEK      | 280          | 11                | -0-          | -0-          | -0-          | -0-          | 11                |
| CARLSBAD IRR. DIST.   | 20,000       | 51,850            | 61,750       | 97,500       | 53,630       | 63,920       | 65,730            |
| AVALON TO STATE LINE  |              |                   |              |              |              |              |                   |
| PECOS RIVER           | 2,993        | 20,275            | 19,501       | 26,568       | 16,669       | 27,097       | 22,022            |
| BLACK RIVER           | <u>1,670</u> | <u>8,084</u>      | <u>8,794</u> | <u>8,039</u> | <u>8,486</u> | <u>8,094</u> | <u>8,299</u>      |
| TOTALS                | 46,867       | 148,061           | 155,102      | 208,246      | 141,609      | 166,782      | 164,181           |

"I" Indicates incomplete. (1) Approximate acres irrigated or claimed. (2) Above Sumner Lake water was not metered until 1967; much of that diverted returns to the Pecos. (3) Quantities diverted include drain waters and supplemental well water. (4) Includes Hagerman Irrigation Company waters at diversion dam.

TABLE 7 - (CON'T)  
SUMMATION OF ANNUAL WATER DIVERTED  
PECOS VALLEY SURFACE WATER DISTRICT

| AREA OF DIVERSION     | ACRES (1)    | YEAR OF DIVERSION |              |              |              |              | 5 YEAR<br>AVERAGE |
|-----------------------|--------------|-------------------|--------------|--------------|--------------|--------------|-------------------|
|                       |              | 1976              | 1977         | 1978         | 1979         | 1980         |                   |
| ABOVE SUMNER LAKE (2) | 648          | 9,012             | 7,135        | 7,514        | 8,106        | 8,774        | 8,108             |
| FT. SUMNER IRR. DIST. | 5,400        | 40,820            | 37,060       | 35,140       | 36,730       | 41,460       | 38,242            |
| SUMNER LAKE TO ACME   | 174          | -0-               | 113          | -0-          | -0-          | -0-          | 113               |
| ACME TO AVALON (3)    |              |                   |              |              |              |              |                   |
| BERRENDO CREEK        | 498          | 1,148             | 1,035        | 1,054        | 1,049        | 874          | 1,032             |
| RIO HONDO (4)         | 9,346        | 7,943             | 10,149       | 8,239        | 15,943       | 10,257       | 10,506            |
| ZUBER DRAW            | 284          | 678               | 597          | 672          | 455          | 384          | 557               |
| RIO FELIX             | 668          | 616               | 500          | 311          | 546          | 299          | 454               |
| PECOS RIVER           | 4,906        | 11,666            | 10,329       | 10,427       | 10,727       | 11,354       | 10,901            |
| COTTONWOOD CREEK      | 280          | -0-               | -0-          | -0-          | -0-          | -0-          | -0-               |
| CARLSBAD IRR. DIST.   | 20,000       | 35,700            | 37,530       | 57,190       | 73,550       | 76,780       | 56,150            |
| AVALON TO STATE LINE  |              |                   |              |              |              |              |                   |
| PECOS RIVER           | 2,993        | 17,975            | 15,103       | 16,855       | 25,269       | 21,186       | 19,278            |
| BLACK RIVER           | <u>1,670</u> | <u>6,559</u>      | <u>7,211</u> | <u>6,551</u> | <u>8,727</u> | <u>8,461</u> | <u>7,502</u>      |
| TOTALS                | 46,867       | 132,117           | 126,762      | 143,953      | 181,102      | 179,829      | 152,843           |

"I" Indicates incomplete. (1) Approximate acres irrigated or claimed. (2) Above Sumner Lake water was not metered until 1967; much of that diverted returns to the Pecos. (3) Quantities diverted include drain waters and supplemental well water. (4) Includes Hagerman Irrigation Company waters at diversion dam.

TABLE 7 - (CON'T)  
SUMMATION OF ANNUAL WATER DIVERTED  
PECOS VALLEY SURFACE WATER DISTRICT

| AREA OF DIVERSION     | ACRES (1)    | YEAR OF DIVERSION |              |              |              |              | 5 YEAR<br>AVERAGE |
|-----------------------|--------------|-------------------|--------------|--------------|--------------|--------------|-------------------|
|                       |              | 1981              | 1982         | 1983         | 1984         | 1985         |                   |
| ABOVE SUMNER LAKE (2) | 648          | 10,579            | 11,799       | 11,695       | 7,161        | 6,657        | 9,578             |
| FT. SUMNER IRR. DIST. | 5,400        | 32,520            | 40,050       | 37,590       | 37,230       | 36,130       | 36,704            |
| SUMNER LAKE TO ACME   | 174          | 252               | 76           | -0-          | 21           | -0-          | 116               |
| ACME TO AVALON (3)    |              |                   |              |              |              |              |                   |
| BERRENDO CREEK        | 498          | 560               | 497          | 994          | 398          | 398          | 569               |
| RIO HONDO (4)         | 9,346        | 6,979             | 7,762        | 11,859       | 14,460       | 25,068       | 13,226            |
| ZUBER DRAW            | 284          | 398               | 127          | 1            | -0-          | 214          | 185               |
| RIO FELIX             | 668          | 154               | 206          | 160          | 212          | 66           | 160               |
| PECOS RIVER           | 4,906        | 9,036             | 9,732        | 10,297       | 10,615       | 8,212        | 9,578             |
| COTTONWOOD CREEK      | 280          | -0-               | -0-          | -0-          | -0-          | -0-          | -0-               |
| CARLSBAD IRR. DIST.   | 20,000       | 47,270            | 72,140       | 84,200       | 72,140       | 79,870       | 71,124            |
| AVALON TO STATE LINE  |              |                   |              |              |              |              |                   |
| PECOS RIVER           | 2,993        | 21,502            | 18,551       | 15,965       | 20,041       | 26,463       | 20,504            |
| BLACK RIVER           | <u>1,670</u> | <u>7,398</u>      | <u>7,791</u> | <u>7,867</u> | <u>8,634</u> | <u>7,761</u> | <u>7,890</u>      |
| TOTALS                | 46,867       | 136,648           | 168,731      | 180,628      | 170,912      | 190,841      | 169,634           |

"I" Indicates incomplete. (1) Approximate acres irrigated or claimed. (2) Above Sumner Lake water was not metered until 1967; much of that diverted returns to the Pecos. (3) Quantities diverted include drain waters and supplemental well water. (4) Includes Hagerman Irrigation Company waters at diversion dam.

TABLE 7 - (CON'T)  
SUMMATION OF ANNUAL WATER DIVERTED  
PECOS VALLEY SURFACE WATER DISTRICT

| AREA OF DIVERSION     | ACRES (1)    | YEAR OF DIVERSION |              |              |              |              | 5 YEAR<br>AVERAGE |
|-----------------------|--------------|-------------------|--------------|--------------|--------------|--------------|-------------------|
|                       |              | 1986              | 1987         | 1988         | 1989         | 1990         |                   |
| ABOVE SUMNER LAKE (2) | 648          | 7,950             | 7,099        | 10,594       | 9,133        | 9,191        | 8,793             |
| FT. SUMNER IRR. DIST. | 5,400        | 99,160            | 39,890       | 44,846       | 42,558       | 38,871       | 53,065            |
| SUMNER LAKE TO ACME   | 174          | -0-               | -0-          | -0-          | -0-          | -0-          | -0-               |
| ACME TO AVALON (3)    |              |                   |              |              |              |              |                   |
| BERRENDO CREEK        | 498          | 375               | 557          | 478          | 336          | 252          | 400               |
| RIO HONDO (4)         | 9,346        | 15,792            | 21,559       | 11,467       | 17,327       | 12,667       | 15,762            |
| ZUBER DRAW            | 284          | 395               | 744          | 863          | 1,004        | 617          | 725               |
| RIO FELIX             | 668          | 163               | 313          | 151          | 384          | 441          | 290               |
| PECOS RIVER           | 4,906        | 6,955             | 7,909        | 9,422        | 9,816        | 9,490        | 8,718             |
| COTTONWOOD CREEK      | 280          | -0-               | -0-          | -0-          | -0-          | -0-          | -0-               |
| CARLSBAD IRR. DIST.   | 20,000       | 74,470            | 91,520       | 87,820       | 94,580       | 59,400       | 81,558            |
| AVALON TO STATE LINE  |              |                   |              |              |              |              |                   |
| PECOS RIVER           | 2,993        | 20,710            | 25,510       | 24,448       | 24,791       | 13,369       | 21,766            |
| BLACK RIVER           | <u>1,670</u> | <u>7,453</u>      | <u>6,106</u> | <u>8,755</u> | <u>8,659</u> | <u>8,698</u> | <u>7,934</u>      |
| TOTALS                | 46,867       | 233,423           | 201,207      | 198,844      | 208,588      | 152,996      | 199,011           |

"I" Indicates incomplete. (1) Approximate acres irrigated or claimed. (2) Above Sumner Lake water was not metered until 1967; much of that diverted returns to the Pecos. (3) Quantities diverted include drain waters and supplemental well water. (4) Includes Hagerman Irrigation Company waters at diversion dam.

TABLE 7 - (CON'T)  
SUMMATION OF ANNUAL WATER DIVERTED  
PECOS VALLEY SURFACE WATER DISTRICT

| AREA OF DIVERSION     | ACRES (1)    | YEAR OF DIVERSION |      |      |      | 5 YEAR<br>AVERAGE |
|-----------------------|--------------|-------------------|------|------|------|-------------------|
|                       |              | 1991              | 1992 | 1993 | 1994 |                   |
| ABOVE SUMNER LAKE (3) | 648          | 10,412            |      |      |      |                   |
| FT. SUMNER IRR. DIST. | 5,400        | 39,570            |      |      |      |                   |
| SUMNER LAKE TO ACME   | 174          | -0-               |      |      |      |                   |
| ACME TO AVALON (3)    |              |                   |      |      |      |                   |
| BERRENDO CREEK        | 498          | 131               |      |      |      |                   |
| RIO HONDO (4)         | 9,346        | 17,451            |      |      |      |                   |
| ZUBER DRAW            | 284          | 843               |      |      |      |                   |
| RIO FELIX             | 668          | 270               |      |      |      |                   |
| PECOS RIVER           | 4,906        | 6,747             |      |      |      |                   |
| COTTONWOOD CREEK      | 280          | -0-               |      |      |      |                   |
| CARLSBAD IRR. DIST.   | 20,000       | 78,600            |      |      |      |                   |
| AVALON TO STATE LINE  |              |                   |      |      |      |                   |
| PECOS RIVER           | 2,993        | 19,371            |      |      |      |                   |
| BLACK RIVER           | <u>1,670</u> | <u>8,363</u>      |      |      |      |                   |
| TOTALS                | 46,867       | 181,758           |      |      |      |                   |

"I" Indicates incomplete. (1) Approximate acres irrigated or claimed. (2) Above Sumner Lake water was not metered until 1967; much of that diverted returns to the Pecos. (3) Quantities diverted include drain waters and supplemental well water. (4) Includes Hagerman Irrigation Company waters at diversion dam.

TABLE 8

## SUMMATION OF ANNUAL PRIVATE WATER DIVERTED

| <u>YEAR</u> | <u>ACRE FEET</u> | <u>YEAR</u> | <u>ACRE FEET</u> | <u>*ACRE FEET</u> |
|-------------|------------------|-------------|------------------|-------------------|
| 1956        | 3,707.0          | 1974        | 1,638.9          |                   |
| 1957        | 3,528.8          | 1975        | 1,928.8          |                   |
| 1958        | 4,997.5          | 1976        | 1,837.5          |                   |
| 1959        | 6,641.3          | 1977        | 2,009.9          |                   |
| 1960        | 4,828.4          | 1978        | 1,634.6          |                   |
| 1961        | 5,254.7          | 1979        | 1,484.5          |                   |
| 1962        | 4,899.0          | 1980        | 809.1            |                   |
| 1963        | 5,021.3          | 1981        | 1,053.5          |                   |
| 1964        | 2,652.3          | 1982        | 1,061.4          |                   |
| 1965        | 2,155.4          | 1983        | 641.1            |                   |
| 1966        | 3,240.1          | 1984        | 1,093.9          |                   |
| 1967        | 3,376.8          | 1985        | 831.2            |                   |
| 1968        | 4,041.2          | 1986        | 386.2            |                   |
| 1969        | 3,639.5          | 1987        | 642.8            |                   |
| 1970        | 3,929.3          | 1988        | 1,475.9          |                   |
| 1971        | 3,874.9          | 1989        | 1,665.3          |                   |
| 1972        | 2,831.2          | 1990        | 1,990.8          | 2,884.5           |
| 1973        | 2,156.5          | 1991        | 1,767.6          | 4,308.5           |

NOTE: Does not include Zuber Draw water.

\*Private water contributed to Pecos River. Figure reflects only private drains with operable measuring devices.

## SUMMARY

Stream flow in the upper reach of the Pecos River basin above Sumner Lake in 1991, as measured at the gaging station at Santa Rosa, was 142 percent of the current 20-year average. Stream flow and release flow from Sumner Lake in the lower reach, as measured at the gaging station near Artesia, was 153 percent of the current 20-year average. Combined storage in the four major irrigation storage reservoirs in the District, (Santa Rosa which began storage April 21, 1980, Lake Brantley which began storage August 30, 1988, Sumner, McMillan, and Avalon) was 3.4 percent on December 31, 1990 and 11.2 percent of total storage capacity on December 31, 1991.

Water users under the Puerto de Luna community ditches and under the Ft. Sumner Irrigation District had sufficient water for their requirements. Users in the reach from Ft. Sumner to Artesia had an above average supply of water most of the irrigation season and users under the District also had a good supply. Other users in the reach from McMillan reservoir to the Texas State line also had an above average supply of water for irrigation, municipal, and commercial purposes.

The flow in Black River south of Carlsbad was above average. The Carlsbad Irrigation District received the total of their decreed right from Black River on August 18, 1991. There was 1,902.2 acre feet of water delivered to Willow Lake, which contained 2,257 acre feet on December 18, 1990 and 2,143 acre feet on December 19, 1991.

Continued surveillance was maintained of surface water use throughout the District, and water sampling and analysis for chlorides and specific conductance was continued.



FINANCIAL STATEMENTS

PECOS VALLEY SURFACE WATER DISTRICT  
 EXPENDITURES  
 JANUARY 1, 1991 TO JUNE 30, 1991

| ACCOUNT DESCRIPTION              | JANUARY         | FEBRUARY        | MARCH           | APRIL           | MAY             | JUNE            | TOTAL            |
|----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|
| <b>SALARIES:</b>                 |                 |                 |                 |                 |                 |                 |                  |
| WATERMASTER - TURNER             | 1,307.27        | 1,377.30        | 1,639.92        | 1,628.24        | 2,556.17        | 2,036.76        | 10,545.66        |
| <b>BENEFITS:</b>                 |                 |                 |                 |                 |                 |                 |                  |
| INSURANCE                        | 147.53          | 155.44          | 185.07          | 183.76          | 288.47          | 229.86          | 1,190.13         |
| RETIREMENT                       | 180.79          | 190.48          | 226.80          | 225.19          | 353.53          | 281.69          | 1,458.48         |
| SOCIAL SECURITY                  | 93.12           | 98.12           | 116.81          | 115.99          | 186.61          | 145.08          | 755.73           |
| WORKMEN'S COMPENSATION           | 16.42           | 16.42           | 16.42           | 16.42           | 16.42           | 16.42           | 98.52            |
| UNEMPLOYMENT COMPENSATION        | 3.00            | 3.00            | 3.00            | 3.00            | 3.00            | 3.00            | 18.00            |
| LIABILITY INSURANCE              | 10.58           | 10.58           | 10.58           | 10.58           | 10.58           | 10.58           | 63.48            |
| RETIREE HEALTH CARE ACT          | 13.05           | 13.75           | 16.37           | 16.25           | 25.51           | 20.33           | 105.26           |
| <b>TRAVEL:</b>                   |                 |                 |                 |                 |                 |                 |                  |
| MILEAGE                          | 427.24          | 574.20          | 593.78          | 479.38          | 560.12          | 494.56          | 3,129.28         |
| PERDIEM                          | 156.00          | 252.00          | 258.00          | 246.00          | 300.00          | 210.00          | 1,422.00         |
| <b>OTHER:</b>                    |                 |                 |                 |                 |                 |                 |                  |
| TELEPHONE                        | 112.50          | 112.50          | 112.50          | 112.50          | 112.50          | 112.50          | 675.00           |
| RENT & UTILITIES                 | 83.33           | 83.33           | 83.33           | 83.33           | 83.33           | 83.33           | 499.98           |
| SUPPLIES                         | 33.33           | 33.33           | 33.33           | 33.33           | 33.33           | 33.33           | 199.98           |
| SERVICES OF OTHER STATE AGENCIES | 37.67           | 37.67           | 37.67           | 37.67           | 37.67           | 37.67           | 226.02           |
| <b>TOTAL</b>                     | <b>2,621.83</b> | <b>2,958.12</b> | <b>3,333.58</b> | <b>3,191.64</b> | <b>4,567.24</b> | <b>3,715.11</b> | <b>20,387.52</b> |

610 P.V. DISTRICT  
 JUNE 30, 1991  
 RECEIVED

|           | TOTAL<br>AC/FT<br>DIVERTED | PERCENT<br>OF<br>ASSESSMENT | TOTAL<br>ASSESSMENT |
|-----------|----------------------------|-----------------------------|---------------------|
| EDDY      | 128,029.50                 | 0.6144                      | 12,526.09           |
| CHAVES    | 29,002.00                  | 0.1392                      | 2,837.94            |
| DE BACA   | 42,230.00                  | 0.2026                      | 4,130.51            |
| GUADALUPE | 9,133.00                   | 0.0438                      | 892.98              |
|           | <b>208,394.50</b>          | <b>1.0000</b>               | <b>20,387.52</b>    |

PECOS VALLEY SURFACE WATER DISTRICT  
 EXPENDITURES  
 JULY 1, 1991 TO DECEMBER 31, 1991

| ACCOUNT DESCRIPTION              | JULY            | AUGUST          | SEPTEMBER       | OCTOBER         | NOVEMBER        | DECEMBER        | TOTAL            |
|----------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|------------------|
| <b>SALARIES:</b>                 |                 |                 |                 |                 |                 |                 |                  |
| WATERMASTER - TURNER             | 1,274.58        | 1,303.17        | 852.99          | 1,682.27        | 2,138.38        | 1,670.43        | 8,921.82         |
| O'Hara                           |                 | 668.00          | 935.20          |                 |                 |                 | 1,603.20         |
| <b>BENEFITS:</b>                 |                 |                 |                 |                 |                 |                 |                  |
| INSURANCE                        | 149.63          | 207.07          | 174.32          | 200.13          | 254.39          | 198.72          | 1,194.26         |
| RETIREMENT                       | 176.28          | 272.62          | 247.31          | 232.67          | 295.74          | 231.02          | 1,455.64         |
| SOCIAL SECURITY                  | 90.60           | 140.76          | 128.06          | 119.49          | 151.91          | 118.66          | 749.48           |
| WORKMEN'S COMPENSATION           | 16.63           | 16.67           | 16.67           | 16.67           | 16.67           | 16.67           | 99.98            |
| UNEMPLOYMENT COMPENSATION        | 3.37            | 3.33            | 3.33            | 3.33            | 3.33            | 3.33            | 20.02            |
| LIABILITY INSURANCE              | 10.75           | 10.75           | 10.75           | 10.75           | 10.75           | 10.75           | 64.50            |
| RETIREE HEALTH CARE ACT          | 12.72           | 19.69           | 17.86           | 16.79           | 21.34           | 16.68           | 105.08           |
| <b>TRAVEL:</b>                   |                 |                 |                 |                 |                 |                 |                  |
| MILEAGE                          | 571.12          | 579.70          | 510.62          | 624.58          | 265.32          | 376.42          | 2,927.76         |
| PERDIEM                          | 240.00          | 108.00          | 156.00          | 312.00          |                 | 54.00           | 870.00           |
| <b>OTHER:</b>                    |                 |                 |                 |                 |                 |                 |                  |
| TELEPHONE                        | 112.50          | 112.50          | 112.50          | 112.50          | 112.50          | 112.50          | 675.00           |
| RENT & UTILITIES                 | 83.37           | 83.33           | 83.33           | 83.33           | 83.33           | 83.33           | 500.02           |
| SUPPLIES                         | 33.37           | 33.33           | 33.33           | 33.33           | 33.33           | 33.33           | 200.02           |
| SERVICES OF OTHER STATE AGENCIES | 37.63           | 37.67           | 37.67           | 37.67           | 37.67           | 37.67           | 225.98           |
| <b>TOTAL</b>                     | <b>2,812.55</b> | <b>3,596.59</b> | <b>3,319.94</b> | <b>3,485.51</b> | <b>3,424.66</b> | <b>2,963.51</b> | <b>19,602.76</b> |

|           | TOTAL<br>AC/FT<br>DIVERTED | PERCENT<br>OF<br>ASSESSMENT | TOTAL<br>ASSESSMENT |
|-----------|----------------------------|-----------------------------|---------------------|
| EDDY      | 81,470.20                  | 0.5311                      | 10,411.02           |
| CHAVES    | 23,859.10                  | 0.1556                      | 3,050.19            |
| DE BACA   | 38,870.00                  | 0.2534                      | 4,967.34            |
| GUADALUPE | 9,190.80                   | 0.0599                      | 1,174.21            |
|           | <b>153,390.10</b>          | <b>1.0000</b>               | <b>19,602.76</b>    |



STATE OF NEW MEXICO

STATE ENGINEER OFFICE  
SANTA FE

11 24 05

ELUID L. MARTINEZ  
State Engineer

BATAAN MEMORIAL BUILDING, ROOM 101  
POST OFFICE BOX 25102  
SANTA FE, NEW MEXICO 87504-5102

PECOS VALLEY SURFACE WATER DISTRICT  
PROPOSED BUDGET  
JULY 1, 1991 TO JUNE 30, 1992

| LINE ITEM                        | 80TH FY<br>BUDGET |
|----------------------------------|-------------------|
| PERSONAL SERVICES:               |                   |
| WATERMASTER - ROBERT TURNER      | 24,831.00         |
| EMPLOYEE BENEFITS:               |                   |
| INSURANCE                        | 2,928.00          |
| RETIREMENT                       | 3,434.00          |
| SOCIAL SECURITY                  | 1,900.00          |
| WORKER'S COMPENSATION            | 200.00            |
| UNEMPLOYMENT COMPENSATION        | 40.00             |
| LIABILITY INSURANCE              | 129.00            |
| RETIREE HEALTH CARE              | 248.00            |
| TRAVEL:                          |                   |
| MILEAGE                          | 4,000.00          |
| PER DIEM                         | 400.00            |
| OTHER:                           |                   |
| TELEPHONE                        | 1,350.00          |
| RENT & UTILITIES                 | 1,000.00          |
| SUPPLIES                         | 400.00            |
| SERVICES OF OTHER STATE AGENCIES | 452.00            |
| GRAND TOTAL                      | 41,312.00         |
| EDDY COUNTY                      | 53.11% 21,941.00  |
| CHAVES COUNTY                    | 15.56% 6,428.00   |
| DE BACA COUNTY                   | 25.34% 10,468.00  |
| GUADALUPE COUNTY                 | 5.99% 2,475.00    |

Line items totals may vary but the Grand Total should not exceed \$41,312.00 for the 80th fiscal year.

FRANK F. RENDON  
Chief, Management Services Division

APPENDICES

STATION NUMBER 88385000 FT. SUMNER MAIN CANAL NEAR E. SUMNER, N. MEX. STREAM SOURCE AGENCY USGS  
 LATITUDE 343030 LONGITUDE 1041640 DRAINAGE AREA 0.00 DATUM 4034.70 STATE 35 COUNTY 011  
 PROVISIONAL DATA DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 1991  
 SUBJECT TO REVISION DAILY MEAN VALUES

| DAY          | JAN            | FEB       | MAR     | APR     | MAY         | JUN  | JUL     | AUG     | SEP     | OCT  | NOV   | DEC  |
|--------------|----------------|-----------|---------|---------|-------------|------|---------|---------|---------|------|-------|------|
| 1            | .00            | E91       | .00     | 85      | 108         | 95   | 91      | E90     | 99      | E94  | 33    | .00  |
| 2            | .00            | E91       | .24     | 84      | 105         | 94   | 87      | E92     | 98      | E94  | .00   | .00  |
| 3            | .00            | E91       | .07     | 84      | 102         | 94   | 96      | E92     | 98      | E94  | .00   | .00  |
| 4            | .00            | E91       | 57      | 84      | 99          | 93   | 87      | E92     | 98      | E94  | .00   | .00  |
| 5            | .00            | E91       | 84      | 83      | 94          | 89   | 92      | E92     | 97      | E94  | .00   | .00  |
| 6            | .00            | 91        | 90      | 83      | 94          | 95   | 90      | E93     | 104     | E94  | .00   | .00  |
| 7            | .00            | E50       | 91      | 82      | 107         | 96   | 88      | E93     | 101     | E92  | .00   | .00  |
| 8            | .00            | E50       | 88      | 81      | 120         | 94   | 84      | E93     | 99      | E92  | .00   | .00  |
| 9            | .00            | E.00      | 91      | 87      | 102         | 98   | 84      | E93     | 69      | E92  | .00   | .00  |
| 10           | .00            | E.00      | 92      | 80      | 85          | 99   | 84      | E50     | .00     | E93  | .00   | .00  |
| 11           | .00            | E.00      | 91      | 86      | 83          | 98   | 85      | E.00    | .00     | E93  | .00   | .00  |
| 12           | .00            | E.00      | 84      | 90      | 93          | 97   | 87      | 5.7     | .00     | E93  | .00   | .00  |
| 13           | .00            | .00       | 85      | 90      | 93          | 97   | 92      | 1.6     | .00     | E93  | .00   | .00  |
| 14           | .00            | .00       | 86      | 91      | 91          | 98   | 37      | .00     | .00     | E92  | .00   | .00  |
| 15           | .00            | .00       | 84      | 91      | 92          | 98   | .00     | .00     | .00     | E92  | .00   | .00  |
| 16           | E.00           | .00       | 84      | 90      | 95          | 98   | .00     | .00     | .00     | E90  | .00   | .00  |
| 17           | E.00           | .00       | 87      | 91      | 100         | 97   | .00     | .00     | .00     | E90  | .00   | .00  |
| 18           | E.00           | .00       | 84      | 94      | 100         | 97   | .00     | .00     | E60     | E90  | .00   | .00  |
| 19           | E.00           | .00       | 87      | 91      | 100         | 97   | .00     | .00     | E88     | E90  | .00   | .00  |
| 20           | E.00           | .00       | 90      | 89      | 99          | 96   | .00     | .00     | E90     | E88  | .00   | .00  |
| 21           | E25            | .00       | 85      | 89      | 101         | 96   | .00     | .00     | E93     | E88  | .00   | .00  |
| 22           | E5.0           | .00       | 85      | 89      | 104         | 96   | .00     | .00     | E93     | 87   | .00   | .00  |
| 23           | E.00           | .00       | 84      | 94      | 101         | 96   | .00     | .00     | E93     | 88   | .00   | .00  |
| 24           | E.00           | .00       | 83      | 93      | 95          | 96   | .00     | .00     | E93     | 88   | .00   | .00  |
| 25           | E50            | .00       | 80      | 88      | 93          | 96   | .00     | .00     | E93     | 90   | .00   | .00  |
| 26           | E80            | .00       | 77      | 100     | 92          | 94   | .00     | 63      | E94     | 90   | .00   | .00  |
| 27           | E90            | .00       | 81      | 105     | 92          | 96   | .00     | 95      | E94     | 91   | .00   | .00  |
| 28           | E91            | .00       | 81      | 114     | 91          | 96   | .00     | 98      | E94     | 91   | .00   | .00  |
| 29           | E91            | .00       | 83      | 114     | 92          | 96   | E30     | 100     | E94     | 89   | .00   | .00  |
| 30           | E91            | .00       | 83      | 111     | 92          | 96   | E83     | 100     | E94     | 89   | .00   | .00  |
| 31           | E91            | .00       | 84      | ---     | 93          | ---  | E86     | 99      | ---     | 90   | ---   | .00  |
| TOTAL        | 614.00         | 601.00    | 2370.11 | 2735    | 3010        | 2882 | 1305.00 | 1456.70 | 2036.00 | 2825 | 33.00 | 0.00 |
| MEAN         | 19.8           | 21.5      | 74.5    | 91.2    | 97.1        | 94.1 | 44.7    | 47.0    | 67.9    | 91.1 | 1.10  | .000 |
| MAX          | 91             | 91        | 92      | 116     | 120         | 99   | 96      | 100     | 104     | 94   | 33    | .00  |
| MIN          | .00            | .00       | .00     | 80      | 83          | 89   | .00     | .00     | .00     | 87   | .00   | .00  |
| AC-FT        | 1220           | 1190      | 4700    | 5420    | 5970        | 5720 | 2750    | 2890    | 4040    | 5600 | 65    | .00  |
| CAL. YR 1991 | TOTAL 19947.81 | MEAN 54.7 | MAX 120 | MIN .00 | AC-FT 39570 |      |         |         |         |      |       |      |
| E ESTIMATED  |                |           |         |         |             |      |         |         |         |      |       |      |

STATION NUMBER 08461500 CARLSBAD MAIN CANAL AT HEAD NE CARLSBAD, N. MEX. STREAM SOURCE AGENCY USGS  
 LATITUDE 322925 LONGITUDE 1041500 DRAINAGE AREA 0.00 DATUM 3156.50 STATE 35 COUNTY 0119  
 PROVISIONAL DATA SUBJECT TO REVISION

DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 1991  
 DAILY MEAN VALUES

| DAY          | JAN   | FEB      | MAR     | APR   | MAY  | JUN   | JUL     | AUG   | SEP     | OCT     | NOV  | DEC  |
|--------------|-------|----------|---------|-------|------|-------|---------|-------|---------|---------|------|------|
| 1            | .00   | .00      | .00     | 139   | 107  | 144   | 234     | 140   | 294     | 198     | .00  | .00  |
| 2            | .00   | .00      | .00     | 108   | 95   | 145   | 200     | 197   | 268     | 197     | .00  | .00  |
| 3            | .00   | .00      | .00     | 213   | 100  | 143   | 220     | 153   | 245     | 197     | .00  | .00  |
| 4            | .00   | .00      | .00     | 232   | 101  | 102   | 187     | 110   | 256     | 197     | .00  | .00  |
| 5            | .00   | .00      | .00     | 132   | 80   | 194   | 131     | 249   | 135     | 179     | .00  | .00  |
| 6            | .00   | .00      | .00     | 137   | 51   | 174   | 75      | 297   | 51      | 175     | .00  | .00  |
| 7            | .00   | .00      | .00     | 151   | 44   | 166   | 78      | 320   | .00     | 223     | .00  | .00  |
| 8            | .00   | .00      | .00     | 216   | 72   | 184   | 112     | 357   | .00     | 270     | .00  | .00  |
| 9            | .00   | .00      | .00     | 237   | 107  | 153   | 145     | 358   | .00     | 267     | .00  | .00  |
| 10           | .00   | .00      | .00     | 252   | 170  | 147   | 203     | 314   | .15     | 250     | .00  | .00  |
| 11           | .00   | .00      | .00     | 261   | 149  | 128   | 253     | 284   | .01     | 249     | .00  | .00  |
| 12           | .00   | .00      | .00     | 268   | 167  | 112   | 242     | 230   | 2.6     | 225     | .00  | .00  |
| 13           | .00   | .00      | .00     | 251   | 224  | 120   | 182     | 221   | .11     | 192     | .00  | .00  |
| 14           | .00   | .00      | .00     | 246   | 210  | 131   | 57      | 221   | .00     | 246     | .00  | .00  |
| 15           | .00   | .00      | .00     | 243   | 243  | 143   | .25     | 184   | .00     | 242     | .00  | .00  |
| 16           | .00   | .00      | .00     | 244   | 251  | 175   | .00     | 150   | 40      | 241     | .00  | .00  |
| 17           | .00   | .00      | .00     | 231   | 261  | 244   | .00     | 121   | 156     | 229     | .00  | .00  |
| 18           | .00   | .00      | .00     | 244   | 222  | 202   | .00     | 100   | 200     | 219     | .00  | .00  |
| 19           | .00   | .00      | .00     | 230   | 194  | 315   | .00     | 166   | 196     | 210     | .00  | .00  |
| 20           | .00   | .00      | .00     | 198   | 211  | 342   | .00     | 197   | 196     | 193     | .00  | .00  |
| 21           | .00   | .00      | .00     | 186   | 227  | 338   | .00     | 257   | 196     | 192     | .00  | .00  |
| 22           | .00   | .00      | .00     | 175   | 210  | 326   | .00     | 279   | 196     | 189     | .00  | .00  |
| 23           | .00   | .00      | .00     | 201   | 197  | 295   | .00     | 256   | 196     | 204     | .00  | .00  |
| 24           | .00   | .00      | .00     | 185   | 161  | 288   | .00     | 262   | 196     | 212     | .00  | .00  |
| 25           | .00   | .00      | .00     | 184   | 149  | 310   | 27      | 203   | 196     | 216     | .00  | .00  |
| 26           | .00   | .00      | 142     | 186   | 122  | 352   | 46      | 315   | 196     | 235     | .00  | .00  |
| 27           | .00   | .00      | 174     | 162   | 113  | 343   | .20     | 347   | 197     | 245     | .00  | .00  |
| 28           | .00   | .00      | 212     | 123   | 162  | 313   | .01     | 359   | 197     | 238     | .00  | .00  |
| 29           | .00   | .00      | 207     | 114   | 210  | 350   | .00     | 343   | 197     | 232     | .00  | .00  |
| 30           | .00   | .00      | 183     | 102   | 170  | 200   | 31      | 338   | 197     | 146     | .00  | .00  |
| 31           | .00   | .00      | 116     | .00   | 153  | .00   | 131     | 329   | .00     | .00     | .00  | .00  |
| TOTAL        | 0.00  | 0.00     | 1034.00 | 5989  | 4951 | 6697  | 2591.00 | 7013  | 4025.87 | 6526.10 | 0.10 | 0.00 |
| MEAN         | .00   | .00      | 33.4    | 200   | 160  | 223   | 83.6    | 252   | 134     | 211     | .003 | .000 |
| MAX          | .00   | .00      | 212     | 260   | 261  | 352   | 280     | 319   | 296     | 270     | .10  | .00  |
| MIN          | .00   | .00      | .00     | 102   | 44   | 112   | .00     | 100   | .00     | .10     | .00  | .00  |
| 60-CFT       | .00   | .00      | 2050    | 11880 | 9820 | 13280 | 5140    | 15500 | 7990    | 12940   | .2   | .00  |
| COL. YR 1991 | TOTAL | 59627.07 | MEAN    | 109   | MAX  | 339   | MIN     | .00   | AC-FT   | 78600   |      |      |

STATION NUMBER 08405200 FPC05 RIVER BELOW DARK CANYON AT CARLSBAD, NM STREAM SOURCE AGENCY USGS  
 LATITUDE 322437 LONGITUDE 1041258 DRAINAGE AREA 18550.00 DATUM 3075.19 STATE 35 COUNTY 015  
 PROVISIONAL DATA FROM ADR SUBJECT TO REVISION  
 DISCHARGE, CUBIC FEET PER SECOND, CALENDAR YEAR JANUARY TO DECEMBER 1991  
 DAILY MEAN VALUES

| DAY   | JAN  | FEB  | MAR   | APR   | MAY   | JUN   | JUL   | AUG  | SEP    | OCT  | NOV   | DEC   |
|-------|------|------|-------|-------|-------|-------|-------|------|--------|------|-------|-------|
| 1     | 11   | 14   | 16    | 8.8   | 7.0   | 7.9   | 12    | 14   | 21     | 500  | 197   | 605   |
| 2     | 11   | 14   | 15    | 10    | 8.0   | 6.5   | 11    | 14   | 21     | 509  | 659   | 576   |
| 3     | 11   | 14   | 13    | 7.5   | 7.7   | 6.2   | 10    | 15   | 21     | 506  | 615   | 562   |
| 4     | 11   | 15   | 14    | 9.9   | 7.8   | 8.0   | 32    | 16   | 45     | 499  | 622   | 549   |
| 5     | 12   | 14   | 16    | 11    | 6.9   | 9.0   | 10    | 16   | 20     | 328  | 629   | 542   |
| 6     | 12   | 13   | 15    | 12    | 7.0   | 8.4   | 9.0   | 16   | 22     | 99   | 612   | 514   |
| 7     | 12   | 13   | 14    | 13    | 8.3   | 6.5   | 8.7   | 18   | 20     | 30   | 589   | 491   |
| 8     | 12   | 13   | 13    | 12    | 7.3   | 6.9   | 8.4   | 16   | 15     | 34   | 530   | 400   |
| 9     | 15   | 14   | 13    | 9.5   | 7.1   | 6.5   | 8.8   | 24   | 8.8    | 32   | 46    | 476   |
| 10    | 15   | 14   | 13    | 8.0   | 5.9   | 9.0   | 9.6   | 16   | 51     | 31   | 33    | 456   |
| 11    | 15   | 15   | 15    | 9.1   | 5.2   | 7.4   | 8.1   | 16   | 40     | 36   | 31    | 454   |
| 12    | 14   | 15   | 12    | 9.3   | 4.7   | 7.3   | 10    | 16   | 49     | 36   | 32    | 441   |
| 13    | 14   | 15   | 12    | 9.5   | 4.4   | 6.6   | 23    | 19   | 435    | 35   | 32    | 453   |
| 14    | 17   | 14   | 12    | 8.3   | 4.0   | 6.9   | 22    | 15   | 141    | 34   | 32    | 461   |
| 15    | 16   | 14   | 13    | 9.1   | 4.5   | 6.7   | 61    | 16   | 367    | 35   | 30    | 457   |
| 16    | 15   | 14   | 16    | 9.1   | 2.7   | 7.9   | 12    | 17   | 477    | 35   | 32    | 456   |
| 17    | 17   | 17   | 10    | 7.5   | 6.6   | 5.7   | 18    | 18   | 662    | 35   | 27    | 455   |
| 18    | 24   | 14   | 12    | 7.1   | 4.3   | 5.7   | 14    | 18   | 663    | 32   | 28    | 462   |
| 19    | 16   | 14   | 12    | 6.2   | 3.9   | 4.7   | 12    | 18   | 516    | 31   | 27    | 459   |
| 20    | 14   | 13   | 12    | 5.3   | 3.5   | 5.3   | 11    | 18   | 509    | 31   | 26    | 467   |
| 21    | 15   | 14   | 13    | 8.2   | 4.6   | 6.7   | 12    | 16   | 516    | 32   | 28    | 519   |
| 22    | 15   | 14   | 9.9   | 6.0   | 5.5   | 7.1   | 13    | 16   | 520    | 32   | 28    | 484   |
| 23    | 15   | 14   | 6.9   | 7.3   | 4.7   | 8.7   | 15    | 18   | 516    | 36   | 26    | 482   |
| 24    | 13   | 15   | 9.0   | 7.6   | 5.3   | 7.0   | 14    | 17   | 522    | 37   | 25    | 479   |
| 25    | 14   | 14   | 9.3   | 6.2   | 5.8   | 6.6   | 113   | 17   | 525    | 33   | 25    | 498   |
| 26    | 14   | 14   | 13    | 7.3   | 5.8   | 8.7   | 23    | 27   | 530    | 30   | 25    | 433   |
| 27    | 15   | 15   | 5.8   | 6.5   | 6.0   | 11    | 17    | 27   | 535    | 36   | 25    | 41    |
| 28    | 15   | 16   | 12    | 7.6   | 7.2   | 8.2   | 15    | 21   | 539    | 35   | 25    | 32    |
| 29    | 15   | ---  | 6.5   | 5.1   | 5.3   | 7.7   | 14    | 20   | 534    | 29   | 245   | 33    |
| 30    | 14   | ---  | 11    | 6.5   | 5.1   | 11    | 16    | 21   | 536    | 30   | 613   | 30    |
| 31    | 14   | ---  | 7.0   | ---   | 5.9   | ---   | 15    | 21   | ---    | 30   | ---   | 31    |
| TOTAL | 443  | 399  | 371.4 | 250.5 | 178.2 | 221.8 | 577.6 | 557  | 9384.8 | 3284 | 5894  | 12878 |
| MEAN  | 14.3 | 14.2 | 12.0  | 8.35  | 5.75  | 7.39  | 18.6  | 18.0 | 313    | 106  | 196   | 415   |
| MAX   | 24   | 17   | 16    | 13    | 8.3   | 11    | 113   | 27   | 663    | 509  | 659   | 605   |
| MIN   | 11   | 13   | 5.8   | 5.1   | 2.7   | 4.7   | 8.1   | 14   | 8.8    | 29   | 25    | 30    |
| AC-FT | 879  | 791  | 737   | 497   | 353   | 440   | 1150  | 1100 | 10610  | 6510 | 11690 | 25540 |

CAL YR 1991 TOTAL 34439.3 MEAN 94.4 MAX 663 MIN 2.7 AC-FT 68310



TABULATION OF DRAIN MEASUREMENTS - 1991

| <u>NAME OF DRAIN AND OWNER</u> | <u>DISCHARGE IN CUBIC FEET PER SECOND</u> |               |               |               |               |                |
|--------------------------------|---|---------------|---------------|---------------|---------------|----------------|
|                                | <u>JAN 30</u>                             | <u>FEB 25</u> | <u>MAR 26</u> | <u>APR 26</u> | <u>MAY 28</u> | <u>JUNE 25</u> |
| Bitter Creek Drain.....        | 2.53                                      | 2.97          | 1.46          | -0-           | 0.55          | -0-            |
| Lincoln County                 |   |               |               |               |               |                |
| Q Line Roswell.....            | 0.41                                      | Buried        | No Flume      | No Flume      | No Flume      | No Flume       |
| Lincoln County                 |   |               |               |               |               |                |
| UU Line Roswell.....           | No Flume                                  | No Flume      | No Flume      | No Flume      | No Flume      | No Flume       |
| Lincoln County                 |   |               |               |               |               |                |
| AAA Line Roswell.....          | No Flume                                  | No Flume      | No Flume      | No Flume      | No Flume      | No Flume       |
| Lincoln County                 |   |               |               |               |               |                |
| CCC Line Roswell.....          | No Flume                                  | No Flume      | No Flume      | No Flume      | No Flume      | No Flume       |
| Lincoln County                 |   |               |               |               |               |                |
| South Spring Drain.....        | Submerged                                 | Submerged     | Submerged     | Submerged     | Submerged     | Submerged      |
| Lincoln County                 |   |               |               |               |               |                |
| D Line EGP Drain.....          | No Flume                                  | No Flume      | No Flume      | No Flume      | No Flume      | No Flume       |
| Rhodes                         |   |               |               |               |               |                |
| ABC Line EGP Drain.....        | 2.84                                      | 2.84          | 1.37          | 0.37          | Submerged     | 0.28           |
| Lincoln County                 |   |               |               |               |               |                |
| Gravel Pit Drain.....          | 2.06                                      | 1.78          | 2.10          | 2.39          | 2.44          | 1.55           |
| Hailey                         |   |               |               |               |               |                |
| Berry Drain.....               | No Flume                                  | No Flume      | No Flume      | No Flume      | No Flume      | No Flume       |
| Miles                          |   |               |               |               |               |                |
| E Line Greenfield.....         | No Flow                                   | No Flow       | No Flow       | No Flow       | No Flow       | No Flow        |
| Lincoln County                 |   |               |               |               |               |                |
| D Line Greenfield.....         | No Flow                                   | No Flow       | No Flow       | No Flow       | -0-           | No Flow        |
| Choat                          |   |               |               |               |               |                |
| Y Line.....                    | No Flume                                  | No Flume      | No Flume      | No Flume      | No Flume      | No Flume       |
| Durand                         |   |               |               |               |               |                |
| Buffalo Valley Drain.....      | -0-                                       | -0-           | -0-           | -0-           | 0.42          | 0.04           |
| Merritt                        |   |               |               |               |               |                |
| Sub Total c.f.s.               | 7.84                                      | 7.59          | 4.93          | 2.76          | 3.41          | 1.87           |
| Less 10% carriage loss         | 0.78                                      | 0.76          | 0.49          | 0.28          | 0.34          | 0.19           |
| TOTAL c.f.s.                   | 7.06                                      | 6.83          | 4.44          | 2.48          | 3.07          | 1.68           |

TABULATION OF DRAIN MEASUREMENTS - 1991

NAME OF DRAIN AND OWNER

DISCHARGE IN CUBIC FEET PER SECOND

|                           | <u>JULY 30</u> | <u>AUG 26</u> | <u>SEPT 24</u> | <u>OCT 28</u> | <u>NOV 26</u> | <u>DEC 31</u> |
|---------------------------|----------------|---------------|----------------|---------------|---------------|---------------|
| Bitter Creek Drain.....   | 1.64           | 0.59          | 3.01           | 1.28          | 4.70          | 9.48          |
| Lincoln County            |                |               |                |               |               |               |
| Q Line Roswell.....       | No Flume       | No Flume      | No Flume       | No Flume      | No Flume      | No Flume      |
| Lincoln County            |                |               |                |               |               |               |
| UU Line Roswell.....      | No Flume       | No Flume      | No Flume       | No Flume      | No Flume      | No Flume      |
| Lincoln County            |                |               |                |               |               |               |
| AAA Line Roswell.....     | No Flume       | No Flume      | No Flume       | No Flume      | No Flume      | No Flume      |
| Lincoln County            |                |               |                |               |               |               |
| CCC Line Roswell.....     | No Flume       | No Flume      | No Flume       | No Flume      | No Flume      | No Flume      |
| Lincoln County            |                |               |                |               |               |               |
| South Spring Drain.....   | Submerged      | Submerged     | Submerged      | Submerged     | Submerged     | Submerged     |
| Lincoln County            |                |               |                |               |               |               |
| D Line EGP Drain.....     | No Flume       | No Flume      | No Flume       | No Flume      | No Flume      | No Flume      |
| Rhodes                    |                |               |                |               |               |               |
| ABC Line EGP Drain.....   | 3.40           | 2.57          | 2.84           | 2.88          | No Flume      | No Flume      |
| Lincoln County            |                |               |                |               |               |               |
| Gravel Pit Drain.....     | 2.70           | 2.57          | 3.02           | 2.70          | Submerged     | Locked Gate   |
| Haley                     |                |               |                |               |               |               |
| Berry Drain.....          | No Flume       | No Flume      | No Flume       | No Flume      | No Flume      | No Flume      |
| Miles                     |                |               |                |               |               |               |
| E Line Greenfield.....    | No Flow        | No Flow       | No Flow        | No Flow       | No Flow       | No Flow       |
| Lincoln County            |                |               |                |               |               |               |
| D Line Greenfield.....    | No Flow        | No Flow       | No Flow        | No Flow       | No Flow       | No Flow       |
| Choat                     |                |               |                |               |               |               |
| Y Line.....               | No Flume       | No Flume      | No Flume       | No Flume      | No Flume      | No Flume      |
| Durand                    |                |               |                |               |               |               |
| Buffalo Valley Drain..... | 0.02           | 0.06          | 1.19           | -0-           | -0-           | -0-           |
| Merritt                   |                |               |                |               |               |               |
| Sub Total c.f.s.          | 7.76           | 5.79          | 10.06          | 6.86          | 4.70          | 9.48          |
| Less 10% carriage loss    | 0.78           | 0.58          | 1.01           | 0.69          | 0.47          | 0.95          |
| TOTAL c.f.s.              | 6.98           | 5.21          | 9.05           | 6.17          | 4.23          | 8.53          |