Water Use by Categories in New Mexico Counties and River Basins, and Irrigated Acreage in 1995

Prepared by
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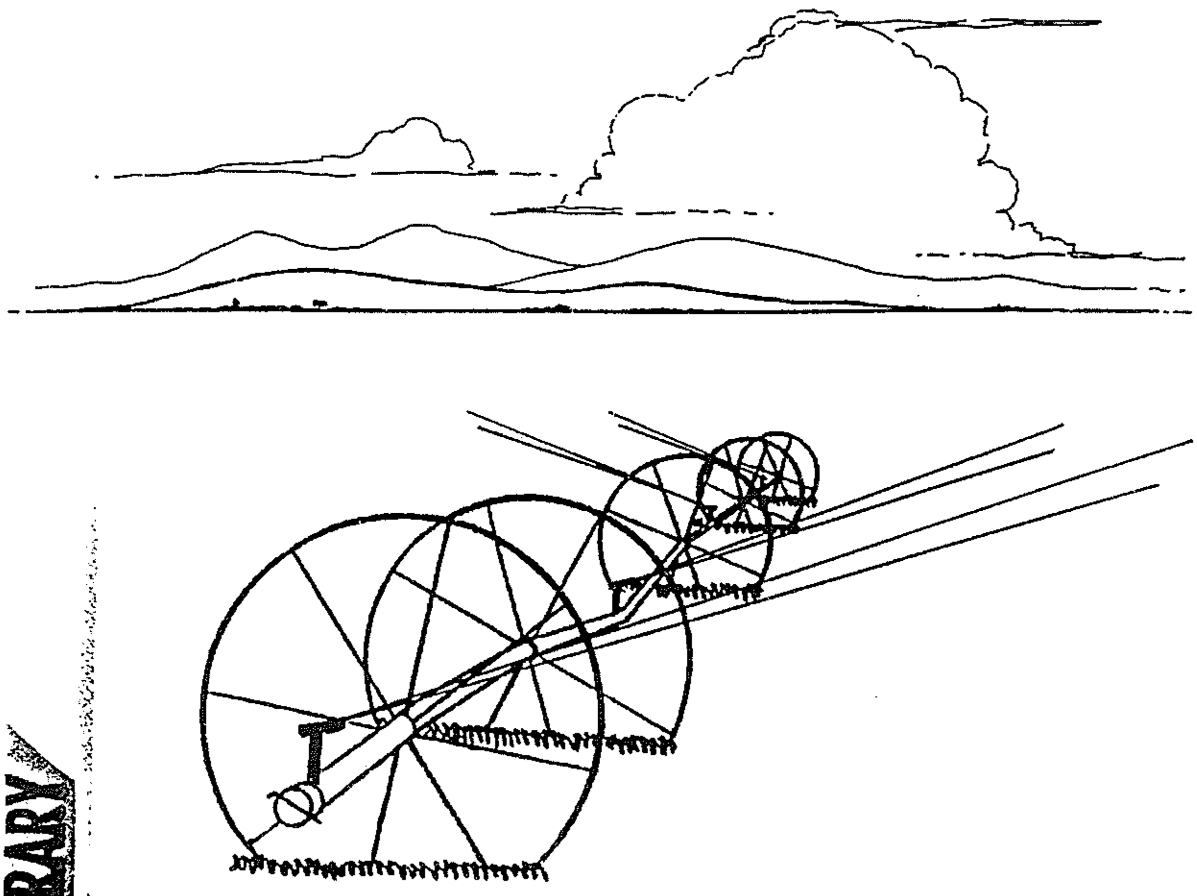

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Chapter 1

Introduction

1.1. PURPOSE

Limited in quantity, and in some areas by its quality, water is a primary factor in determining the future growth of New Mexico. The purpose of this report is to provide decision makers with the most comprehensive, current, and useful water use data available so that informed decisions can be made to insure the conservation and wise use of the state's water resources.

1.2. PREVIOUS WATER USE INVENTORIES

The U.S. Bureau of Reclamation (1950) published water withdrawals and depletions in drainage basins and for the state for 1945-49. Reynolds (1959) reported similar data for 1955 to the U.S. Senate Select Committee on National Water Resources. Withdrawals and depletions in 1965 were compiled by the New Mexico State Engineer Office and published by the New Mexico State Planning Office (1967). Data for 1970 were compiled by the New Mexico State Engineer Office and published by the U.S. Bureau of Reclamation and the New Mexico Interstate Stream Commission (1976). Data for 1975, 1980, 1985, and 1990 were compiled and published by the New Mexico State Engineer Office (Sorensen, 1977 and 1982; Wilson, 1985 and 1992).

1.3. THE 1995 WATER USE INVENTORY

The results of New Mexico's 1995 water use inventory are presented in this report. Categories inventoried include: Public Water Supply; Self-Supplied Domestic; Irrigated Agriculture; Livestock; Self-Supplied Commercial, Industrial, Mining, and Power; and Reservoir Evaporation. The composition of each water use category is defined in the text and detailed descriptions of the procedures used to quantify withdrawals and depletions are presented in a step by step format. Water use categories have been defined to facilitate the assimilation of data into the U.S. Geological Survey National Water Use Information System which was established by a directive from the U.S. Congress in 1977 to provide current, uniform, and reliable water use data.

Chapter 2 is an executive summary of water use in the state and each river basin. In Chapter 3, factors which affect water use in communities and results of six benchmark studies on residential water use are reviewed. In Chapter 4, application of the Blaney-Criddle method for determining consumptive irrigation requirements is explained, a computational aid which lists the equations used to compute irrigation withdrawals and depletions is provided, and causes of poor irrigation efficiency and measures which can be taken to improve farm water management are summarized. In Chapter 5, the results of a study on water requirements for beef cattle are reviewed, and suggested guidelines for estimating water requirements for dairies are presented. Chapter 6 includes guidelines for estimating water requirements for recreational facilities, notes on the impact of the species of turfgrass on irrigation water requirements for golf courses and measures which can be taken to conserve water, and characteristics of water use in the industrial sector. In Chapter 7, the importance of quantifying reservoir evaporation is recognized and an overview of methodologies which can be used to estimate evaporation is presented.

In the series of tables presented in the latter part of this report, water withdrawals and depletions in New Mexico counties and river basins in 1995 are tabulated for each of the nine water use categories. A table dedicated to Public Water Supply and Self-Supplied Domestic lists individual water systems by county, population, per capita water use, withdrawals, depletion factors, and depletions. Tables for Irrigated Agriculture are provided which show the consumptive irrigation requirements, incidental depletion factors, acreage irrigated by type of irrigation system and source of water, on-farm irrigation efficiency, off-farm conveyance efficiency, withdrawals, conveyance losses, and depletions for projects and locales in each county.

A glossary of terms and maps showing the state's counties, river basins, declared groundwater basins and location of irrigated cropland are also included.

1.4. REFERENCES

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Chapter 2

Executive Summary

2.1. THE STATE

Water withdrawals and depletions in New Mexico counties and river basins in 1995 are tabulated for nine water use categories: Public Water Supply; Self-Supplied Domestic; Irrigated Agriculture; Livestock; Self-Supplied Commercial, Industrial, Mining, and Power; and Reservoir Evaporation. The composition of each of these categories is defined in the text and detailed descriptions of the procedures used to quantify withdrawals and depletions are presented in a step by step format.

In 1995, withdrawals for all categories totaled 4,449,167 acre-feet. Surface water accounted for 2,542,562 acre-feet or 57.15% of the total withdrawal, and ground water for 1,906,605 acre-feet or 42.85%. Depletions totaled 2,762,497 acre-feet or 62.09% of the withdrawals. Surface water accounted for 1,407,828 acre-feet or 50.96% of the total depletion, and ground water for 1,354,669 acre-feet or 49.04%.

Irrigated Agriculture accounted for 3,353,638 acre-feet or 75.38% of the total withdrawals. Surface water accounted for 1,921,796 acre-feet or 57.30% of the irrigation withdrawals, and ground water for 1,431,842 acre-feet or 42.70%. In some areas of the state surface water supplies were not sufficient to meet the irrigation demand. Off-farm conveyance losses in canals and laterals amounted to 704,077 acre-feet or 36.64% of the surface water diverted for irrigation. Irrigation accounted for 1,879,657 acre-feet or 68.04% of the total depletions. Surface water accounted for 815,892 acre-feet or 43.41% of the irrigation depletions, and ground water for 1,063,765 acre-feet or 56.59%

The total acreage irrigated on farms in 1995 was 963,050 acres. Approximately 391,839 acres or 40.69% was irrigated with surface water, and 571,211 acres or 59.31% was irrigated with ground water. Drip irrigation accounted for 5,148 acres or 0.54%, flood for 547,608 acres or 56.86%, and sprinkler for 410,294 acres or 42.60%.

Public Water Supply and Self-Supplied Domestic accounted for 378,774 acre-feet or 8.51% of the total withdrawals. Surface water accounted for 38,172 acre-feet or 10.08% of the withdrawals, and ground water for 340,602 acre-feet or 89.92%. These two categories accounted for 212,270 acre-feet or 7.68% of the total depletions. Surface water accounted for 18,947 acre-feet or 8.93% of the depletions, and ground water for 193,323 acre-feet or 91.07%.

The population of New Mexico increased from 1,526,318 in 1990 to 1,686,477 in 1995, an increase of 160,159 or 10.49%. Approximately 1,246,643 or 73.92% of the state's population live in urban communities.

Together, Public Water Supply, Self-Supplied Domestic, and Irrigated Agriculture accounted for 83.89% of the total withdrawals and 75.73% of the total depletions.

Mining and Power accounted for 131,448 acre-feet or 2.95% of the total withdrawals. Surface water accounted for 52,743 acre-feet or 40.12% of the withdrawals, and ground water for 78,705 acre-feet or 59.88%. These two categories accounted for 96,983 acre-feet or 3.51% of the total depletions. Surface water accounted for 43,573 acre-feet or 44.93% of the depletions, and ground water for 53,410 acre-feet or 55.07%.

Livestock, Commercial, and Industrial accounted for 63,874 acre-feet or 1.44% of the total withdrawals. Surface water accounted for 8,418 acre-feet or 13.18% of these withdrawals, and ground water for 55,456 acre-feet or 86.82%. These categories accounted for 52,154 acre-feet or 1.89% of the total depletions. Surface water accounted for 7,982 or 15.31% of the depletions, and ground water for 44,172 acre-feet or 84.69%.

Evaporation from reservoirs with a storage capacity of 5,000 acre-feet or more amounted to 521,432 acre-feet or 11.72% of the total withdrawals, and 18.88% of the total depletions.

2.2. ARKANSAS-WHITE-RED RIVER BASIN

Withdrawals in the basin totaled 433,160 acre-feet or 9.74% of the state total. Surface water accounted for 306,938 acre-feet or 70.86% of the basin withdrawals, and ground water for 126,222 acre-feet or 29.14%. Depletions in the basin totaled 273,161 acre-feet or 9.89% of depletions in the state. Surface water accounted for 171,115 acre-feet or 62.64% of the basin depletions, and ground water for 102,046 acre-feet or 37.36%.

Irrigated Agriculture accounted for 335,383 acre-feet or 77.43% of the basin withdrawals. Surface water accounted for 217,098 acre-feet or 64.73% of the irrigation withdrawals in the basin, and ground water for 118,285 acre-feet or 35.27%. Off-farm conveyance losses in canals and laterals amounted to 90,329 acre-feet or 41.61% of the surface water diverted for irrigation in the basin. Irrigation accounted for 179,133 acre-feet or 65.58% of the basin depletions. Surface water accounted for 82,539 acre-feet or 46.08% of the irrigation depletions, and ground water for 96,594 acre-feet or 53.92%

Acreage irrigated in the basin totaled 136,567 acres or 14.18% of the state total. Drip irrigation accounted for 60 acres or 0.04%, flood for 79,635 acres or 58.31%, and sprinkler for 56,872 acres or 41.65%. Approximately 70,489 acres or 51.61% were irrigated with surface water, and 66,078 acres or 48.39% were irrigated with ground water.

Public Water Supply and Self-Supplied Domestic accounted for 6,755 acre-feet or 1.56% of the basin withdrawals. Surface water accounted for 2,234 acre-feet or 33.07% of the withdrawals, and ground water for 4,521 acre-feet or 66.93%. These two categories accounted for 3,351 acre-feet or 1.23% of the basin depletions. Surface water accounted for 1,233 acre-feet or 36.81% of the depletions, and ground water for 2,118 acre-feet or 63.19%.

The population in the basin was 35,727 or 2.12% of the state total. Approximately 16,028 or 44.86% of the basin population live in urban communities. The largest city in the basin is Raton (8,597).

Mining accounted for 653 acre-feet or 0.15% of the basin withdrawals, and 432 acre-feet or 0.16% of the basin depletions. Surface water accounted for 94.25% of the withdrawals and 96.90% of the depletions.

There are no self-supplied power generating stations in the basin.

Livestock and Commercial accounted for 4,693 acre-feet or 1.08% of the basin withdrawals. No Industrial water uses were reported. Surface water accounted for 1,314 acre-feet or 28.00% of these withdrawals, and ground water for 3,379 acre-feet or 72.00%. These categories accounted for 4,569 acre-feet or 1.67% of the basin depletions. Surface water accounted for 1,248 acre-feet or 27.32% of the depletions, and ground water for 3,321 acre-feet or 72.68%.

Evaporation from reservoirs with a storage capacity of 5,000 acre-feet or more amounted to 85,675 acre-feet or 19.78% of the basin withdrawals, and 31.36% of the basin depletions.

2.3. TEXAS GULF RIVER BASIN

Withdrawals in the basin totaled 565,056 acre-feet or 12.70% of the state total. Surface water accounted for 151 acre-feet or 0.03% of the basin withdrawals, and ground water for 564,905 acre-feet or 99.97%. Depletions in the basin totaled 451,326 acre-feet or 16.34% of the depletions in the state. Surface water accounted for 151 acre-feet or 0.03% of the basin depletions, and ground water for 451,175 acre-feet or 99.97%.

Irrigated Agriculture accounted for 510,116 acre-feet or 90.28% of the basin withdrawals, and 416,896 or 92.37% of the basin depletions. All of the withdrawals came from ground water. Acreage irrigated in the basin totaled 268,542 acres or 27.89% of the state total. Drip irrigation accounted for 842 acres or 0.31%, flood for 43,780 acres or 16.30%, and sprinkler for 223,920 acres or 83.39%.

Public Water Supply and Self-Supplied Domestic accounted for 30,013 acre-feet or 5.31% of the basin withdrawals, and 15,320 acre-feet or 3.40% of the basin depletions. All of the withdrawals came from ground water.

The population in the basin was 116,001 or 6.88% of the state total. Approximately 98,181 or 84.64% of the basin population live in urban communities. The largest cities in the basin are Clovis (37,375), Hobbs (29,860), Portales (12,678) and Lovington (9,322).

Mining and Power accounted for 16,923 acre-feet or 2.99% of the basin withdrawals, and 11,972 acre-feet or 2.65% of the basin depletions. All of the withdrawals for these two categories came from ground water.

Livestock, Commercial, and Industrial accounted for 8,004 acre-feet or 1.42% of the basin withdrawals. Surface water accounted for 151 acre-feet or 1.89% of these withdrawals, and ground water for 7,853 acre-feet or 98.11%. These categories accounted for 7,138 acre-feet or 1.58% of the basin depletions. Surface water accounted for 151 acre-feet or 2.12% of the depletions, and ground water for 6,987 acre-feet or 97.88%

There are no reservoirs in the basin with a capacity of 5,000 acre-feet or more.

2.4. PECOS RIVER BASIN

Withdrawals in the basin totaled 808,481 acre-feet or 18.17% of the state total. Surface water accounted for 318,820 acre-feet or 39.43% of the basin withdrawals, and ground water for 489,661 acre-feet or 60.57%. Depletions in the basin totaled 519,891 acre-feet or 18.82% of the depletions in the state. Surface water accounted for 174,640 acre-feet or 33.59% of the basin depletions, and ground water for 345,251 acre-feet or 66.41%.

Irrigated Agriculture accounted for 674,938 acre-feet or 83.48% of the basin withdrawals. Surface water accounted for 261,847 acre-feet or 38.80% of the irrigation withdrawals in the basin, and ground water for 413,091 acre-feet or 61.20%. Off-farm conveyance losses in canals and laterals amounted to 75,272 acre-feet or 28.75% of the surface water diverted for irrigation in the basin. Irrigation accounted for 416,572 acre-feet or 80.12% of the basin depletions. Surface water accounted for 120,776 acre-feet or 28.99% of the irrigation depletions, and ground water for 295,796 acre-feet or 71.01%

Acreage irrigated in the basin totaled 171,250 acres or 17.78% of the state total. Drip irrigation accounted for 291 acres or 0.17%, flood for 119,487 acres or 69.77%, and sprinkler for 51,472 acres or 30.06%. Approximately 46,505 acres or 27.16% were irrigated with surface water, and 124,745 acres or 72.84% were irrigated with ground water.

Public Water Supply and Self-Supplied Domestic accounted for 47,260 acre-feet or 5.85% of the basin withdrawals. Surface water accounted for 4,723 acre-feet or 9.99% of the withdrawals, and ground water for 42,537 acre-feet or 90.01%. These two categories accounted for 31,303 acre-feet or 6.02% of the basin depletions. Surface water accounted for 1,725 acre-feet or 5.51% of the depletions, and ground water for 29,578 acre-feet or 94.49%.

The population in the basin was 171,973 or 10.20% of the state total. Approximately 118,528 or 68.92% of the basin population live in urban communities. The largest cities in the basin are Roswell (47,784), Carlsbad (27,480), Las Vegas (15,800) and Artesia (12,026).

Mining accounted for 17,873 acre-feet or 2.21% of the basin withdrawals, and 6,961 acre-feet or 1.34% of the basin depletions. Over 99% of the withdrawals for mining came from ground water.

There are no self-supplied power generating stations in the basin.

Livestock, Commercial, and Industrial accounted for 17,949 acre-feet or 2.22% of the basin withdrawals. Surface water accounted for 1,720 acre-feet or 9.58% of these withdrawals, and ground water for 16,229 acre-feet or 90.42%. These categories accounted for 14,595 acre-feet or 2.81% of the basin depletions. Surface water accounted for 1,659 acre-feet or 11.37% of the depletions, and ground water for 12,936 acre-feet or 88.63%

Evaporation from reservoirs with a storage capacity of 5,000 acre-feet or more amounted to 50,461 acre-feet or 6.24% of the basin withdrawals, and 9.71% of the basin depletions.

2.5. RIO GRANDE BASIN

Withdrawals in the basin totaled 2,104,873 acre-feet or 47.31% of the state total. Surface water accounted for 1,434,708 acre-feet or 68.16% of the basin withdrawals, and ground water for 670,165 acre-feet or 31.84%. Depletions in the basin totaled 1,178,878 acre-feet or 42.67% of the depletions in the state. Surface water accounted for 759,523 acre-feet or 64.43% of the basin depletions, and ground water for 419,355 acre-feet or 35.57%.

Irrigated Agriculture accounted for 1,429,924 acre-feet or 67.94% of the basin withdrawals. Surface water accounted for 1,072,419 acre-feet or 75.00% of the irrigation withdrawals in the basin, and ground water for 357,505 acre-feet or 25.00%. Off-farm conveyance losses in canals and laterals amounted to 427,925 acre-feet or 39.90% of the surface water diverted for irrigation in the basin. Irrigation accounted for 639,176 acre-feet or 54.22% of the depletions in the basin. Surface water accounted for 404,431 acre-feet or 63.27% of the irrigation depletions, and ground water for 234,745 acre-feet or 36.73%

Acreage irrigated in the basin totaled 294,886 acres or 30.62% of the state total. Drip irrigation accounted for 3,955 acres or 1.34%, flood for 263,866 acres or 89.48%, and sprinkler for 27,065 acres or 9.18%. Approximately 192,710 acres or 65.35% were irrigated with surface water, and 102,176 acres or 34.65% were irrigated with ground water.

Public Water Supply and Self-Supplied Domestic accounted for 264,850 acre-feet or 12.58% of the basin withdrawals. Surface water accounted for 13,498 acre-feet or 5.10% of the withdrawals, and ground water for 251,352 acre-feet or 94.90%. These two categories accounted for 144,862 acre-feet or 12.29% of the basin depletions. Surface water accounted for 6,635 acre-feet or 4.58% of the depletions, and ground water for 138,227 acre-feet or 95.42%.

The population in the basin was 1,180,696 or 70.01% of the state total. Approximately 906,943 or 76.81% of the basin population live in urban communities. The largest cities in the basin are Albuquerque (470,771), Las Cruces (70,000) and Santa Fe (66,000).

Mining and Power accounted for 36,847 acre-feet or 1.75% of the basin withdrawals. Surface water accounted for 68 acre-feet or 0.19% of the withdrawals, and ground water for 36,779 acre-feet or 99.81%. These two categories accounted for 28,473 acre-feet or 2.41% of the basin depletions. Surface water accounted for 15 acre-feet or 0.05% of the depletions, and ground water for 28,458 acre-feet or 99.95%.

Livestock, Commercial, and Industrial accounted for 26,752 acre-feet or 1.27% of the basin withdrawals. Surface water accounted for 2,223 acre-feet or 8.31% of the withdrawals, and ground water for 24,529 acre-feet or 91.69%. These categories accounted for 19,869 acre-feet or 1.69% of the basin depletions. Surface water accounted for 1,943 acre-feet or 9.78% of the depletions, and ground water for 17,926 acre-feet or 90.22%.

Evaporation from reservoirs with a storage capacity of 5,000 acre-feet or more amounted to 346,499 acre-feet or 16.46% of basin withdrawals, and 29.39% of basin depletions.

improvements where they are most needed. Estimating and reducing unaccounted-for water is a major objective of a water system audit. Unaccounted-for water includes distribution-system losses through leaks, unmetered water delivered through fire hydrants, water taken illegally from the distribution system, inoperative system controls (for example, blowoff valves and altitude-control valves), and water used in flushing water mains or sewers (Center for the Study of Law and Politics, 1990, p. 35). Unauthorized use of hydrants includes theft by chemical lawn service companies, building contractors, and water haulers who have the tools needed to open hydrants without permission.

3.6.9. Leak Detection and Repair. New water mains are generally water tight when they are first installed; however, as the system ages, settling of pipe may partially open joints causing leakage. Leakage will also increase due to pipe corrosion and deterioration of joint compounds. Systematic leak detection can greatly reduce distribution costs and wastewater treatment expenses. A leak-reduction program begins with a water audit, proceeds to a leak-detection and repair program, and, finally, includes improved system maintenance and rehabilitation.

3.6.10. Pressure Reduction. High water pressure at the outlets will generally result in higher water use because the flow rate is higher than under low pressure conditions. Pressure will have an effect on leakage because the rate of flow from a leak is proportional to the square root of the pressure. By increasing a 25 psig service pressure to 45 psig, water use can be expected to increase as much as 30% (AWWA, 1986). In new housing developments where water pressure is maintained at 50 psi instead of 80 psi, a 3% to 6% savings in water use may be expected (Bailey, 1984).

3.6.11. Indoor Plumbing Fixture and Appliance Ordinances, Audits, and Retrofits. The installation of water-saving plumbing fixtures (toilets, showerheads, and faucets) and appliances (dishwashers, washing machines, evaporative coolers, and water softeners) in new construction or as replacements can be very effective in reducing water use. **The National Energy Policy Act of 1992 now requires that toilets manufactured after January 1, 1994 for dwelling units, use not more than 1.6 gallons per flush (gpf); the maximum flow rate of showerheads shall not exceed 2.5 gallons per minute (gpm); and the maximum flow rate of kitchen and bathroom faucets shall not exceed 2.5 gpm.** Manufacturers have also made significant improvements in the efficiency of appliances. At the time of this writing, new dishwashers use 6 to 8 gallons per load; top-loading washing machines 39 to 43 gallons per load; and front-loading washing machines 20 to 30 gallons per load. (Consumer Reports, July, 1996; January, 1997; July, 1997). Improvements have also been made in evaporative coolers and water softeners which reduce water use. Indoor water use in a home with water conserving plumbing fixtures and appliances is shown in Table 3.2 which appears later in this chapter.

3.6.12. Landscape Ordinances, Audits, and Retrofits. A landscape design ordinance enacted by a local government or water utility can be a very effective water conservation measure. Homeowners, and commercial and industrial enterprises that adopt low-water use landscaping, efficiently irrigated, can reduce outdoor water use significantly. Landscaping ordinances can be incorporated into the building permit approval process. Landscape design requirements are most effective when accompanied by a design review service offered through the city or county planning office, or local water utility. Such services can help subdividers, homeowners, and businesses develop landscaping plans that are consistent with community water conservation goals. Some communities designate review boards, usually consisting of landscape architects or planners, to evaluate and approve landscape designs for certain types of new development. For example, a city or county may use a review board to ensure that new landscaping and irrigation systems comply with its xeriscape requirements. After the landscape project has been completed, the site is visited and a certificate of compliance is issued if all landscape design requirements are met. To provide an incentive for low water use landscaping, a credit or rebate may be offered toward the connection fee if homeowners comply with landscaping guidelines. Such incentives may also be offered to encourage homeowners or businesses to convert high-water using landscapes and inefficient irrigation systems to low water use landscapes and efficient irrigation systems.

3.6.13. Water Waste Ordinances. Water waste is usually defined in local government ordinances as water which flows or is discharged from a residence or place of business onto an adjacent property or public right-of-way. Such discharges occur most often from landscape irrigation or leaking water pipes. Water waste ordinances may curtail waste.

3.6.14. Irrigation with Reclaimed Wastewater. The reuse of treated sewage effluent for the irrigation of golf courses, parks, playing fields, and greenbelts; or for industrial purposes, can reduce the demand for freshwater.

3.7. RESIDENTIAL WATER USE

3.7.1. Benchmark Studies of Indoor Water Use

Residential water use is comprised of two components: (1) indoor, i.e., uses inside of the house, and (2) outdoor, i.e., uses outside of the house. The results of several benchmark studies which have been conducted to quantify domestic water use in American homes are summarized in the text which follows.

3.7.1.1. Bennett (1975). To define the parameters that affect the design of home wastewater systems, six middle class families in Boulder, Colorado were monitored for 15 consecutive days during the month of January when there was no outdoor water use. All of these homes had been constructed since 1950, were equipped with modern appliances, and were connected to the municipal water and sewage system. At each of these residences the male head of household was away at work during the day, the older children were in school, and several of the wives were engaged in part-time employment or community work. Indoor water use for this study group ranged from 32 to 82 gpcd and averaged 45 gpcd. After comparing water use in two different households which were nearly identical in terms of number of family members, age of children, and size of home, it was concluded that water use depended more upon life style than family size or age, as evidenced by the fact that, in the household which had the lower water use, the housewife and her youngest child were away from home in the afternoons. In general, data indicated that small families had a higher per capita water use than larger families. While participants in this study typically used 30 gallons per shower, it was also observed that a teenager may use up to 50 gallons per shower, this amount apparently being limited by the size of the hot water heater.

3.7.1.2. Brown and Caldwell (1984). In 1980 the U.S. Department of Housing and Urban Development initiated a three-year residential water conservation demonstration program. Homes of upper income families with and without water-saving fixtures were selected nationwide. To compare the effects of different types of water conserving devices on indoor water use, water fixture use data was compiled into three separate groups. Estimated per capita water use resulting from this study was as follows. Group I, homes with no water-conserving devices—78 gpcd. Group II, homes with conventional nonconserving toilets retrofitted with dams, bags, or bottles; showers

Where desert landscaping has been adopted, outdoor water use may account for only 3% or less of the total residential water use.

3.8. PER CAPITA WATER USE FOR SELF-SUPPLIED DOMESTIC

The preceding discussion illustrates that there is a wide range of values for residential water use. For the purpose of estimating withdrawals for the self-supplied domestic population, in most counties an areawide average of 80 gpcd is used. In counties where water requirements for landscape irrigation and evaporative cooling are more prevalent, an areawide average of 100 gpcd is used; and in Catron, Cibola, McKinley, and San Juan counties where a segment of the population does not have indoor running water, an areawide average of 70 gpcd is used.

3.9. NOTES ON INDIVIDUAL WATER SYSTEMS

Site-specific data reported in many of the water use categories inventoried is often annotated with a water transfer code (WTC) which is used to flag (1) water imports and exports across a state or county line, or river basin boundary; (2) the transfer of water from one public water supplier to another; (3) the transfer of water from a public water supplier to a facility which is also self-supplied; and (4) to note other facets of a water system which may be of interest. These water transfer codes, many of which appear in Table 6 in the latter part of this report, are defined as follows.

0—No water transfers occurred.

1—Water is imported across a state or county line or river basin boundary.

2—Water is exported across a state or county line, or river basin boundary.

3—Water delivered to customers (e.g., a water utility, commercial and industrial enterprises, or individual residences) outside of the city or village in which the water supplier is based is not included in the withdrawal shown.

4—Water delivered to customers outside of the city or village in which the water supplier is based is included in the withdrawal shown, and the population reported also reflects the additional population served.

5—Water delivered to customers outside of the city or village in which the water supplier is based is included in the withdrawal shown, but a reasonable estimate of the additional population served is unavailable or customers served are commercial and industrial enterprises for which population figures are not relevant.

6—All of the water distributed in this community is received from another water utility.

7—Part of the water distributed in this community is received from another water utility and is included in the withdrawal shown.

8—Part of the water used at this self-supplied facility is received from a water utility or another organization. The water transferred to this facility is not included in the withdrawal shown.

9—Water is provided to seasonal visitors in addition to the established residential population. The withdrawal shown reflects the total water use, however, the population and per capita use reported are based on the number of residents who live in the community year-round.

10—This military installation experiences a daily influx of civilian workers. The withdrawal shown reflects the total water use, however, the population and per capita use reported are based on the number of military personnel and their families who live on the installation year-round.

Notes on individual water systems are listed by county in the text which follows. Except where noted otherwise, water transferred from one water utility to another is added to the withdrawal of the receiving organization and is subtracted from the withdrawal of the utility from which the water was purchased. The withdrawals reported in Table 6 of this report reflect these adjustments.

Bernalillo County (01): **(a)** The Albuquerque water system serves a population of about 418,838 inside the city limits, and 51,933 outside, for a total of 470,771. This total does not include the residential population at Kirtland Air Force Base which has its own water system. 1995 withdrawals for Ladera (629 acre-feet) and Los Altos (534 acre-feet) golf courses, which are self-supplied municipal facilities, are included in the total withdrawal reported for the Albuquerque water system. **(b)** The Entranosa Water Co-Op delivers water to a population of about 3,262 in Bernalillo County, and 1,088 in Santa Fe County. **(c)** Paradise Hills exported 129 acre-feet to Rio Rancho (Albuquerque Utilities) in Sandoval County. Irrigation withdrawals (not itemized in data reported by the water supplier) for the Double Eagle Golf Course, which is a self-supplied municipal facility, are included in the withdrawal reported for Paradise Hills.

Chaves County (05): **(a)** The Berrendo WUA delivered 13.32 acre-feet to South Springs Acres, a subdivision located about one mile south of Roswell. **(b)** In addition to the water purchased from Berrendo, South Springs Acres produced 135 acre-feet from its own well. This water is used primarily for landscape irrigation. **(c)** In addition to producing municipal drinking water, Dexter also pumps ground water to maintain the water level in Lake Van, which is outside the village limits, and to irrigate park areas around the lake. **(d)** Roswell's treated sewage effluent is reused for irrigated crop production by farmers who contract with the city.

Cibola County (06): **(a)** In 1983 the Acoma tribe filed suit against the city of Grants to curtail the discharge of sewage effluent into the Rio San Jose which is the source of the tribe's irrigation water. As a result of a court order issued in 1990, Grants implemented a "zero discharge plan" which reuses treated sewage effluent to irrigate the Coyote del Malpais Golf Course. **(b)** The population served by the Milan water system includes about 600 residents in a subdivision outside the city limits.

Colfax County (07): **(a)** Angel Fire Services Corporation supplies all of the water for the condominiums, private homes, hotels, restaurants, shops, golf course, and snow making at the ski resort. **(b)** The population served by the Raton water system includes residents outside the city limits. **(c)** The population served by the Springer water system includes residents in subdivisions outside the city limits and the Boys School.

Curry County (09): 1995 irrigation withdrawals (estimated as 272 acre-feet) for Clovis Golf Course, which is a self-supplied municipal facility, are included in the withdrawal reported for Clovis.

De Baca County (11): Fort Sumner supplies all of the water distributed by the Valley WUA.

Dona Ana County (13): **(a)** The population served by the Hatch water system includes residents in Placitas (population 401) and Rodey (population 271) which are outside the city limits. **(b)** The population served by the Las Cruces water system does not include residents served by private water systems within the city; however, it does include residents served in Mesilla which is outside the city limits. **(c)** Picacho Hills owns and operates one self-supplied golf course and delivers water to various satellite subdivisions. The irrigation withdrawals for the golf course (about 381 acre-feet), the water delivered to the subdivisions, and the additional population are included in the data reported for Picacho Hills. **(d)** Rincon delivers water to the U.S. Border Patrol and this water is included in the withdrawal reported for Rincon. **(e)** Santa Teresa owns and operates two self-supplied golf courses and delivers water to Sunland Park (285.68 acre-feet in 1995). 1995 irrigation withdrawals for the golf courses (1296.41 acre-feet) are included in the withdrawal reported for Santa Teresa. **(f)** In addition to the water purchased from Santa Teresa, Sunland Park produced 699.60 acre-feet from its own wells.

Eddy County (15): **(a)** Artesia supplies all of the water distributed by the Morningside Water Co-Op. **(d)** Artesia's treated sewage effluent is reused to irrigate city parks. **(c)** The population served by the Carlsbad water system includes residents in La Huerta, which is outside the city limits. 1995 irrigation withdrawals (471.20 acre-feet) for the Lake Carlsbad Golf Course, which is a self-supplied municipal facility, are included in the withdrawal reported for Carlsbad. **(d)** Carlsbad delivered 79.52 acre-feet to Otis and is reflected in the withdrawal reported for Otis. **(e)** In addition to the water purchased from Carlsbad, Otis produced 533.20 acre-feet from its own wells. **(f)** Loving supplies all of the water distributed in Malaga.

Grant County (17): **(a)** Silver City delivers water to Arenas Valley, Pinos Altos, Tyrone, and Rosedale. **(b)** Silver City's treated sewage effluent is reused to irrigate the Silver City Golf Course. **(c)** Chino Mines supplies all of the water distributed by the Hurley water system.

Guadalupe County (19): **(a)** Santa Rosa supplies all of the water distributed in Rio Pecos Villa. **(b)** Vaughn exports water to Duran and Encino in Torrance County and delivers water to various ranchers. The water exported and the water delivered to the ranchers is not included in the withdrawal reported for Vaughn.

Lea County (25): **(a)** Eunice provides part of the water used at Warren Petroleum's gas processing plant which is located outside of the city limits. This withdrawal is included in the withdrawal for Eunice. **(b)** Jal's treated sewage effluent is reused to irrigate the Jal Country Club Golf Course.

Lincoln County (27): **(a)** Capitan imported 1.16 acre-feet of surface water from Alamogordo via the Bonita pipeline and produced 163 acre-feet of ground water from its own wells. **(b)** Fort Stanton imported 94 acre-feet from the Bonita pipeline. **(c)** Carrizozo imported 36.07 acre-feet of surface water from the Bonita pipeline and produced 136.48 acre-feet of ground water from its own wells. **(d)** Nogal imported 3.41 acre-feet of surface water from the Bonita pipeline. **(e)** Irrigation withdrawals (not itemized in the data reported by the water supplier) for the Links Golf Course, which is a self-supplied municipal facility, is included in the withdrawal reported for

Ruidoso.

Los Alamos County (28): (a) The withdrawal reported for Los Alamos includes water delivered to Los Alamos National Laboratories and White Rock. (b) Los Alamos and White Rock's treated sewage effluent is reused to irrigate Los Alamos golf course, numerous playing fields, and for cooling tower makeup water at power generating stations.

McKinley County (31): Gallup delivers water to Fort Wingate and Gemerco, and various commercial enterprises outside the city limits.

Otero County (35): (a) The reported population and withdrawal for Alamogordo does not include the residential population of, or water deliveries to, Holloman Air Force Base which is outside the city limits; and exports to Capitan, Carrizozo, Ft. Stanton, and Nogal which are in Lincoln County. 1995 irrigation withdrawals (estimated as 202 acre-feet of ground water) for Desert Lakes Golf Course, which is a self-supplied municipal facility, are included in the withdrawals reported for Alamorgordo. (b) Alamogordo's treated sewage effluent is reused to irrigate the Desert Lakes Golf Course. (c) Orogrande delivers water to the Bureau of Land Management, the U.S. Forest Service, and two ranches. The withdrawal reported for Orogrande reflects these deliveries.

Quay County (37): The population served by the Tucumcari water system includes residents in Liberty (population 200), RAD and Tuc-Cam (combined population of 400) which are outside the city limits. 1995 irrigation withdrawals (81 acre-feet of surface water) for Tucumcari Golf Course, which is a self-supplied municipal facility, are included in the withdrawals reported for Tucumcari.

Rio Arriba County (39): The population of Espanola is split between Rio Arriba County (population 8,452) and Santa Fe County (population 1,697).

Roosevelt County (41): Portales supplies all of the water distributed by the Roosevelt County Water Co-Op.

Sandoval County (43): (a) Corrales does not have a municipal water system. Residences are self-supplied. The population of Corrales is split between Bernalillo County (population 5,378) and Sandoval County (population 598). (b) Rio Rancho imported a small amount of water from Paradise Hills. See Bernalillo County. (c) Rio Rancho's treated sewage effluent is reused to irrigate the Rio Rancho Country Club Golf Course.

San Juan County (45): (a) Aztec supplies water to the Flora Vista WUA and the Southside WUA. (b) Flora Vista also purchased 25.7 acre-feet of surface water from Farmington, and produced 228.6 acre-feet of ground water from its own wells. (c) Bloomfield supplies water to East and West Hammond MDWCA, and the Lee Acres WUA. (d) Farmington supplies water to the Cedar Ridge WUA, the Flora Vista WUA, the Lower Valley WUA (Kirtland), NTUA Shiprock, and the Upper La Plata WUA. 1995 irrigation withdrawals (412 acre-feet of ground water) for the Pinon Hills Golf Course, which is a self-supplied municipal facility, are included in the withdrawals reported for Farmington. (e) In addition to 5.8 acre-feet of surface water purchased from Farmington, the Lower Valley WUA also diverted 967.4 acre-feet of surface water from its own diversion works.

Santa Fe County (49): (a) There are several small community water systems (estimated population 1,600) located within the city limits of Santa Fe as well as a number of self-supplied residences (estimated population 1,200). The Sangre de Christo Water Company serves a population of about 61,094 inside the city limits, and 4,906 outside, for a total of 66,000. Communities served outside the city limits include Cottonwood Village MHP (population 1,309), Estancia Primera (population 772), Las Campanas (population 90), La Tierra and La Mariposa (combined population of 1,040), Vista Primera (population 195 prior to construction of apartments), and other residential developments off Airport Road and Lower Aqua Fria (combined population of about 1,500). **(b)** Santa Fe's treated sewage effluent is reused to irrigate the Sante Fe Country Club Golf Course.

Sierra County (51): The population served by the Truth or Consequences water system includes residents in Williamsburg (482), which is outside the city limits. 1995 irrigation withdrawals (estimated as 218 acre-feet) for the Oasis Golf Course, which is a self-supplied municipal facility, are included in the withdrawal reported for T or C.

Taos County (55): **(a)** Taos treated sewage effluent is reused to irrigate the Taos Country Club Golf Course. **(b)** The Twining Water and Sanitation District supplies all of the potable water for the condominiums, hotels, restaurants, and shops in Taos Ski Valley. Water used for snow making is permitted under water rights owned by the Taos Ski Valley, a separate corporation, and this water use is tabulated in Commercial rather than Public Water Supply.

Torrance County (57): Duran and Encino both import water from Vaughn in Guadalupe County. See Guadalupe County.

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Chapter 4

Irrigated Agriculture

4.1. INTRODUCTION

The procedure presented in this report for quantifying irrigation withdrawals and depletions addresses many facets of irrigation that are often overlooked. It recognizes the need for the separation of irrigation water requirements by type of irrigation system and source of water. Application of the original Blaney-Criddle method for determining the consumptive irrigation requirement of a cropping pattern is described in detail and includes discussion of methods which are used to adjust estimated crop water requirements to account for water supply shortages and other factors. A computational aid which lists the equations used to compute irrigation withdrawals and depletions is provided. Causes of poor irrigation efficiency are identified, and an overview of what can be done to improve irrigation water management is presented. For definitions of terms used in this section, see the glossary included in this report.

4.2. COMPOSITION OF CATEGORY

Irrigated Agriculture (IR). Includes all diversions of water for the irrigation of crops grown on farms, ranches, and wildlife refuges. This category is identified as **Major Group 01 and Industry Group 011-017** in the Standard Industrial Classification Manual (1987).

4.3. PROCEDURE FOR QUANTIFYING IRRIGATION WITHDRAWALS AND DEPLETIONS

<u>Step 1:</u> Identify irrigated cropping areas and tabulate the gross irrigated acreage for each individual crop in the cropping pattern by type of irrigation system. The gross acreage is the irrigated acreage as defined in the glossary, plus the multiple-cropped acreage.

Sources of irrigated cropland data include the U.S. Bureau of Indian Affairs; the U.S. Bureau of Reclamation; the U.S. Department of Agriculture, Agricultural Stabilization and Conservation Service, Natural Resources Conservation Service, and National Agricultural Statistics Service; irrigation districts; and county extension agents. Hydrographic surveys, adjudications and court decrees, licenses and permits for water rights, and recent aerial photography may also be helpful in determining the acreage irrigated.

It is important that the irrigated acreage be broken out by type of irrigation system because the incidental depletion factors which are used in the determination of total depletions, and the irrigation efficiencies that are used in the determination of total withdrawals, vary with the type of irrigation system. The methods which farmers use to apply water to irrigated cropland can be separated into four categories: (1) drip irrigation, (2) flood irrigation, (3) sprinkler irrigation, and (4) subsurface irrigation. Each of these categories encompasses a variety of water application methods.

Drip or trickle irrigation can be defined as the precise application of water on, above, or beneath the soil by surface drip, subsurface drip, bubbler, spray, mechanical-move, and pulse systems. Water is applied as discrete or continuous drops, tiny streams, or miniature spray through emitters or applicators placed along a water delivery line near the plant.

Flood irrigation includes furrow, border-strip, level-basin, and wild flooding. It is often referred to as "surface irrigation," because the water applied flows over the surface of the irrigated field, or "gravity irrigation," because free water runs downhill.

Sprinkler irrigation systems can be divided into periodic move systems, which are sprinklers that remain at a fixed position while irrigating, and continuous move systems, which are sprinklers that move in either a circular or straight path while irrigating. The periodic move systems include sprinkler lateral, overlapped hose-fed sprinkler grid, perforated pipe, orchard sprinklers, and gun sprinklers. The dominant continuous move systems are center pivot and side-roll sprinklers.

Subsurface irrigation requires the creation of an artificial water table over a natural barrier that prevents deep percolation. The water table is kept at a fixed depth, usually 12 to 30 inches, below the surface. Moisture is supplied to the plant roots through upward capillary movement. Water may be introduced into the soil profile through open ditches, mole drains, or tile drains. However, in most areas where subsurface irrigation is practiced, water is distributed to the fields by canals, laterals, and field ditches. Subsurface irrigation was used on an experimental basis in New Mexico in the early 1900s, but it is no longer practiced today.

Step 2: The irrigated acreage tabulated for each type of irrigation system is further broken down according to the sources of water. Sources of water include surface, ground, and combined water. When a field is irrigated with both ground and surface water, the source is designated combined. In this case, the primary source is usually surface water which is supplemented by water pumped from a well.

Cropland irrigated by combined water is initially tabulated separately because it is impossible to determine from visual inspection of irrigated cropland in the field or from aerial photography how much of the cropland is irrigated by ground water and how much by surface water. To be meaningful however, the acreage irrigated by combined water must eventually be separated into its ground and surface water components. If records of measured withdrawals are available, the components are computed in Step 12 after the theoretical withdrawal has been computed. When measured withdrawals are not available, the components must be estimated. In this case, a rough approximation of the components may be gleaned by (1) an examination of water rights documentation, if such records exist; (2) comparing recorded streamflows with the estimated demand; or (3) by contacting personnel in the Cooperative Extension Service and the Soil Conservation Service, or individual farmers who know the area well.

Step 3: The average temperature and total recorded rainfall for each month is obtained from the weather station which is most representative for a specific cropping area. When an irrigated cropping area is located between two or more weather stations, the influence of each station should be weighted according to its distance from the centroid of the cropping area. The sum of the weighted values from each station yields the composite data to be used in subsequent calculations.

Step 4: The growing or irrigation season for each crop is defined by the earliest and latest moisture use dates. For annual crops such as corn and spring small grains, the earliest moisture use date is normally assumed to be the planting date, and the latest moisture use date as the day before harvest begins. For some annual crops such as corn, spring small grain, and cotton, farmers may apply a preplant irrigation. So, for example, if a 15-day preplant irrigation is applied, seed is planted on April 1 and the crop reaches maturity in 140 days, the beginning of the growing season would be taken as March 17, and consumptive use would be computed for a 155-day growing season.

For perennial crops such as alfalfa and permanent pasture grasses, the earliest moisture use date correlates with the mean daily air temperature which activates the transpiration process, and the latest moisture use date correlates with the mean daily air temperature that signals the cessation of transpiration on the next day. The earliest and latest moisture use dates may also be established by simply observing when growth begins and ends.

Step 5: The theoretical consumptive use (U) or evapotranspiration (ET) of water by individual crops in the cropping pattern tabulated for each type of irrigation system is calculated using the original Blaney-Criddle method (1950, 1962) and seasonal consumptive use coefficients (K). If, for example, part of the overall cropping pattern is flood irrigated and the remaining portion is sprinkler irrigated, two separate CIRs would be computed.

Step 6: Effective rainfall is computed using the procedure presented in Table 3, page 13 of Technical Bulletin No. 1275 (Blaney, 1962) or Table 5, page 21 of Technical Report 32 (Blaney, 1965).

Step 7: The consumptive irrigation requirement (CIR) for each crop in the cropping pattern is computed by subtracting the effective rainfall (R_e) from the consumptive use (U), i.e., the $CIR=U-R_e$, or $CIR=ET-R_e$

Step 8: The crop distribution ratio (CDR) is computed by dividing the acreage planted in a specific crop by the total acreage for all crops included in the cropping pattern.

Step 9: Multiplying the CIR by the crop distribution ratio yields the weighted CIR for a crop. The sum of all the weighted CIRs is the CIR for the cropping pattern. If the cropping pattern includes multiple-cropped acreage, i.e., acreage on which two or more crops are produced in the same year, the CIR for the cropping pattern is multiplied by the ratio of the gross irrigated acreage to the net irrigated acreage to yield the CIR for the cropping pattern. The net irrigated acreage is the difference between the gross irrigated acreage and the multiple-cropped acreage. The adjusted CIR would be computed as follows:

$$CIR_a=CIR[A_g/(A_g-A_m)]$$

where A_g is the gross irrigated acreage and A_m is the multiple-cropped acreage.

For New Mexico's 1995 water use inventory, CIRs were computed for 170 different cropping patterns using 1995 weather data, irrigated acreages compiled by Robert L. Lansford (1996), Professor of Agricultural Economics and Agricultural Business, New Mexico State University, and computer software developed by the author (Wilson, 1990).

__Step 10:__ The farm delivery requirement (FDR) is computed by dividing the CIR expressed as a depth or volume by the on-farm irrigation efficiency (E_f). For example, if the CIR is 2.0 acre-feet per acre and E_f=60%, FDR=CIR/E_f=2.0/0.60=3.33 acre-feet per acre.

The on-farm irrigation efficiency is affected by farm and field conditions, i.e., type of soil, slope, length and width of field, land surface preparation (leveling and tillage), root depth of crop at the time of each irrigation event (the root depth of annual crops changes throughout the growing season), antecedent soil moisture conditions, quality of irrigation water, type of irrigation system, available head at the farm headgate, frequency and amount of water applications, and grower water management practices. An efficient irrigation system may result in higher plant transpiration rates than an inefficient system because there will be fewer dry spots on the field (better distribution uniformity); and the crop yield per unit of water transpired will be higher under good management than under poor management (Burt, 1995).

__Step 11:__ The project diversion requirement (PDR) or off-farm diversion requirement is computed by dividing the farm delivery requirement by the off-farm conveyance efficiency (E_c). For example, if the FDR=3.33 acre-feet per acre and E_c=70%, PDR=FDR/E_c=3.33/0.70=4.76 acre-feet per acre.

__Step 12:__ If records of measured withdrawals are available, the ground and surface water components for combined water can be determined by comparing the total theoretical withdrawal with the measured withdrawal. If a shortage occurs, i.e., the measured surface water withdrawal is less than the theoretical withdrawal, it is assumed that the difference is made up with ground water. The acreage irrigated by surface water is then the product of the surface water withdrawal and irrigation efficiency divided by the CIR; and the acreage irrigated by ground water is the difference between the total acreage irrigated and the estimated acreage irrigated by surface water.

It is important that when separating combined water into its ground and surface water components, that the appropriate irrigation efficiencies are used when the source of the surface water is located off-farm while the source of the ground water originates on-farm.

__Step 13:__ Any event or condition imposed by man or nature that affects the robustness of irrigated crops during the growing season will generally reduce the amount of water consumptively used by plants to a level which is below that predicted by the Blaney-Criddle method for a well-watered crop which is free of disease. Thus, it may be necessary to adjust the theoretical CIR and estimated diversion requirements to reflect these conditions. The conditions which should be taken into consideration when estimating crop water requirements can be separated into five categories.

Weather Conditions. Excessive rain and flooding that inundates crops and damages diversion structures or ditch conveyance capacity; hail, high winds, and drought.

Soil Conditions. Salinity, sodicity, pH excesses or deficiencies, nutritional imbalances, i.e., excesses or deficiencies in nitrogen (N), phosphorous (P), and potassium (K); and waterlogging.

Biological Conditions. Crop damage caused by wild animals, birds, and insect infestations; plant diseases; and weeds.

Farm Operations. Application of physical, chemical or organic amendments; application of pesticides and herbicides; equipment failure such as the breakdown of a groundwater pumping plant; shortages of farm laborers.

Economic Conditions. Cost of water and changes in the market price of crops may affect the farmer's decision to irrigate. If crop prices fall during the irrigation season, a farmer may apply fewer irrigations and actually stress the crop at the expense of lower yield rather than supply the full crop water requirement.

If measured withdrawals are available, they are compared with computed withdrawals and the CIRs are adjusted downward where measured withdrawals are less than the computed withdrawals. Records of measured withdrawals are often available for irrigation projects administered by some of the organizations mentioned in Step 1. When measured withdrawals are not available, water shortages and necessary adjustments to CIRs may be estimated on the basis of field observations made during the irrigation season and comparison of recorded streamflows with the irrigation demand.

Step 14: Coefficients for incidental depletions, referred to as incidental depletion factors from hereon, are assigned to each area according to the type of irrigation system and source of water. Incidental depletions may be expressed as a function of irrigation diversions or the CIR. When expressed as a function of irrigation diversions the total incidental depletion is computed as follows:

$$ID=PDR(F_1)+FDR(F_2+F_3)$$

where PDR is the project diversion requirement; FDR is the farm delivery requirement; and F_1, F_2, and F_3 are the incidental depletion factors above-farm (canals and laterals), on-farm, and below-farm. See glossary for definitions of these terms.

Expressed as a function of the CIR, the total incidental depletion is computed as follows:

$$ID=CIR(G_1+G_2+G_3)$$

where G_1, G_2, and G_3 are the incidental depletion factors above-farm, on-farm, and below-farm.

It is important to remember that G_1, G_2, and G_3 will not have the same value as F_1, F_2, and F_3 because they are based on two different functions. Multiplying G_2 and G_3 by the on-farm irrigation efficiency (E_f) will yield the value of F_2 and F_3, i.e., $F_2=G_2E_f$ and $F_3=G_3E_f$. Multiplying the CIR by G_1 and dividing the product by the project diversion requirement (PDR) will yield the value of F_1, i.e., $F_1=G_1CIR/PDR$.

Incidental depletions associated with canals and laterals are generally estimated by determining (1) the total length of canals and laterals, (2) the top width of the water surface, (3) the fringe width on each side of the canal where phreatophytes consumptively use seepage water, (4) the percent of time during the irrigation season when water is flowing, and (5) the net evaporation rate during the irrigation season. Taking the product of all these elements and dividing by the normal CIR (total acre-feet) for the area under study yields the incidental depletion factor for canals and laterals expressed as a function of the CIR.

Note that because the dimensions, phreatophyte population, and percent of time laterals are flowing will be different from canals, incidental depletions for canals and laterals are generally estimated separately and then aggregated.

In New Mexico, for flood irrigation systems (furrow or basin-border) operating at 55% efficiency, incidental depletions on-farm are generally estimated as 2.75% of the diversions at the farm headgate or well, or 5% (2.75/0.55) of the CIR. For sprinkler irrigation systems operating at 65% efficiency, incidental depletions are estimated as 17% of the farm withdrawals, or 26.2% (17/0.65) of the CIR. In some areas of the state, such as the Roswell Artesian Basin in Chaves and Eddy counties, where sprinklers operate at about 70% efficiency, incidental depletions are estimated as 24.3% (17/0.70) of the CIR. Sternberg (1967) found that sprinkler losses were much greater during the daytime (20% of farm withdrawals) due to higher temperatures and wind movement, than during the nighttime (14% of farm withdrawals). The incidental depletion factors used in this inventory for sprinkler irrigation reflect the average of sprinklers operating day and night. Incidental depletions for sprinkler irrigation in areas where high winds prevail, such as the Northern High Plains of New Mexico, which includes Curry, Harding, Quay, and Union counties, are estimated as 22% of the farm withdrawals, or 33.8% (22/0.65) of the CIR.

Incidental depletions associated with drains below-farm may be estimated using the same technique applied to canals and laterals. Evapotranspiration losses from areas below-farm where runoff and seepage accumulate can be estimated on the basis of the wetted area, percent of time the area is wet, and net evaporation rate or CIR for native vegetation.

In water resources management, it is often assumed that the difference between the total diversion and crop consumptive use is return flow to the stream system or groundwater aquifer. If incidental depletions are ignored, estimates of return flow will be too high. It is important therefore, that incidental depletions be properly accounted for.

Figure 4.1 illustrates how incidental depletions fit into the total water demand on an irrigation project that diverts surface water from a stream or reservoir, and transports it via canals and laterals to farms. In this example, the consumptive irrigation requirement (CIR) is 2.0 acre-feet per acre; the on-farm efficiency (E_f) is 60%; the farm delivery requirement (FDR) is 3.33 acre-feet per acre; the off-farm conveyance efficiency (E_c) is 70%; and the project diversion requirement (PDR) is 4.76 acre-feet per acre. Incidental depletion factors, expressed as a percent of the consumptive irrigation requirement, are 4%, 5%, and 5%, above-farm (canals and laterals), on-farm, and below-farm, respectively.

<u>**Step 15:**</u> The total quantity of water depleted (D) on a farm or irrigation project is the sum of the CIR and the incidental depletions (ID), i.e., D=CIR+ID. For example, if the CIR=2.0 acre-feet per acre and the total incidental depletion expressed as a function of the CIR is 14% ($G=G_1+G_2+G_3=0.14$) then:

Since ID=CIR(G),

$$D=CIR(1+G)=2.0(1+0.14)=2.28 \text{ acre-feet per acre}$$

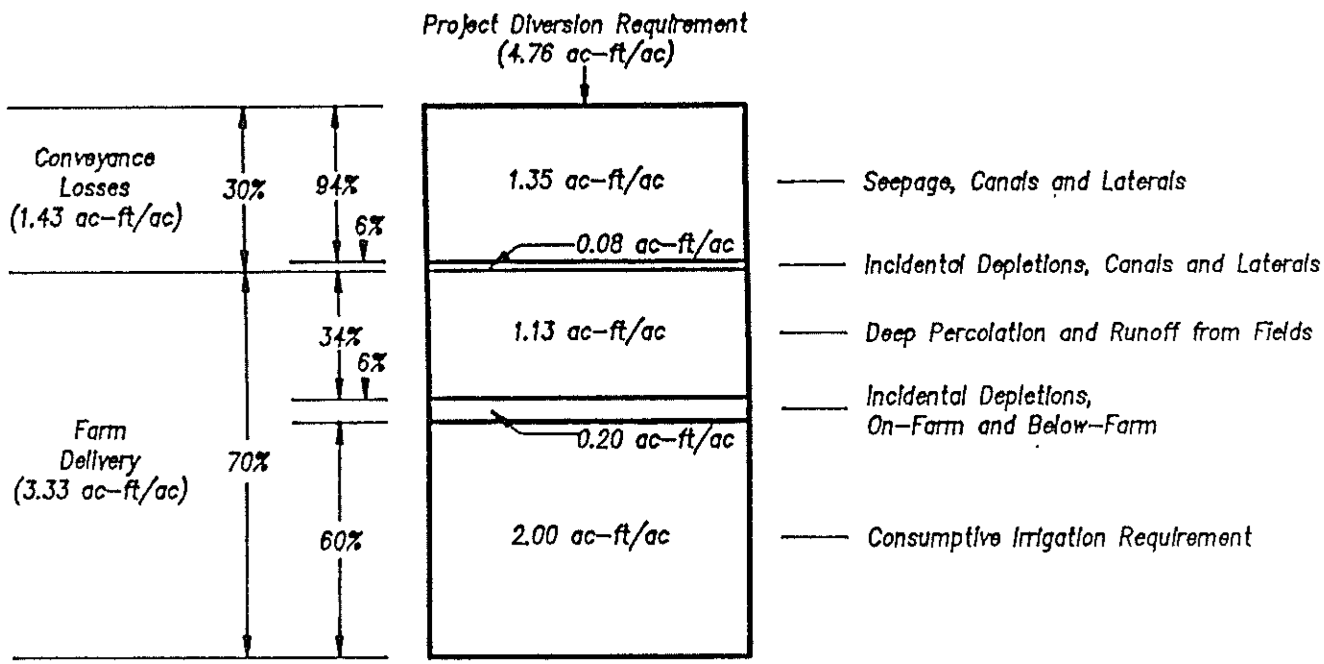

Figure 4.1 Components of the Water Demand on an Irrigation Project

4.4. THE ORIGINAL BLANEY-CRIDDLE METHOD

4.4.1. Consumptive Use (U)

The original Blaney-Criddle method (1950, 1962) was born out of studies conducted in New Mexico during 1939 and 1940 in the Pecos River Joint Investigation initiated by the National Resources Planning Board. It uses mean monthly air temperatures (T) expressed in degrees Fahrenheit, monthly percentage of annual daylight hours (P) based on the latitude of the area under study, seasonal consumptive use coefficients (K), and length of growing season to estimate the total consumptive use (U) or evapotranspiration (ET) of water during the growing season for a crop that is well watered and free of disease. The consumptive use in inches for each month is expressed as:

$$U = ET = [(T)(P)/100](K)$$

Adding the consumptive use computed for each month yields the total consumptive use for a specific crop during the growing season. Note that the monthly values computed using the above expression are not the actual consumptive use that occurs in any one month since the seasonal crop coefficient is used. The monthly values are computed for convenience in determining the seasonal value.

The distinctive feature of the original Blaney-Criddle method is that the consumptive use coefficient (K) remains constant throughout the frost-free period. If the growing season of a crop begins before the last spring frost of 32 degrees Fahrenheit occurs, or extends beyond the occurrence of the first fall frost of 32 degrees Fahrenheit, for this part of the growing season which is outside the frost-free period, another consumptive use coefficient is generally applied which is lower than the value used during the frost-free period. For crops which have a growing season that begins before or extends beyond a frost date, in a month in which a frost occurs, the days inside and outside the frost-free period must be separated into two different components so that the appropriate consumptive use coefficients can be applied. In a month in which the growing season begins or ends, the consumptive use coefficient is multiplied by the ratio of the number of days in the month the crop is "growing" to the total number of days in that month.

4.4.2. USBR Effective Rainfall (R_e)

The amount of rainfall which becomes available to crops is influenced by the following factors: (1) duration and intensity of rainfall; (2) antecedent moisture condition of the soil; (3) infiltration capacity of the soil; (4) presence of surface seals and crusts; (5) slope of fields; (6) root development of the crop; and (7) interception by the plant canopy.

As it was published in 1950, the original Blaney-Criddle method did not include a procedure for estimating effective rainfall. Blaney (1962) later adopted a method which was developed by the U.S. Bureau of Reclamation (USBR). The USBR method expresses effective rainfall as a percentage of the total monthly rainfall and for each one inch increment in rainfall there is a corresponding decrease in the percentage of effective rainfall. The USBR method was originally published as a table of values. However, since the table is often misinterpreted, the effective rainfall is better expressed as a set of equations. Note that the effective rainfall (R_e) cannot exceed the consumptive use (U). Adding the effective rainfall computed for each month yields the total effective rainfall for a specific crop during the growing season.

Table 4.1. USBR effective rainfall.	
Monthly Rainfall (R) (Inches)	Effective Rainfall (R_e) (Inches)
$1 \leq R$	R_e=0.95R
$1 < R \leq 2$	R_e=0.95+0.90(R-1)
$2 < R \leq 3$	R_e=1.85+0.82(R-2)
$3 < R \leq 4$	R_e=2.67+0.65(R-3)
$4 < R \leq 5$	R_e=3.32+0.45(R-4)
$5 < R \leq 6$	R_e=3.77+0.25(R-5)
$R > 6$	R_e=4.02+0.05(R-6)
Key to symbols: < means less than; ≤ means less than or equal to; and > means greater than.	

4.5. CALIBRATION OF CONSUMPTIVE USE FOR ALFALFA AND PECANS

4.5.1. Alfalfa

In the late 1970s, researchers at New Mexico State University developed a crop production function for alfalfa which correlates annual evapotranspiration (consumptive use) with annual crop yield (Sammis, 1979, 1982). This crop production function is a linear relationship which may be expressed as follows:

$$Y=0.1572ET_{in}-0.5904$$

where Y is the annual yield in tons per acre at 15% moisture content, which is the normal field-dried condition; and ET_{in} is the annual evapotranspiration in inches. Rearranging this equation to solve for ET_{in}, results in the following expression:

$$ET_{in}=(Y+0.5904)/0.1572$$

By substituting the annual yield reported for a specific calendar year into the equation, the annual consumptive use can be computed, and the weighted consumptive irrigation requirement for the cropping pattern, adjusted accordingly.

For the purpose of this water use inventory, alfalfa yields reported by the New Mexico Agricultural Statistics Service for 1995 were used in Sammis's crop production function to calibrate ET for alfalfa in several counties. If the ET predicted by Sammis's crop production function was higher than the value computed using the original Blaney-Criddle method and a consumptive use coefficient (K) of 0.85 inside the frost free-period and 0.50 outside the frost-free period, the ET produced by the crop production function was used in determining the consumptive irrigation requirement for alfalfa, provided that the reported yields were accurate and sufficient water was available to satisfy the irrigation demand. Counties in which this adjustment was made include: Bernalillo (ground water only in MRGCD), Curry, De Baca, Dona Ana, Grant, Hidalgo, Lea, Luna, Sandoval (ground water only in MRGCD), San Juan, Sierra, Socorro (ground water only in MRGCD), Torrance, and Union (ground water only), Valencia (ground water only in MRGCD).

4.5.2. Pecan Orchards

It is generally accepted amongst both producers as well as agricultural researchers that the water requirements for pecan orchards are much higher than for other deciduous orchards. Studies conducted in the Rio Grande Valley near Las Cruces, New Mexico and El Paso, Texas by the Bureau of Reclamation in 1972-73 and by Miyamoto in 1981 (Miyamoto, 1983) indicate that the annual consumptive use of mature pecan trees typically ranges from 39.36 to 51.24 acre-inches per acre and depends on the tree size and planting density.

Historically, the New Mexico State Engineer Office has estimated the water requirements for pecan orchards using the original Blaney-Criddle method and a seasonal consumptive use coefficient of 0.65. The research conducted by the Bureau of Reclamation and Miyamoto indicates that the seasonal coefficient of 0.65 is much to low and needs to be revised. There is also evidence that the threshold temperatures which are normally used to define the growing season for deciduous orchards are inappropriate for pecan orchards. Transpiration of pecan orchards generally begins when the mean daily air temperature reaches 60 degrees Fahrenheit in the spring, and it ends the day after the first fall frost of 28 degrees Fahrenheit or below occurs in the fall (Miyamoto, 1983).

Using this criteria to define the growing season, and assuming the annual consumptive use of water in a pecan orchard is at least 39.36 inches, and that the value of the consumptive use coefficient outside the frost-free period is 0.40, the author has calibrated the seasonal consumptive use coefficient for the frost-free period. This calibration results in a seasonal consumptive use coefficient (K) of 0.90 inside the frost-free period, and was used to quantify the consumptive irrigation requirements of pecan orchards included in 1995 cropping patterns.

In 1995, pecan production in New Mexico set an alltime record. Dona Ana County accounted for 80.44% of the total production, Chaves for 7.79%, Eddy for 3.33%, Otero for 3.33%, Luna for 2.44%, and Lea for 1.33%; production in several other counties accounted for the remaining 1.34% (New Mexico Agricultural Statistics Service, 1996).

4.6. COMPUTATIONAL AID FOR IRRIGATION TABLES

The equations which follow are used to compute the irrigation withdrawals and depletions shown in Tables 8 and 9 in the latter part of this report. They may also be used for other irrigation studies.

4.6.1. Computing Withdrawals (Table 8)

(1) $TFWSW=CIRSW(ASWO+ASWC)/E_f$
(2) $TFWGW=CIRGW(AGWO+AGWC)/E_f$
(2) $TPWSW=TFWSW/E_c$ where $E_c > 0$
(3) $TPWGW=TFWGW$ (assuming the source of water is on-farm)
(4) $CLSW=TPWSW-TFWSW$

4.6.2. Computing Depletions (Table 9)

(1) $TFDSW=CIRSW(1+IDFOF)(ASWO+ASWC)$
(2) $TFDGW=CIRGW(1+IDFOF)(AGWO+AGWC)$

(3) TPDSW=CIRSW(1+IDFSW)(ASWO+ASWC)
(4) TPDGW=CIRGW(1+IDFGWO)(AGWO)+CIRGW(1+IDFGWC)(AGWC)

4.6.3. Key to Acronyms Used in Equations

(a) AGWC=ground water component of acreage irrigated with both surface and ground water (combined water).
(b) AGWO=acreage irrigated with ground water only.
(c) ASWC=surface water component of acreage irrigated with both surface and ground water (combined water).
(d) ASWO=acreage irrigated with surface water only.
(e) CIRGW=consumptive irrigation requirement for acreage irrigated with ground water.
(f) CIRSW=consumptive irrigation requirement for acreage irrigated with surface water.
(g) CLSW=surface water conveyance losses in canals and laterals from stream or reservoir to farm headgate.
(h) E_f=on-farm irrigation efficiency.
(i) E_c=off-farm conveyance efficiency.
(j) IDFBF=incidental depletion factor, below-farm.
(k) IDFCL=incidental depletion factor, canals and laterals, from stream or reservoir to farm headgate.
(l) IDFGWO=sum of incidental depletion factors which apply to withdrawals of ground water only. Note that if the source of water is on-farm (spring or wells), IDFGWO=IFDOF. However, if the source of water is off-farm, IDFGWO=IDFCL+IDFOF.
(m) IDFGWC=sum of incidental depletion factors which apply to the groundwater component of withdrawals where both surface and ground water (combined water) are applied, i.e., IDFGWC=IDFOF+IDFBF when the groundwater source is on-farm.
(n) IDFOF=incidental depletion factor on-farm.
(o) IDFSW=sum of incidental depletion factors which apply to surface water withdrawals, i.e., IDFSW=IDFCL+IDFOF+IDFBF
(p) TFDGW=total farm depletion, ground water.
(q) TFDSW=total farm depletion, surface water.
(r) TFWGW=total farm withdrawal, ground water.
(s) TFWSW=total farm withdrawal, surface water.
(t) TPDGW=total project depletion, ground water.
(u) TPDSW=total project depletion, surface water.
(v) TPWGW=total project withdrawal, ground water.
(w) TPWSW=total project withdrawal, surface water.

4.7. IRRIGABLE CROPLAND AND ACREAGE IRRIGATED

In 1995, there were about 1,453,100 acres of irrigable cropland in the state. This includes idle, fallow, and diverted or setaside acreage. Approximately 78,010 acres of irrigable cropland were enrolled in the U.S. Department of Agriculture's Conservation Reserve Program (CRP); and 980 acres were enrolled in other government production adjustment programs designed to protect farmer's incomes by taking acreage out of production (Lansford, 1996).

The Conservation Reserve Program was authorized by the Food Security Act of 1985 to conserve and improve soil and water resources on cropland classified as highly erodible (U.S. Department of Agriculture, 1987). Farmers participating in the program sign a 10-year contract with the USDA, agreeing to take eligible land out of production and establish a protective cover of perennial grass, wildlife plants, windbreaks or trees. In return, the USDA provides annual rental payments, in cash or commodities, for the land removed from cultivation and covers half the expense of establishing the permanent cover on the land.

Irrigable cropland enrolled in USDA conservation programs is not normally irrigated, although water may be applied to get a new cover crop started after seeding. Once established, cover crops are generally left to survive on rainfall and snowmelt that infiltrates into the soil.

The total acreage irrigated in 1995 was estimated as 963,050 acre. The irrigated acreage reported for San Juan County in 1995 was significantly reduced from what has been reported in previous years to reflect the results of an inventory of irrigated cropland conducted by the U.S. Bureau of Reclamation and the New Mexico Interstate Stream Commission in 1994 using satellite imagery and a Geographic Information System (GIS). Note however, that the data shown in Table 4.2 for the years 1981-94 does not reflect this correction for San Juan County. In terms of acreage irrigated in 1995, alfalfa ranked first at 25.6%, pasture second at 16.5%, small grains (wheat, barley, and oats) third at 15.0%, high-value crops such as vegetables, orchards and vineyards fourth at 13.2%, corn fifth at 11.8%, sorghum sixth at 7.4%, and cotton seventh at 7.1%. All other crops accounted for the remaining 3.4% of the acreage irrigated. (Lansford, 1996).

Drip irrigation accounted for 5,148 acres or 0.54, flood for 547,608 acres or 56.86%, and sprinkler for 410,294 acres or 42.60%. Counties accounting for the greatest percentage of the total sprinkler irrigated acreage in the state in 1995 were Curry at 107,560 acres or 26.22%; Roosevelt at 77,975 acres or 19.00%; San Juan at 49,745 acres or 12.12%; Lea at 46,425 acres or 11.32%; Union at 44,050 acres or 10.74%; Chaves at 18,110 acres or 4.41%; Eddy at 23,127 acres or 5.64%, Torrance at 11,955 acres or 2.91%; and Quay at 6,542 or 1.59%. Counties accounting for the greatest percentage of the total drip irrigated acreage in the state in 1995 were Otero at 1,895 acres or 36.81%; Lea at 685 acres or 13.31%; Sierra at 660 acres or 12.82%; Luna at 660 acres or 12.82%; Dona Ana at 240 acres or 4.66%; Bernalillo at 230 acres or 4.47%; Chaves at 200 acres or 3.89%; and Curry at 190 acres or 3.69%.

Table 4.2. Acreage irrigated in New Mexico, 1981-1995. (Source: Lansford, 1982-1996; SEO 1990 and 1995).

Year	Acres	Year	Acres	Year	Acres
1981	1,053,220	1986	945,229	1991	1,011,785
1982	1,004,230	1987	897,099	1992	974,718
1983	864,980	1988	879,185	1993	979,780
1984	946,635	1989	990,880	1994	976,746
1985	941,245	1990	984,285	1995	963,050

4.8. SURFACE WATER SHORTAGES

As of May 1, 1995, snowpack ranged from zero percent of average in the Mimbres River Basin, San Francisco, Upper Gila River Basin, and Zuni/Bluewater Basin; to 277 percent in the Canadian River Basin; 223% in the Pecos River Basin; 193% in the Rio Grande Basin; and 152% in the San Juan River Basin (NRCS, 1995). Reservoir storage ranged from 111% of average in the Pecos

River Basin; to 212% in the Rio Grande Basin; 153% in the San Juan River Basin; and 140% in the Canadian River Basin. Overall storage in the thirteen major reservoirs in New Mexico was 181% of average. Major reservoirs include: Abiquiu, Lake Avalon, Caballo, Cochiti, Conchas, Costilla, El Vado, Elephant Butte, Heron, Brantly, Navajo, Santa Rosa, and Sumner. While overall storage was above average, extremely high temperatures and a lack of rain during the growing season resulted in surface water shortages in some areas.

In Cibola and McKinley counties surface water irrigators were short about 75%; in Colfax County the Vermejo Conservancy District was short 31%; in Quay County the Arch Hurley Conservancy District was short 53%; in San Juan County irrigators along the La Plata River were short 68%; in San Miguel County irrigators dependent upon surface water from the Gallinas River were short 51%; in Santa Fe County the Santa Cruz Irrigation District (part in Rio Arriba County) was short 45%; and in Union County shortages were about 50% on the Dry Cimarron and Tramperos Creek. Surface water shortages also occurred in Eddy County in the Carlsbad Irrigation District and in Dona Ana County in the Elephant Butte Irrigation District (primarily in the winter months when there are no surface water deliveries); however, these shortages were offset by pumpage from supplemental wells.

4.9. CAUSES OF POOR IRRIGATION EFFICIENCY

The main body of the text which follows was adopted from a U.S. Government interagency task force report entitled "Irrigation Water Use and Management" (U.S Department of Agriculture, 1979). The original text has been edited and updated for inclusion in this report.

In 1995, off-farm conveyance losses in canals and laterals in New Mexico were estimated at 704,077 acre-feet or about 37% of the total surface water withdrawals for irrigation. Off-farm conveyance losses can be attributed to permeable canals, obsolete, inadequate, or improperly maintained facilities, and excessive vegetative growth. Seepage through unlined canals is the main contributor to conveyance losses. Seepage rates are proportionately greater for canals with intermittent flows than for those under continuous operation. Obsolete, inadequate, or improperly maintained facilities result in poor control and management of water throughout the off-farm conveyance system which affects the on-farm management of water. Excessive vegetative growth in and along canals interferes with the delivery of irrigation water, causes seepage and transpiration losses, causes sediment to accumulate and contributes to structural failure and poor operation of the canals.

Physical conditions that contribute to inefficient water use on-farm include unlined farm ditches, lack of measurement structures, poor farm layout, and improper maintenance; and variabilities within fields of soil intake rates, water holding capacities, and erosion resistance. The method of water application, i.e., the type of irrigation system, affects irrigation efficiency, particularly if the method is not suited to soil or topographic conditions. On flood irrigated farms, the relationship between field slope, field length, soil characteristics, and water flow must be balanced to achieve uniform application with minimum deep percolation and surface runoff. For example, the slope and water flow rate may be acceptable, but the length of the field may be too long for the soil conditions. Flood irrigation of steep or nonuniform slopes may result in poor application uniformity, soil erosion, excess surface runoff, and deep percolation. Sprinkler irrigation on fine-textured soils produces surface runoff if the intake rate of the soil is exceeded by the application rate of the sprinkler.

Management factors which contribute to inefficient water use on-farm include lack of soil moisture data and improper timing of irrigation, lack of adequate flow measurements, incorrect application amounts, and lack of adequate facilities to control water. The timing of irrigations and the application amounts may vary because of water availability, other farm activities, or an off-farm job which requires the irrigator's attention, resulting in lower irrigation efficiencies. Farm labor hired for irrigating crops may not have the necessary experience to understand the soil, water, crop, and field relationships needed to achieve good efficiencies.

Institutional and social factors which affect on-farm irrigation efficiency include existing laws and court decrees, water and energy prices, and social attitudes related to land use. Under the doctrine of prior appropriation, an irrigator may use the total amount of water decreed, even if inefficiently, rather than lose the right to divert the water. The rate schedules to assess or charge irrigators in irrigation districts for the cost of water delivered in many cases are constant and do not discourage excessive use of irrigation water.

4.10. IMPROVING OFF-FARM CONVEYANCE EFFICIENCY

The off-farm conveyance efficiency can be improved by lining canals and laterals; installing closed pipe systems; consolidating and/or realigning the distribution system; replacing or installing flow-regulating structures; scheduling regular maintenance inspections and performing necessary work; and controlling aquatic and/or ditchbank weeds.

4.10.1. Canal Linings. Materials used for linings include compacted clays, hard-surface materials such as concrete or soil cement, or membranes such as asphalt and flexible plastic. Selection of a lining material is generally based on its availability, cost, and the geographic location or climate where it is intended to be used. A compacted earth lining of silty clay has a seepage rate of about 2.394 gallons per square foot of wetted perimeter per day, while concrete lining has a seepage rate of about 0.598 gallons per square foot per day.

There are other benefits to lining systems in addition to reducing seepage. They include (1) the control of ditchbank weeds and aquatic growth which consume water and require use of herbicides, (2) a reduction of soil erosion, (3) an improvement in water quality, (4) a possible reduction in operation and maintenance costs, (5) reduced drainage requirements, and (6) reclamation of agricultural lands lost to seepage.

Piped conveyance systems provide a means of completely enclosing a system to avoid many of the water losses which occur in an open system. In the past, pipelines to carry irrigation water were used mainly where physical barriers such as steep escarpments and canyons made open systems impractical. In mountain valley situations, consideration should be given to installing pipelines for gravity sprinkler systems.

Relatively few piped systems have been installed to date. Where piped systems have been installed, conveyance efficiencies greater than 95% have been attained. Additional benefits include better utilization of lands along system rights-of-way, elimination of safety hazards common to open systems, reduction of evaporation losses, and better control of water delivered to the farm, thus providing more options for the farmer.

Many conveyance systems were constructed along contours of the land to minimize excavation and fill construction activities which in the past were performed by crude and inefficient machinery.

This resulted in the existence of many long and winding systems which have very high losses. Piping of such systems increases the off-farm conveyance efficiency, reduces seepage, and may reduce operation and maintenance costs.

4.10.2. Consolidation and/or Realignment. Consolidation and/or realignment is possible today because of modern construction methods. Better irrigation system features such as improved water control structures and lining and piping materials also make consolidation and/or realignment practical as effective water conservation measures. Benefits include (1) reduced operation and maintenance activities for water users, (2) improved farm unit layout, (3) elimination of weeds along deleted waterways, (4) improved service to water users, (5) improved economic use of the land, and (6) reduction of diversion requirement.

4.10.3. Water Measurement. Water measurement accuracy is important in the operation of any water conveyance system. Measuring devices are essential if an accurate accounting of what happens to the water is to be made. Proper evaluation of losses is necessary to establish the economic advisability of providing canal linings.

4.10.4. Inline Structures. Inline structures include water measurement and regulating structures. Regulating devices are checks, check-drops, turnouts, diversion structures, check inlets, and regulating reservoirs. These structures are used to regulate the flow passing through the conveyance system and/or control the elevation of the upstream water surface. The equitable delivery of water to irrigators is dependent upon the size of the discharge openings, referred to as farm turnouts, and the water level behind the openings. If the structures of the system cannot maintain a constant or uniform water level, proper deliveries cannot be made to the irrigator. This may cause irrigators to use the water supply inefficiently. The use of proper check structures in a system also regulates the water level along the system, thus reducing operational wastes and losses.

4.10.5. Automation of Regulating Structures. The automation of regulating structures is designed to increase the overall efficiency of the system and reduce operational waste. While storage reservoirs and the outlet works of dams, diversion dams and canal headworks are often self-contained and isolated, they can be the focal point for demands of the conveyance system. The proper operation of these facilities through automation can help meet downstream diversion demands in the river (water rights and/or fish and wildlife commitments), and also lessen hydraulic fluctuations to provide smooth operation of the entire system. Automatic controls of check structures can sense deviations of water surfaces on the canal and operate adjacent checks upstream and downstream to provide a nearly constant water level. Automation of turnouts provides uniform deliveries from the distribution system to the farm. Wasteways are the traditional safety valves of the canal operation. They remove excess water and prevent overtopping of the canal. Operational wastes can be eliminated or greatly reduced when a high degree of automation is utilized on other structures within the system. Benefits that would accrue as a result of automation of facilities would be both tangible and intangible. The tangible benefits could be reduced operation and maintenance costs of the conveyance and distribution system, and a more reliable water supply. Intangible benefits might include safety, and aesthetic values.

4.10.6. Maintenance of Facilities. Proper maintenance of facilities that control and regulate the flow of water is fundamental to good water management practices of the project and the water users. The accuracy of measuring devices, most important for efficient operations, can be assured through inspection and routine maintenance. Facilities designed to maintain water levels in the system need to be under a regular maintenance program to provide optimum service. The regular removal of debris from the system throughout the season and removal of sediment during the off-season will eliminate many operating problems.

4.10.7. Weed and Phreatophyte Control. A weed and phreatophyte control program can effectively minimize excessive vegetation in and along ditchbanks and can be accomplished by mechanical, chemical or biological means. Any method of control will have economic and environmental impacts. Chemical control is generally the most effective and economical but may not be environmentally acceptable. Mechanical control may be less effective and more costly in manpower and equipment. Benefits of a routine weed and phreatophyte control program include increased water delivery capacity, a possible reduction in operation and maintenance costs, and reduced water consumption by ditchbank vegetation.

4.10.8. Conveyance Design. The application of any measure which may improve on-farm efficiency is often limited by the design and management of the conveyance and distribution system. Existing systems have been designed to deliver water by a continuous flow, rotation, or demand method. The continuous flow and rotation methods may discourage efficient on-farm and system water use. The rotation delivery system is designed with a capacity to deliver water for short periods of time at scheduled regular intervals. The demand system of delivery is designed with a capacity to deliver on short notice the flow ordered by an irrigator. The demand method is best suited to promote the efficient use of water. Any improvement measures, either on-farm or in the system, should be interrelated with the delivery capacities of the system. This will provide the type of irrigation delivery system which will allow the irrigator flexibility in choosing on-farm methods to conserve water. However, to change from one method to a more efficient method may require installation of costly structural measures.

4.10.9. Scheduling Water Deliveries. Scheduling water deliveries is an important water management measure. Scheduling deliveries provides for the allocation of water in accordance with actual and projected crop use, rainfall, cultural practices, delivery system carrying capacity, and field irrigation characteristics. Deliveries can be scheduled to make the most effective and efficient use of the total water supply. Use of scheduling might eliminate the need for enlargement of the conveyance system to deliver more efficient flows. Scheduling deliveries on most distribution systems can be accomplished without additional operating personnel.

4.11. IMPROVING ON-FARM IRRIGATION EFFICIENCY

The on-farm measures are those that affect the problems causing inefficiency on the farm. These measures deal with the on-farm delivery system, field application system, and water management problems.

4.11.1. Ditch Lining or Piping. An effective method of reducing seepage is to line ditches or replace them with pipelines. These measures are similar to lining or piping off-farm systems. Ditch lining may be less costly to install but is not suitable to all topography and farm layouts. Piping is more effective than ditch lining in managing water because it eliminates evaporation, and when buried, can be farmed over and automated easily. Both lining and piping may reduce labor and maintenance costs of the irrigator.

4.11.2. Land Leveling. Land leveling is reshaping the surface of a field to planned irrigation grades or slopes and is most important in flood irrigation systems. Proper land grades for the field application system being used allow better control and more uniform application of water, which may result in increased efficiency. Where basin-border irrigation is practiced, fields which have not been leveled will require a greater depth of water to cover the high and low spots, and in the low spots, more water will be lost to deep percolation. Thus, the depth or volume of water required to irrigate a laser leveled field will be less than what is needed for a field that has not been leveled because the highs and lows have been removed.

4.11.3. Minimum Tillage. Crop residue left by minimum or no-tillage increases soil tilth, allows more water to penetrate the soil and prevents puddling and runoff. Deep tillage with a chisel plow also increases penetration and breaks up hardpan that can restrict root development. (Anonymous, 1980).

4.11.4. Water Control Structures. Water control structures are those on-farm facilities that control and regulate the flow of water from the farm delivery point to the field. These facilities are similar to the off-farm inline structures, but are designed for smaller flows. Examples of water control and regulating structures are checks, drops, divider boxes, and reservoirs. The control and regulation of water flow on the farm is required to distribute water throughout the on-farm delivery system. Using divider boxes and checks, water can be diverted from one location to another. Checks are used to maintain the constant water level required to achieve efficient application of water on the fields. Drop structures allow the transportation of water along steep slopes, while maintaining a nonerosive slope in each reach of the conveyance system. Where adequate hydraulic head is available at the farm headgate, high-flow turnouts can reduce the irrigation time, the amount of water applied, and labor requirements; improve the distribution uniformity of the surface application; and increase the efficiency of water-borne nutrient applications. On-farm reservoirs can accumulate low flow rates from wells or canals until sufficient volume is available for efficient application. Water control structures are most effective in the mountain meadow and intermediate valley irrigation zones where the on-farm delivery systems are relatively old and usually lacking in measuring devices and structures.

4.11.5. Flow Measurement Devices. For the irrigator to apply the specified amount of water at each irrigation, he must have some method of water measurement. Flow measurement devices can be installed in open ditches and in pipelines. Some examples are Parshall flumes, cutthroat flumes, weirs, orifice plates, and flow meters. In addition to telling farmers how much water has been pumped, meters are also useful in determining the efficiency of a pumping plant and detecting potential well and pump problems before they become a serious problem. Installation of flow measuring devices will not in itself conserve water. These devices must be maintained and used by the irrigator to control the amount of water applied. They will be most effective when used in conjunction with an irrigation scheduling program.

4.11.6. Tailwater Recovery Systems. Tailwater recovery systems are used to catch runoff resulting from irrigation and return the water into the original delivery system or onto another irrigated field. The system usually consists of a sump, pit, or collection reservoir located below the irrigated area, a pump, and a pipeline to deliver water back to the delivery system or to the irrigated field. Tailwater pits may lose a third of the inflow because of deep percolation and evaporation (Blair, 1981). They may also become a potential breeding ground for mosquitoes. A better alternative may be to adopt management practices which reduce runoff and eliminate the need for tailwater recovery.

4.11.7. Selection of Application Method. Three methods of irrigation water application—flood, sprinkler, and drip—were described earlier in this section. Switching from one of these methods to another constitutes a change in method of irrigation water application. This is a valid alternative for improving water use and management where the existing irrigation system is poorly suited to the site conditions and the desired degree of efficiency cannot be obtained by improving the system design.

No one irrigation method is consistently more efficient than other methods, and conversion from one method to another should not be based on such a premise. The potential change in method should be based on evaluation of land slope, crops to be irrigated, water supply, water intake and water-holding capacity of the soil, labor, and other factors, including economic and environmental impacts. The method selected should conserve soil as well as water. To do this, it may be necessary or desirable to use more than one method of irrigation on any given farm. For example, crops which are drip irrigated may have to be flood or sprinkler irrigated occasionally to apply a sufficient head of water to leach salts out of the root zone.

A change from flood to sprinkler irrigation may be warranted when soils have high intake rates that cause excessive deep percolation with flood methods; fields are steep or have complex slopes; or light, frequent water applications are required due to crop requirements or soil water-holding characteristics. Efficient flood irrigation is possible, except on steep slopes and coarse-textured soils, when flow rates, time of set, and length of run are properly chosen. Flood systems may be preferred when large water applications are needed for leaching to maintain salt balance; when sprinkling with low quality water would cause damage to crop foliage; when effective use of rainfall and erosion control is feasible by land leveling; or when sprinkler evaporation losses are excessive due to wind and other climatic conditions. Drip irrigation should be considered when (1) the water supply is limited, (2) there is need for a high degree of automation (reduced labor), (3) slopes are excessive, or (4) the cost of water is high.

4.11.8. Improved Application Method. The improved design of an existing application method can be effective in managing irrigation water by facilitating better control of the available water supply. Other purposes may include more effective use of rainfall and labor, reduction of energy requirements, reduction in operation and maintenance costs, and provision for safety features. Reorganization of irrigation systems should be based on analyses of the particular site conditions by personnel who have expertise in irrigation design and water management.

Examples of design changes for sprinkler systems include reorificing sprinkler heads, and changing sprinkler spacings and operating pressures to improve distribution patterns and application rates. Center pivot sprinklers may be fitted with drop down tubes which bring the spray nozzles to within a few inches of the ground. These systems, which are referred to as low energy precision application systems (LEPA), can achieve application efficiencies of up to 95%. Because water is applied at low pressure directly above the furrow, wind drift and evaporation losses are virtually eliminated. To maximize uniform water application with LEPA systems, farmers may use furrow dikes to hold the water in place until it has had time to soak in. Irrigators who have converted their irrigation systems from conventional furrow to LEPA report reduced labor costs of up to 75%, decreases of 35% to 50% in energy costs, water savings of at least 25%, and increases in yields of 25% or more because water previously lost to evaporation is available to the crops. (Anonymous, 1989).

Flood system design may often be improved by adjusting run lengths and furrow streams to prevent excessive deep percolation and runoff; changing dimensions of border strips to obtain proper advance and recession of the irrigation streams; reducing irrigation grades by land leveling; adjusting spacing of field ditches; and adding tailwater recovery facilities, automation, and measuring equipment. A time-controlled surge irrigation valve managed correctly in conjunction with a furrow irrigation system can eliminate irrigation tailwater losses, minimize deep percolation losses and reduce the length of time that water in the furrow is exposed to evaporation. Water savings of 10% to 40% have been measured after the addition of surge valves to conventional irrigation systems (Anonymous, 1989).

4.11.9. On-Farm Irrigation Water Management. On-farm irrigation water management is the determination and control of the rate, amount, and timing of irrigation water application to soils to supply water needs in a planned and efficient manner. Improvements in water management can reduce mining of groundwater supplies, reduce diversion rates from natural streams or reservoirs, reduce tailwater runoff, reduce deep percolation losses, reduce nutrient losses, improve water quality, and improve crop yields. Management improvements can be made by irrigation scheduling and applying water in desired rates and amounts. Many irrigators apply water on a set schedule without regard to the crop needs or moisture-holding capabilities of the soil because of habit or other constraints. Inadequate or ill-timed applications can result in lowered crop yields. Irrigation scheduling involves use of data on soil moisture availability, crop water requirements, and rainfall to achieve a soil moisture balance for the irrigator's fields. The objective is to enable the farmer to determine when he needs to irrigate and how much water to apply. Additional labor can often allow the irrigator to better manage his water.

Scheduling is most effective when irrigation water supplies are adequate, but can be useful in managing a limited supply. If a complete scheduling program is not used, soil moisture determination by itself can improve water management. Whether the determination is made by a shovel, probe, moisture block, or tensiometer, the level of soil moisture is estimated, and irrigation water is applied if moisture is below a specified level. This specified level will vary, depending on the soil, climate, crop, and stage of crop development. Excess water application may cause surface runoff or deep percolation. Inadequate application will not maintain an optimum moisture level and will require more frequent irrigations. The timing and measurement of water are essential to determine how much is being applied.

The potential benefits of irrigation scheduling are illustrated by the following examples.

In 1976, farmers in central Nebraska who were cooperators in an irrigation scheduling program piloted by the University of Nebraska applied an average of 15 inches of water to about 5,000 acres of cropland; farmers who were not in the program applied an average of 24 inches of water. (Ruen, 1977). As a result, farmers in the scheduling program reduced both the amount of ground water pumped and the cost of pumping by about 38%.

The University of Nebraska irrigation scheduling technique used a computerized scheduling program on Nebraska's AGNET computer system. Soil moisture data for the AGNET program was collected from electrical resistance blocks placed in the soil at depths of 0.5, 1.5, 2.5, and 3.5 feet. Irrigations were scheduled when the moisture in the root zone was more than 50% depleted. The irrigation water applied was less than that necessary to fill the soil profile completely, so the soil could absorb rainfall if it should occur.

Since 1984, at the cost of a few dollars per acre, farmers in 16 counties in California have reduced the amount of water they apply to their fields by 15% to 50% using gypsum blocks to signal when its time to irrigate. In Colorado, farmers who have installed gypsum blocks at one or two sites within each circle under center pivot irrigation have reduced their annual diversions by 30% to 40% and their pumping costs by $2,000 or more per field (Richardson, 1992).

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Chapter 5

Self-Supplied Livestock

5.1. INTRODUCTION

The procedure presented in this report for quantifying livestock withdrawals and depletions relies primarily upon the number of livestock reported by various state and federal agencies and per capita water requirements for each species of animal determined from agricultural research. A brief overview of factors which affect livestock water use is presented. The results of a recent study of drinking water requirements for beef cattle are reviewed. The current migration of West Coast dairies to New Mexico and the exponential increase in the number of dairy cattle in Chaves County are noted. Water requirements for modern dairies are discussed in detail, and suggested guidelines for quantifying withdrawals and depletions in dairies are included.

5.2. COMPOSITION OF CATEGORY

Livestock (LS). Includes water used to raise livestock, maintain self-supplied livestock facilities, and provide for on-farm processing of poultry and dairy products. This category is identified as **Major Group 02** in the Standard Industrial Classification Manual (1987) and there are also several subgroups.

5.3. PROCEDURE FOR QUANTIFYING LIVESTOCK WITHDRAWALS AND DEPLETIONS

Step 1: Numbers of beef cattle, chickens, hogs, milk cows, and sheep are enumerated by the U.S. Department of Agriculture, National Agricultural Statistics Service, and reported by county and species. Data used in this report was extracted from the New Mexico Agricultural Statistics Service's 1995 edition of "New Mexico Agricultural Statistics." The number of horses and mules in each county is obtained from data reported in property tax valuations filed with county assessors. When a county is divided into two or more river basins, the number of livestock in each basin is estimated based on local knowledge of grazing lands, location of feedlots etc.

Step 2: Livestock water requirements for consumption (drinking) and other uses (e.g. dairy sanitation) exclusive of stockpond evaporation are estimated on the basis of a per capita use where metered withdrawals are unavailable. (Metered withdrawals are available for all dairies in Chaves County.) Withdrawals are computed using the following equation:

$$W=(GPCD)(POP)/892.74$$

where W is the annual withdrawal in acre-feet; POP is the population; and GPCD is gallons per capita per day. Water requirements for chickens, hogs, horses and mules, and milk cows are assumed to come from groundwater sources only. However, drinking water requirements for beef cattle and sheep are generally assumed to come from both surface and groundwater supplies, with the emphasis on groundwater sources where surface water supplies do not provide a reliable source of water year around or where the quality of surface water supplies is unsatisfactory for livestock drinking water.

Step 3: Depletions for beef cattle, chickens, hogs, horses and mules, and sheep are assumed to equal withdrawals. The depletion rate for dairies will vary depending upon the nature of the operation. (See the discussion of dairies later in this section, and in particular, Tables 5.3 and 5.4.)

5.4. FACTORS WHICH AFFECT LIVESTOCK WATER USE

Livestock and poultry obtain water from three sources: water that is (1) consumed as free water, (2) contained in the feed, and (3) made available through metabolic processes. Many factors influence the intake of water by livestock and poultry. They include, species, size, age, sex, and production of the animal; amount and content of the feed; accessibility to water; and air temperature.

There are nearly as many different waste disposal systems as there are livestock enterprises. Manure generated by livestock on pasture and range is deposited directly on the land. Manure in lot areas is often dry and easily scraped and handled with loaders and spreaders. Holding ponds are often used to retain feedlot runoff until the waste can be spread. Manure in closely confined areas with slab or slotted floors is often wet, near a fluid state. It may be collected by flushing gutters, hosing or by falling through the slats into a holding tank, lagoon or oxidation ditch. It is applied to the land with slurry or tank spreaders or irrigation equipment, or is recycled. Many waste disposal systems require no additional water. However, over the years, an increasing number of hog and beef-cattle feeders and dairy herdsmen have adopted a partial or total liquid disposal system. Liquid systems may need to have water added to hose floors, flush gutters, start batch oxidation and/or dilute solid concentrations for biotic action or for ease of handling.

Freshwater may also be required for animal washes and dips, quarter washdown and disinfectant sprays, cleaning and sanitizing equipment, washing eggs, and dust control. In addition to water consumed by animals, there are watering losses which include tank and trough evaporation, tank overflows, trough spills, and continuous ripple flow discharge (to prevent freezing). Overflows of watering devices are losses incurred with drinking water; however, these losses are not intake and are in addition to drinking water requirements. Watering losses are generally estimated as 10% of animal drinking water requirements (SCS, 1975).

5.5. LIVESTOCK NUMBERS

As of December 31, 1995, the number of beef cattle (exclusive of heifers) in New Mexico was estimated as 560,000. The number of milk cows in New Mexico in 1995 was estimated as 170,000; sheep and lambs as 265,000; hogs and pigs as 5,000; and chickens 1,400,000. (New Mexico Agricultural Statistics Service, 1996). The number of horses was estimated as 24,870.

5.6. WATER REQUIREMENTS FOR BEEF CATTLE

Sweeten (1990a) studied drinking water requirements of 28,000 beef cattle on a feedlot in Texas over a period of 11 months during 1984 and 1985. Meter records from the municipality which provided water to the feedlot indicated an average consumption of 7 gallons per head per day (gpcd) and a range from 4.2 gpcd in the winter to 10.3 gpcd in the summer. Analysis of the data showed that drinking water requirements can be estimated at 0.48 gallons of water per pound of dry feed consumed. On the basis of this criteria, the data shown in Table 5.1 was developed. Given an 80% dry matter ration, an 800-pound animal will consume 9.6 gallons of water per day. A 10,000 head feedlot would require a continuous pumping rate of 67 gallons per minute (gpm) to meet the average demand and approximately 134 gpm to meet the peak demand. The pumping rate required for an 8-hour day utilizing a storage reservoir would be at least 200 gpm for a 10,000 head feedlot, and 400 gpm to meet the peak demand.

In 1990, the average weight of a steer in New Mexico was about 764 pounds (New Mexico Agricultural Statistics Service, 1991). Using the guidelines developed by Sweeten, the average water requirement per head of beef cattle on an 80% dry matter ration would be 9.2 gallons per day. Allowing for trough water losses would increase the water requirement slightly. For the purpose of this water use inventory, withdrawals for beef cattle are computed on the basis of 10 gpcd and depletions are assumed to equal withdrawals.

Table 5.1. Drinking water requirements for beef cattle in gallons per capita per day (gpcd). (Source: Sweeten, 1990a).

Liveweight (lbs/hd)	Dry Feed Consumption (lbs/hd/day)	Water Required (gpcd) Dry Matter in Ration (%)		
		70	80	90
600	12	8.2	7.2	6.4
800	16	11.0	9.6	8.5
1000	20	13.7	12.0	10.7
1200	24	16.5	14.4	12.8

Note: To get gpcd, divide dry feed consumption by the percent of dry matter in ration expressed as a decimal and multiply the result by 0.48.

5.7. WATER REQUIREMENTS FOR MODERN DAIRY BARNS

In California, where strict air and water quality standards have been enacted, and prolonged drought has dried up the supply of cheap subsidized water farmers count on for the irrigation of pastures, dairymen have fixed their gaze on the land of enchantment in search of greener pastures. Eager to attract new business to give new life to a sagging economy, New Mexico bankers have made an extensive effort to seize this opportunity by enticing dairymen from California and Arizona to relocate in New Mexico. Dairymen have been attracted to New Mexico by inexpensive land, the availability of water, the low price of feed such as alfalfa, and a hospitable climate (McCutcheon, 1991). In Chaves County alone, the number of dairy cattle has more than tripled from 1990 to 1995. In the last two decades Dona Ana and Roosevelt counties have also experienced a dramatic increase in the number of dairy cattle. Table 5.2 illustrates the historical increase in the number of milk cows in Chaves, Dona Ana, and Roosevelt counties.

Table 5.2. Number of milk cows in Chaves, Dona Ana, and Roosevelt counties as of January 1, 1976-1995. (Source: New Mexico Agricultural Statistics Service).

Year	Chaves	Dona Ana	Roosevelt
1976	2700	5500	5000
1977	3000	6500	5000
1978	3500	7000	4800
1979	4000	8500	5000
1980	4000	9200	5100
1981	5000	13100	6700
1982	7200	16000	6800
1983	9700	19300	6800
1984	10800	21000	7500
1985	12000	23800	7600
1986	13200	26000	7500
1987	10500	24400	6800
1988	10500	23400	6700
1989	12000	24000	7200
1990	19000	24000	9000
1991	34000	24500	9000
1992	39500	24500	11000
1993	49000	26000	16000
1994	56400	31000	18000
1995	70000	31000	20400

New dairies today typically operate with 1,000 or more head and maintain high animal concentrations in confined lots or corrals on small acreages relative to the number of cows. Typical animal spacings in open lots are 600 square feet per cow. Large amounts of water are used for manure removal and milk sanitation (Sweeten, 1990b).

Frank Wiersma (1988), Professor of Agricultural Engineering and Cooperative Agricultural Extension Service Dairy Specialist at the University of Arizona, developed the following guidelines for estimating water requirements of dairies.

Total daily water consumption by lactating cows is influenced by ambient climatic conditions and by milk production level. There is a compensating interaction between these two parameters in that high temperatures reduce milk production level. Based on current studies, daily water consumption per lactating cow is given by the following equation:

$$GPCD=26+0.3(MP-40)$$

where GPCD is water consumed in gallons per capita per day and MP is fluid milk production in pounds per day. Since this equation is based on the premise that milk production is not less than 40 pounds per day, at which level the gpcd is 26, water requirements for lactating cows should be 26 gallons per day or the value produced by the above equation, whichever is greater. For a dairy operation to be profitable, cows must generally produce 65 to 75 pounds of milk per day. Substituting 75 pounds per day into the equation yields an average drinking water requirement of 36.5 gpcd.

In addition to lactating cows, dairies also have dry cows, bulls, springer heifers, young calves, and replacement heifers on the premises. One-quarter to a third of the dairy herd is generally retired each year and replaced with younger stock. Most of the water used exclusively by non-lactating animals on the dairy is for drinking. However, water is also used for hospital treatment, foot baths, water trough cleaning, and equipment washing. Total water requirements for non-lactating animals are about 20 gallons per animal per day or the equivalent of 6.6 gallons per lactating cow per day assuming there is one non-lactating animal for every three lactating cows (i.e., 6.6 gpcd=20 gpcd/3).

Many of the milking center operations requiring water use are dictated by sanitary codes. All milk lines and associated equipment must be washed, rinsed and sanitized after each milking operation. Both hot and cold water are used. Parlor and holding area grates, floors, and walls must also be hosed down to remove all manure after each milking. Hoses with spray nozzles must be available at all milking stalls for teat and udder cleansing prior to attachment of milking equipment.

A small number of dairies in New Mexico prewash the udders of lactating cows prior to entry into the parlor with a grid of jet sprayers at floor level in the holding area. Most dairies in New Mexico however, wash the udders with hand-held hoses before milking. This practice requires much less water than an automated sprinkler wash. For dairies with sprinkler udder washing systems, the total water requirement for the milk room, parlor and holding pen is 35 to 40 gallons per milking per lactating cow. Corresponding water requirements for dairies which employ manual udder washing practices are 23 to 25 gallons per milking per lactating cow.

Other milking center water uses may include coolant for vacuum pumps—2 gallons per milking per cow, cooling towers for precooling milk—0.25 gallons per milking per lactating cow, and cooling towers for refrigeration system condensers—3 gallons per day per lactating cow. Water used for cooling in dairies is generally recycled, however, a small amount of fresh water must be introduced to make up for evaporation losses.

There are many other water uses which may occur in a dairy operation. Water is used as an additive for the feed ration, for washing, for washing the milk truck ramp located forward of the milk room, for separate maternity facilities, for laboratories, for the employees, for occasional flushing of the manure sump, for the cow hospital or treatment area, and for occasional line breaks. Though most of these requirements are rather small, they are cumulatively significant in quantity. Ten gallons per day per lactating cow should be allotted for these water uses.

In some areas of the Southwest where summers are extremely hot (primarily Arizona) it is common practice to use evaporative shades to cool cattle down. Water may also be used to sprinkle traffic lanes and cattle corrals for dust control. However, these practices are not common in New Mexico.

Dairy wastewater from the holding areas, milking parlor, milk storage tank and equipment is routed to lagoons which typically have a surface area ranging from three to five acres. To comply with state regulations to protect groundwater quality, these lagoons are necessarily constructed to prevent seepage. All or part of the water discharged into lagoons may be evaporated. However, after primary treatment in holding ponds, irrigation systems are often used to dispose of the wastewater. Because the salinity of wastewater may cause crop damage, freshwater may be introduced to dilute the wastewater before it is used for irrigation.

Water requirements for dairies are summarized in Tables 5.4 and 5.5. For the purpose of quantifying withdrawals and depletions for dairies in New Mexico's 1995 water use inventory, withdrawals are computed on the basis of 100 gallons per cow per day (gpcd) where metered withdrawals are unavailable, and depletions are estimated as 90% of the withdrawal. This depletion rate reflects the approximate average for the two wastewater disposal schemes shown in Tables 5.4 and 5.5. Based on the assumption that some dairies in a county may use sprinkler systems to dispose of wastewater, while others use flood irrigation systems. All withdrawals are assumed to come from groundwater sources.

5.8. SUMMARY OF PER CAPITA WATER REQUIREMENTS FOR LIVESTOCK

Per capita water requirements used to quantify livestock withdrawals in New Mexico are summarized in Table 5.3.

Table 5.3. Drinking and miscellaneous water requirements for livestock in gallons per capita per day (gpcd). (Sources: Beef cattle—Sweeten, 1990a; horses—Van der Leeden, 1990; milk cows—Wiersma, 1988; all other— SCS, 1975 and USDA, 1955)

Species	Drinking	Miscellaneous	Total
Beef Cattle	9.00	1.00	10.00
Chickens	0.06	0.02	0.08
Hogs	2.00	1.00	3.00
Horses and Mules	12.00	1.00	13.00
Milk Cows	36.50	63.50	100.00
Sheep	2.00	0.20	2.20

Table 5.4. Estimated water requirements in gallons per cow per day (gpcd) for a modern dairy using manual udder washing practices.

Item	Withdrawal (GPCD)	Scenario 1 Depletion Factor	Scenario 1 Depletion (GPCD)	Scenario 2 Depletion Factor	Scenario 2 Depletion (GPCD)
Drinking water for lactating cows	36.5	1.00	36.5	1.00	36.5
Drinking water for other animals	6.6	1.00	6.6	1.00	6.6
Sanitation in milking center	46.0	0.73	33.6	0.87	40.0
Coolant for vacuum pumps	(4.0)	0.00	0.0	0.00	0.0
Refrigeration in cooling towers	(3.5)	0.00	0.0	0.00	0.0
Miscellaneous	10.0	0.73	7.3	0.87	8.7
Net Totals	99.1		84.0		91.8

Table 5.5. Estimated water requirements in gallons per cow per day (gpcd) for a modern dairy using sprinkler udder washing practices.

Item	Withdrawal (GPCD)	Scenario 1 Depletion Factor	Scenario 1 Depletion (GPCD)	Scenario 2 Depletion Factor	Scenario 2 Depletion (GPCD)
Drinking water for lactating cows	36.5	1.00	36.5	1.00	36.5
Drinking water for other animals	6.6	1.00	6.6	1.00	6.6
Sanitation in milking center	70.0	0.73	51.1	0.87	60.9
Coolant for vacuum pumps	(4.0)	0.00	0.0	0.00	0.0
Refrigeration in cooling towers	(3.5)	0.00	0.0	0.00	0.0
Miscellaneous	10.0	0.73	7.3	0.87	8.7
Net Totals	123.1		101.5		112.7

Scenario 1 assumes that wastewater is disposed of by flood irrigation with an on-farm irrigation efficiency of 70% and incidental depletions equal to 3% of withdrawals, yielding a total depletion of 73%. Scenario 2 assumes that wastewater is disposed of by sprinkler irrigation with an on farm irrigation efficiency of 70% and incidental depletions equal to 17% of withdrawals, yielding a total depletion of 87%. See glossary for definition of incidental depletions. Depletions for each line item are computed by multiplying the withdrawal by the depletion factor. Numbers in parenthesis indicate water that is recycled. Water requirements for employee residences which are located on the dairy premises would be in addition to the water requirements shown in these tables.

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Chapter 6

Self-Supplied Commercial, Industrial, Mining, and Power

6.1. INTRODUCTION

The procedure presented in this report for quantifying withdrawals and depletions for Commercial, Industrial, Mining, and Power emphasizes the importance of metering to monitor water use. Guidelines for estimating water requirements for recreational facilities such as campgrounds are presented. Criteria used to categorize golf courses, the impact of the species of turfgrass on irrigation water requirements, and measures which may be taken to conserve water are discussed in detail. The nature of water use in the industrial sector is summarized, and the factors which affect the amount of water recirculated are identified. New Mexico's importance as one of the nation's leading mineral producers is noted.

6.2. COMPOSITION OF CATEGORIES

6.2.1. Commercial (CO). Includes self-supplied businesses (e.g., motels, restaurants, recreational resorts and campgrounds) and institutions (e.g., schools and hospitals), public or private, involved in the trade of goods or provision of services. Self-supplied golf courses which are not otherwise included in the Public Water Supply category are included as well as greenhouses and nurseries primarily engaged in selling products to the general public which are produced on the same premises from which they are sold. Off-stream fish hatcheries engaged in the production of fish for release are also included. This category is identified as **Major Groups 50-99** and includes numerous subgroups in the Standard Industrial Classification Manual (1987) some of which are associated with other Major Groups.

6.2.2. Industrial (IN). Includes self-supplied enterprises engaged in the processing of raw materials (organic or inorganic—solids, liquids, or gases) or the manufacturing of durable or nondurable goods. Water used for the construction of highways, subdivisions and other construction projects is also included. This category is identified as **Major Groups 15-17** and **20-48** and includes numerous subgroups in the Standard Industrial Classification Manual (1987).

6.2.3. Mining (MI). Includes self-supplied enterprises engaged in the extraction of minerals occurring naturally in the earth's crust: solids, such as coal and smelting ores; liquids, such as crude petroleum; and gases, such as natural gas. Water used for oil and gas well drilling, secondary recovery of oil, quarrying, milling (crushing, screening, washing, flotation, etc.) and other processing done at the mine site, or as part of a mining activity is included as well as water removed from underground excavations and stored in, and evaporated from, tailings ponds. Mining also includes water used to irrigate new vegetative covers at former mine sites which are being reclaimed. It does not include the processing of raw materials such as smelting ores unless this activity occurs as an integral part of, and is physically contiguous with, a mining operation. This category is identified as **Major Groups 10-14** and includes numerous subgroups in the Standard Industrial Classification Manual (1987).

6.2.4. Power (PO). Includes all self-supplied power generating facilities. Water used in conjunction with coal mining operations which are contiguous with a power generating facility that owns and/or operates the mines is also included. This category is identified as **Major Group 49, Industry Group 491**, and **Industry 4911** in the Standard Industrial Classification Manual (1987).

6.3. GENERAL PROCEDURE FOR QUANTIFYING WITHDRAWALS AND DEPLETIONS

The procedure for quantifying withdrawals and depletions for self-supplied commercial, industrial, mining, and power generating facilities is generally the same for each of these individual categories. This procedure is outlined in detail in the text which follows.

Step 1: Metered diversions for those enterprises that report to the New Mexico State Engineer Office are culled from the records.

Step 2: While most self-supplied commercial, industrial, mining, and power generating facilities are required to report their annual water use to the State Engineer Office, there are many that are continually delinquent in keeping their water use records up to date. When metered records for the water use inventory year are not complete, water use may be estimated by examining earlier records or prorating the water right.

Step 3: In some areas there may be establishments that are unmetered. These entities may be very difficult to identify, particularly where no declaration is required or no declaration has been filed with the State Engineer Office. It is acknowledged that many of these establishments are not captured in the water use inventory. However, whenever possible, directories maintained by various business associations and regulatory agencies are available and can be used to identify those entities that might otherwise be missed. It then becomes a matter of contacting these entities by phone or mail to get an estimate of the annual water use from the executive director or operator.

Step 4: Depletions for self-supplied commercial, industrial, mining, and power generating facilities vary from zero to 100% of withdrawals. Some water users such as refineries and power plants measure discharges and can thus determine depletions by taking the difference between measured withdrawals and discharges. Others have developed complex formulas for estimating depletions. Where depletions are not measured or computed using an empirical formula, they are estimated as a percentage of the withdrawals.

6.4. SELF-SUPPLIED COMMERCIAL

6.4.1. Schools

Withdrawals for high schools, junior high schools, and elementary schools, which are not metered are computed by multiplying the student population by a per capita water requirement. The per capita water requirements and depletion rates presented in Table 6.1 were used to quantify water use in unmetered schools in New Mexico's 1995 water use inventory.

Table 6.1. Water requirements in gallons per capita per day (gpcd) for schools without water conserving plumbing fixtures. (Source: U.S. Environmental Protection Agency, 1980; U.S. Public Health Service, 1962)

Type of Facility	GPCD	Percent Depleted
Day with cafeteria, gymnasiums, and showers	25	45
Day with cafeteria but no gymnasiums or showers	20	45
Day without cafeteria, gymnasiums, or showers	15	45

6.4.2. Campgrounds, Picnic Areas, and Visitor Centers

In the absence of metered data, water use at campgrounds, picnic areas, and visitors centers is estimated by multiplying visitor day counts by water use coefficients. Visitor day counts are obtained from the Bureau of Land Management, the National Park Service, New Mexico Parks and Recreation Department, and the U.S. Forest Service. When possible, visitor day statistics are separated into two distinct groups, i.e., overnight campers, and daytime visitors and picnickers. Over the years several studies have been conducted to develop guidelines for per capita water requirements in recreational areas. In chronological order these include: U.S. Public Health Service, 1962; Pacific Southwest Inter-Agency Committee, 1963; American Society of Civil Engineers, 1969; U.S. Environmental Protection Agency, 1980; U.S. Environmental Protection Agency, 1982. The per capita water requirements presented in Table 6.2 were used to quantify water use in unmetered recreational areas in New Mexico's 1995 water use inventory.

Table 6.2. Water requirements in gallons per capita per day (gpcd) for recreational areas without water conserving plumbing fixtures. (Source: U.S. Environmental Protection Agency, 1980)

Type of Facility	GPCD	Percent Depleted
Campground with showers and flush toilets	35	45
Campground with flush toilets	15	45
Campground with drinking water only	5	100
Picnic area with flush toilets	5	45
Visitor center	5	45

6.4.3. Golf Courses

In many communities, self-supplied golf courses represent the largest water users in the Commercial category. There are approximately 85 golf courses in New Mexico (Sun Country Amateur Golf Association, 1995) and they range from 9-hole par-three courses which cover as little as 40 acres to sprawling 18-hole courses which cover 200 acres or more. The amount of water used at golf courses is as varied as the golf courses themselves. Water requirements range from less than 100, to more than 600 acre-feet per year depending upon the local climate, species of turfgrass, irrigation management practices, number of ponds, and clubhouse facilities.

In the major urban areas there is generally a mix of both public and private golf courses. There are also several military installations which have their own golf course. Many of the well-established 18-hole private courses have clubhouse facilities which include snack bar and restaurant, locker rooms with shower facilities, and swimming pools. Golf courses are often the focal point of new subdivision developments which use the rich green turf as a means of creating an oasis in the desert to attract new home buyers.

There are some golf courses which divert water for irrigation directly from their own wells or a surface water source while also using treated municipal water in their clubhouse facilities as well as for irrigation in some months of the year. There are also several golf courses which irrigate with sewage effluent, however, these are not included in the Commercial category as the water used is already accounted for in the Public Water Supply category. There is a need to make a distinction in regard to how municipal golf courses which have their own wells are categorized. For the purpose of this water use inventory, self-supplied golf courses which are owned and operated by a municipality that is a public water supplier are included in the Public Water Supply category. Water used for the irrigation of self-supplied golf courses located within military installations is accounted for in the Public Water Supply category and is thus a transparent component of the total water use on a military installation. The intent here is to treat military installations as a distinct unit. Many universities also own and operate their own golf course; the water used to irrigate these golf courses is generally included with the water use reported for the university, in the Commercial category. All other self-supplied golf courses are included in Commercial. Private golf courses which irrigate from their own wells but also use municipal water for irrigation are also included in Commercial, however, the municipal water which is used for irrigation is included in Public Water Supply.

Many of the golf courses in the state are metered and report their annual diversions to the State Engineer Office. For those self-supplied golf courses which are not metered, withdrawals are estimated using the procedure outlined in Irrigated Agriculture for the quantification of crop water requirements. This necessarily requires that the acreage irrigated, as well as the species of turfgrass in the fairways, be obtained from the golf course superintendent. It is important that the species of turfgrass is identified because the irrigation water requirements for turfgrass will vary depending on the species of grass which is grown and climatic conditions. From a practical perspective, turfgrasses can be separated into two categories.

Cool-Season Grasses. These grasses have a temperature optimum of 60-70 degrees Fahrenheit and are best suited to the cooler regions of New Mexico. They include Kentucky bluegrass, tall fescue, perennial ryegrass, and creeping bentgrass.

Warm-Season Grasses. These grasses have a temperature optimum of 80-95 degrees Fahrenheit or above and are best suited to southern New Mexico and elevations below 4,500 feet. They include bermudagrass, Tifgreen, Santa Ana, zoysiagrass, St. Augustinegrass, and buffalograss. Warm-season grasses are generally susceptible to injury by cold weather.

During the warmest months of the year, cool-season grasses normally exhibit evapotranspiration rates which are typically 30% to 40% higher than warm-season grasses (Borrelli, 1981; Texas Agricultural Experiment Station, 1986). Thus, warm-season grasses will consume less water than cool-season grasses. For the purpose of this inventory, consumptive irrigation requirements for golf courses were computed using the original Blaney-Criddle method and the following consumptive use coefficients (K): For cool-season turfgrasses, 1.05 inside the frost-free period, and 0.50 outside the frost-free period; for warm-season turfgrasses, 0.80 and 0.50, respectively.

Where measured withdrawals are available, the irrigation efficiency on sprinkler irrigated golf courses is taken to be either the consumptive irrigation requirement (acre-feet) multiplied by 100 and divided by the withdrawal, or 80%, whichever value is lower. An irrigation efficiency of 70% is generally assumed when withdrawals are estimated. Incidental depletion factors (See glossary for definition of incidental depletions.) for sprinkler irrigated golf courses are generally assumed to be slightly less than for farm crops because the sprinkler heads discharge at a low angle and close to the ground, there is no interception by a plant canopy such as occurs when irrigating alfalfa or corn, there is no bare ground—runoff is zero, and the turf is generally irrigated during the night when temperatures are lower and winds are calm. For the purpose of this inventory, incidental depletions for sprinkler irrigated golf courses are estimated as 12% of the withdrawals. Thus, if the irrigation efficiency is assumed to be 70%, the total depletion would be 82% (70% + 12%) of the withdrawal.

In 1995, self-supplied golf courses exclusive of those owned and operated by municipalities which are public water suppliers in New Mexico, accounted for approximately 32% of the withdrawals and 40% of the depletions in the Commercial category.

To keep irrigation water requirements to a minimum, developers who are planning the construction of a new golf course should explore the research which has been conducted on turfgrasses and adopt a species of grass which has low water requirements and is well adapted to the local climate. The importance of carefully selecting a turfgrass cannot be overemphasized. In southern New Mexico, there are several golf courses planted in cool season grasses which are not suited to the climate. During the hot summer months, large volumes of water are required to prevent these grasses from wilting. The annual water demand and stress on the aquifer would be much less had these golf courses been seeded with warm season grasses. To prevent new developments from planting turfgrasses which have high water requirements where an alternative species of grass with low water requirements is viable, local governments and regulatory agencies can formulate guidelines which would discourage the use of certain species of turfgrass.

On a golf course with an irrigation system which has been carefully designed to conserve water, water is applied strictly according to plant needs. A vast array of electronic equipment is available to help maintenance personnel apply the right amount of water at the right time. Sprinklers can be turned on automatically by a system that measures soil moisture using tensiometers and applies water only when it is needed. Greens, fairways, and rough areas may be irrigated on different schedules to satisfy the water demands of each species of vegetation. To minimize evaporation, an anemometer may be installed to monitor wind speed and postpone irrigation until winds are calm.

These efforts may sound extreme, but the financial benefit to a business maintaining a large area of turfgrass can be substantial. A golf course in California that adopted the irrigation scheduling practices just described reduced its irrigation withdrawals by 70% and saved $32,000 per year in pumping costs. (California Department of Water Resources, 1984). An additional benefit resulting from the implementation of water conservation measures on a golf course is that when less water is applied, turf disease is minimized and fertilizer requirements are reduced because a smaller percentage of the nutrients percolate below the root zone.

6.5. SELF-SUPPLIED INDUSTRIAL

Water is used in the manufacturing industry for heating, cooling, conveying materials, washing, pollution control, and includes water sold as a part of the product (AWWA, 1985). Water used for restrooms, showers, cafeterias, air conditioning, landscaping, fire protection, and other minor uses normally accounts for less than 5% of industrial intake water. Manufacturing-plant water intake depends on the type of raw material involved, the product produced, the design of the plant, and the efficiency of the industrial process (California Department of Water Resources, 1982). In many industrial plants, water is recirculated, particularly water used for cooling. The quantity of intake water recirculated is affected by: the availability and cost of water delivered to the plant; quality of the raw water; plant processes and technology; recovery of materials, by-products, and energy; consumptive loss; air and water pollution control regulations; cost avoidance; and age of plant (Kollar and Brewer, 1980).

In 1995, self-supplied gas processing plants and oil refineries accounted for approximately 62% of the withdrawals and 57% of the depletions in the Industrial category. Water introduced into these facilities for cooling is generally recirculated. However, water used for other purposes, and water separated from petroleum during processing is generally discharged into lagoons where it is evaporated or it is injected into deep aquifers.

6.6. SELF-SUPPLIED MINING

New Mexico continues to be one of the leading mineral resource producing states in the nation, ranking first in the production of potash and perlite; second in pumice and mica; third in copper, carbon dioxide, and natural gas; sixth in uranium; seventh in crude oil; tenth in coal and silver; and twelfth in gold. (New Mexico Energy, Minerals and Natural Resources Department, 1996).

Ranked in order of 1995 water withdrawals from high to low, copper is first (44.6%), potash second (19.2%), secondary recovery of oil third (9.9%), uranium fourth (4.2%), oil and gas well drilling fifth (3.5%), coal sixth (1.6%), and sand and gravel washing seventh (1.4%). Very small amounts of water are used to mine other minerals in New Mexico.

Potash, which is used primarily in fertilizers (95%), is produced from five mines and mills which are located in Eddy and Lea counties. New Mexico accounted for 78% of U.S. potash production in 1995. Perlite, which is used primarily in construction materials, is produced from four mines and mills which are located in Cibola, Socorro, and Taos counties. New Mexico accounted for 80% of U.S. potash production in 1995. Pumice, which is used primarily in building blocks (60%), is produced from four mines which are located in Bernalillo, Rio Arriba, Sandoval, and Santa Fe counties. New Mexico also produces significant quantities of sand and gravel for construction, and gypsum which is used in sheetrock. Copper, which is used primarily for electrical wire and pipes, is produced from mines and mills in Grant, Hidalgo, and Luna counties. Carbon dioxide, is produced from four sites in Harding and Union counties and all of this is used in New Mexico and Texas in enhanced oil recovery projects. Uranium is produced by only one mine in McKinley County and is used to fuel nuclear power plants. Coal is produced from mines in Cibola, Colfax, McKinley, and San Juan counties. About 67% of the coal is consumed in-state for electrical power generation and 33% is exported to power plants in other states.

Before the start of any mining operations, the operator must register the mine, mill, smelter, or pit with the Mining and Minerals Division of the New Mexico Energy, Minerals, and Natural Resources Department. A directory of all the mines and mills registered in the state is updated annually. This directory is used to identify those mines and mills which are not required to report their annual withdrawals directly to the State Engineer Office. These mines and mills are then contacted by mail or phone.

Measured withdrawals for water used in the secondary recovery of oil may be obtained from the New Mexico Energy and Minerals Department, Oil and Gas Commission and State Engineer District Offices. Brine water pumped from a depth of 4,000 to 5,000 feet, which is returned by injection into deep brine aquifers, is not quantified in this inventory since its impact on the net supply of freshwater is zero. However, water pumped from freshwater aquifers for the secondary recovery of oil, which is later disposed of by injection into deep brine aquifers or is spread on the land surface where it evaporates, is treated as a 100% depletion.

The Oil and Gas Commission also maintains records of oil and gas well drilling. The total footage drilled is multiplied by 0.00045 gallons to arrive at an estimate of the water used for this purpose. Depletions are estimated as 10% of withdrawals.

6.7. SELF-SUPPLIED POWER

The New Mexico Public Service Commission maintains a directory of all power generating facilities in the state. This directory is used to identify electric utility companies which are not required to report their annual withdrawals directly to the State Engineer Office. These companies are then contacted by mail or phone.

New Mexico continues to be among the largest energy producing states in the nation. There are 21 power generating facilities in New Mexico, however, only 18 of these facilities were active in 1995. Over 70% of the states generating capacity is located at the two largest coal-fired generating stations—Four Corners and San Juan, in San Juan County. Approximately 55% of the electricity generated in New Mexico is consumed in the state, while 45% is exported to other states, primarily Arizona, California, and Texas. (New Mexico Energy, Minerals and Natural Resources Department, 1996). In 1995, 88.8% of the state's generation was from coal. Electricity is also imported into southeastern New Mexico from power plants in Texas.

Due to the complexity of the water budget for BHP-Utah International in San Juan County, water used at BHP's Navajo coal mine, and evaporation from Morgan Lake, which is filled by water pumped from the San Juan River to supply the Four Corners Generating Station, is included in the Power category. The same also applies to the Public Service Company of New Mexico (PNM) with regards to their San Juan Generating Station in San Juan County, and the La Plata and the San Juan coal mines.

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Chapter 7

Reservoir Evaporation

7.1. INTRODUCTION

The quantity of water discharged by a stream is continuously changing throughout the year, from rainy season to dry, and the quantity of flow during any one season varies from year to year. Variability is characteristic of streamflow, as it is of weather. Streams and rivers that originate in the interior mountain areas are characterized by a high rate of discharge during the period of snowmelt, usually in May and June. The rate of flow both before and after the snowmelt period is usually low. The time of peak flow varies somewhat, depending on the time of snowmelt.

Because of the high variability in the flow of most streams, full utilization of surface water is possible only through regulation and control. Storage is necessary to provide for fuller utilization of annual flows. Dams and reservoirs which impound precious runoff from upstream areas capture and conserve water for irrigation, hydroelectric power, municipal and industrial demands, outdoor recreation, fish and wildlife enhancement, and improved water quality as well as providing flood control.

While reservoirs provide many benefits, evaporation from exposed water surfaces of reservoirs consumes a significant part of available surface water supplies. Average annual gross evaporation from reservoirs ranges from 30 inches in the mountains of northern New Mexico to 80 inches in the valleys near the southern border of the state. Because water is a scarce and expensive commodity in New Mexico, evaporation losses attain special importance. Evaporation forecasts are needed for a variety of hydrologic problems such as forecasting water supplies and regulation of reservoirs. Where the management of streams and reservoirs is governed by interstate stream compacts, reservoir evaporation plays an important role in the accounting of inflows and outflows in the annual water budget.

In the text which follows, a general overview of the methods used to estimate reservoir evaporation is presented. Since evaporation from large reservoirs is most often estimated by using an evaporation rate determined from a Class A land pan, the pan approach is discussed in detail. An empirical method for estimating evaporation from small reservoirs where there is a paucity of data is also discussed as well as factors which affect reservoir evaporation.

7.2. COMPOSITION OF CATEGORY

Reservoir Evaporation (RE). Net evaporation from man-made reservoirs which have a storage capacity of approximately 5,000 acre-feet or more.

As a matter of convenience, net evaporation from the Bosque del Apache Wildlife Refuge is also included in this category due to the large volume of water which is diverted from the Rio Grande and ultimately evaporated from the wetlands.

7.3. OVERVIEW OF METHODS USED TO ESTIMATE RESERVOIR EVAPORATION

There are four generally accepted methods for computing lake or reservoir evaporation: (1) water budget, (2) energy budget, (3) mass transfer, and (4) coefficient applied to pan evaporation.

The water budget method consists of solving the mass balance contained in the hydrologic cycle, a perpetual sequence of events governing the depletion and replenishment of water in a basin, for the unknown evaporation component. It is an accounting of all incoming and outgoing water, such as inflow and outflow by rivers and streams, supply from storage in the ground, variation of water storage in the lake, overwater precipitation, and evaporation.

The energy budget method is based on the exchange of thermal energy between a body of water and the atmosphere. Disregarding minor energy sources (chemical, biological, conduction through the bottom, transformation of kinetic energy), there are six basic heating or cooling processes constituting the energy budget of a lake. These energy processes include heat gains or losses produced by shortwave and longwave radiation, heat transfer to the atmosphere through sensible and latent heat, heat advection caused by exchange of water masses, and heat storage within the lake. Data required includes solar radiation, daily maximum and minimum air temperatures and relative humidity, wind run, and water surface temperature.

The mass transfer method of computing evaporation is based on the removal of vapor from the water surface by turbulent diffusion. It consists of a modified application of Dalton's law, where evaporation is considered to be a function of the wind speed and the difference between the vapor pressure of saturated air at the water surface and the vapor pressure of the air above. While many equations have been developed for mass transfer analysis, the equation which was born out of the Lake Hefner study (U.S. Geological Survey, 1954) and later applied and verified by the Lake Mead study (U.S. Geological Survey, 1958) is most often used when the required data is available.

It is generally accepted that the most practical method of estimating reservoir evaporation is the pan approach, because the hydrologic and meteorlogical data required for the other procedures is generally not available. A description of the U.S. Weather Bureau Class A land pan and a procedure for application of the pan approach is outlined in detail in the sections which follow.

7.4. THE U.S. WEATHER BUREAU CLASS A LAND PAN

The U.S. Weather Bureau Class A land pan is four feet in diameter and 10 inches deep. It is made of 22-gauge galvanized iron, is unpainted, and is supported on a wooden pallet so that the bottom of the pan is raised six inches above the ground surface to permit air circulation underneath the pan. Site requirements specify that the pan be located on level ground unobstructed by trees or buildings so maximum exposure to sunlight is possible. The pan is filled with water to within two inches of the top and is refilled as soon as the water level drops one inch. The depth of water is measured with a micrometer hook gauge that is located in a stilling well which acts as a support for the gauge. Wind movement is measured by an anemometer which is mounted on the wooden pallet so that the cups are 24 inches above the pan. A rain gauge, and maximum and minimum thermometers which are kept in an instrument shelter, are also installed at the site. The entire installation is normally enclosed by a five foot high wire-mesh fence to protect the equipment. A reading is generally taken daily, usually in the morning.

Unlike a lake, the Class A pan permits considerable transfer of heat to and from its sides and bottom due to radiation exchange and to transfer of sensible heat caused by a difference in water and air temperature. The effects of pan color and water depth on emission and absorption of radiant energy, effects of pan rims on air turbulence, and the convection of heat within the water in the pan, produce an evaporation rate from the pan which is greater than that from a lake or reservoir surface. The ratio of lake evaporation to the pan evaporation is referred to as the pan coefficient.

Studies conducted by the U.S. Department of Agriculture indicate that coefficients for Class A land pans range from 0.60 to 0.82, however a coefficient of 0.70 is recommended for most applications (Subcommitte on Evaporation, 1934). A coefficient of 0.78 is used in the Pecos River Basin in New Mexico.

While the pan approach has wide application, when it is used in cold climates consideration should be given to the fact that in winter months the pan may be frozen while the reservoir still remains open.

7.5. ESTIMATING RESERVOIR EVAPORATION USING THE PAN APPROACH

Step 1: Compute the average gage height of the water surface level or the average reservoir content for each month from daily observations reported by the agency responsible for the management of the reservoir. Sources of data include the U.S. Army Corps of Engineers, U.S. Bureau of Reclamation, U.S. Geological Survey, National Oceanic and Atmospheric Administration (NOAA), irrigation districts and other organizations.

Step 2: Determine the average water surface area in acres for each month from a curve or equation which correlates gage height or content with surface area. Area-gage height or area-capacity data can be obtained from the agencies mentioned in Step 1.

Step 3: Winter evaporation estimates must take into account the possible effects of ice cover. Partial ice cover will inhibit evaporation; complete ice cover will reduce water surface evaporation to zero. Thus, the average surface area computed in Step 2 must be adjusted to reflect the exposed water surface area in the presence of ice. For large reservoirs, daily observations of ice cover may be available. Tables showing the percent ice cover by month have been developed by some agencies on the basis of historical records and may be used when no other data is available.

Step 4: Obtain Class A land pan evaporation data recorded for each month from the weather station which best represents climatological conditions in the study area. Measurements of monthly and annual evaporation from U.S. Weather Bureau Class A land pans are generally available from NOAA.

Step 5: The gross evaporation rate for each month is computed by multiplying the pan evaporation, which is expressed as a depth of water in feet, by the pan coefficient. To address those situations where the evaporation pan is iced over but the water surface of a nearby reservoir remains open, agencies such as the Bureau of Reclamation have developed empirical equations based on temperature to estimate gross evaporation under these conditions.

Step 6: Obtain the total rainfall recorded for each month. This data is published monthly for most weather stations operated by NOAA. When a reservoir is completely covered with ice for part of a month, recorded rainfall should be adjusted to reflect only those days when there was an exposed water surface.

Step 7: The net evaporation rate for each month, expressed as a depth of water in feet, is computed by subtracting the measured rainfall, in feet, from the gross evaporation rate computed in Step 4.

Step 8: The net volume of water evaporated in each month, expressed in acre-feet, is computed by multiplying the exposed surface area, expressed in acres, by the net evaporation rate, expressed in feet.

Step 9: Adding the net evaporation for each month yields the net evaporation for the calendar year.

7.6. ESTIMATING EVAPORATION FROM SMALL RESERVOIRS USING EMPIRICAL DATA

In some areas there are small reservoirs which are not monitored on a regular basis. Many of these reservoirs are not equipped with a gage to measure the water level, and area capacity curves are not available. Because these reservoirs are small and hydrologic and meteorologic data is typically scant, large expenditures of time and effort are generally not warranted to estimate annual evaporation. To estimate the evaporation from these reservoirs the following procedure may be used.

Step 1: Obtain the reservoir surface area at spillway elevation from the original design specifications and the normal surface area from historical records if they are available.

Step 2: If only the maximum surface area is known, multiply this area by a fullness factor which is based on the observations of someone who is familiar with the reservoir. If observations are unavailable, choose a fullness factor which in your best judgment reflects the runoff conditions for the time period under study. Water supply forecasts published by the U.S. Natural Resources Conservation Service may be helpful in choosing a fullness factor. If the average or normal water surface area of the reservoir is known, use this value in years when precipitation and runoff are considered normal. In drought years it may be necessary to multiply the normal water surface area by a fullness factor to account for low runoff.

Step 3: The annual gross evaporation is estimated by reading values from isopleths drawn on maps prepared by the U.S. Natural Resources Conservation Service and other agencies. The isopleths should represent annual evaporation from a lake or reservoir. If they only reflect pan evaporation, multiply the value read from the isopleth by an appropriate pan coefficient, usually 0.70 for large water bodies, and 0.80 for small water bodies such as ponds.

Step 4: The normal annual rainfall is estimated by reading values from isopleths on maps which are similar to those described in Step 3. Rainfall read from the isopleths may be reduced by some percentage to reflect drought conditions.

Step 5: Subtract the rainfall from the gross evaporation rate to get the net evaporation rate.

Step 6: Multiply the exposed water surface area, expressed in acres, by the net evaporation rate, expressed in feet, to get the net evaporation for the calendar year, in acre-feet.

7.7. FACTORS WHICH AFFECT THE EVAPORATION RATE

The body of water from which evaporation takes place may be small or large, exposed or protected from the wind, shallow or deep, high or low. It may have a high or low plant population or concentration of salts. If exposed to wind movements, or if small, shallow, or densely populated with plant growth, evaporation will be increased. In the summer, when evaporation is at a maximum, more water will evaporate from small and shallow bodies of water than from deep and large bodies due to the increased temperature in the small bodies of water. The presence of aquatic plants will also add to the amount of water loss as evaporation will be augmented by the transpiration of the plants. Dissolved salts in saline bodies of water reduce the vapor pressure of the water surface, tending to promote condensation while inhibiting evaporation to a slight degree. Because air temperature decreases with altitude, evaporation from water bodies at high elevations will generally be less than from a body of water at the same latitude but at a lower elevation.

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Glossary

Acre-foot. The quantity of water required to cover one acre (43,560 square feet) of land with one foot of water. There are 325,851 gallons in an acre-foot of water.

Aquifer. A saturated underground formation of permeable materials capable of storing water and transmitting it to wells, springs, or streams.

Combined water. When both ground and surface water are used on-site for the same purpose, such as the irrigation of a crop, the water supplied is referred to as combined water.

Consumptive irrigation requirement (CIR). The quantity of irrigation water expressed as a depth or volume, exclusive of effective precipitation, that is consumptively used by plants or is evaporated from the soil surface in a specific period of time. It does not include incidental depletions (See definition of incidental depletions) nor does it include water requirements for leaching, frost protection, wind erosion protection or plant cooling. Such requirements are accounted for in the on-farm efficiency values. The consumptive irrigation requirement may be numerically determined by subtracting effective rainfall from consumptive use.

Consumptive use (U) or evapotranspiration (ET). The unit amount of water consumed on a given area in transpiration, building of plant tissue, and evaporated from adjacent soil, water surface, snow, or intercepted precipitation in a specific period of time. The term includes effective rainfall. Consumptive use may be expressed either in volume per unit area such as acre-inches or acre-feet per acre, or depth, such as in inches or feet. Note however, that consumptive use of water by a crop does not include incidental depletions. (See definition of incidental depletions.)

County. The largest administrative division of a U.S. state. Counties may be identified by a two or three-digit code. These numerical codes are presented in "Counties and County Equivalents of the United States, Federal Information Processing Standards Publication 6-2," issued by the National Bureau of Standards (1973)

Cropping pattern. Distribution of the total irrigated acreage in a specific area according to the acreage planted in each individual crop.

Depletion. That part of a withdrawal that has been evaporated, transpired, incorporated into crops or products, consumed by man or livestock, or otherwise removed from the water environment. It includes that portion of ground water recharge resulting from seepage or deep percolation (in connection with a water use) that is not economically recoverable in a reasonable number of years, or is not usable.

Diversion. See withdrawal.

Diverted-setaside acreage. All of the acreage in the production adjustment programs administered by the Agricultural Stabilization and Conservation Service.

Effective rainfall (R_e). Rainfall occurring during the growing period of a crop that becomes available to meet the consumptive water requirements of the crop. It does not include rain which is intercepted by the plant canopy and evaporates, surface runoff, or deep percolation below the root zone.

Evapotranspiration (ET). See consumptive use.

Farm delivery requirement (FDR). The quantity of water exclusive of effective rainfall, that is delivered to the farm headgate or is diverted from a source of water which originates on the farm itself, such as a well or spring, to satisfy the consumptive irrigation requirements of crops grown on a farm in a specific period of time. The farm delivery requirement is computed by dividing the consumptive irrigation requirement, expressed as a depth or volume, by the on-farm irrigation efficiency, expressed as a decimal.

Field application efficiency. The ratio of the low-quarter depth or volume of irrigation water added to the root zone to the depth or volume of water applied to the soil. The application efficiency does not account for the conveyance losses which may occur between the farm headgate and the fields which are irrigated. (See definition of on-farm irrigation efficiency.)

Ground water. Water stored underground, beneath the earth's surface. It is stored in cracks and crevices of rocks and in the pores of geologic materials that make up the earth's crust.

Hydrologic unit. A surface water drainage basin identified by an eight digit code such as 13020101. Starting from the left, there are 4 pairs of digits. The first pair specifies the region; the second pair, the subregion; the third pair, the accounting unit; and the last pair, the cataloging unit. These hydrologic units were established by the U.S. Water Resources Council in 1970 for use in the Second (1975) National Assessment of Water and Related Land Resources.

Idle and fallow. Acreage plowed and cultivated during the current year but left unseeded, or acreage that is left unused one or more years.

Incidental depletions, above-farm. Evaporation from canals and laterals that convey water from stream or reservoir to the farm headgate; transpiration by phreatophytes along canals and laterals; and evaporation of leakage from off-farm water supply pipelines.

Incidental depletions, on-farm. Evaporation from on-farm reservoirs used to store water for irrigation; evaporation from farm ditches and irrigated fields during surface application; transpiration by phreatohphytes along farm ditches, evaporation of leakage from irrigation water pipes; sprinkler spray evaporation and drift losses; and evaporation from wetted crop canopies (interception).

Incidental depletions, below-farm. Evaporation of runoff and seepage from irrigated fields; evaporation from open drains and tailwater recovery pits; and transpiration by phreatophytes along drains and below irrigated fields.

Instream use. Water use taking place within a stream channel. The term "nonwithdrawal use" is frequently used interchangeably with instream use. Instream use is a water use not dependent on a withdrawal or diversion from ground or surface water sources and it usually is classified as flow uses. Examples of flow uses which depend on water running freely in a channel are hydroelectric power generation, navigation, recreation, fish propagation, and water quality improvement.

Irrecoverable water losses. See depletion and incidental depletions.

Irrigable acreage. The sum of irrigated crop acreage, diverted-setaside acreage, and idle and fallow acreage. The term implies that such acreage is developed and that irrigation works exist to apply water to the land. It does not include farmstead, feedlots, area in roads, ditches and the like.

Irrigated acreage (net). Includes agricultural land to which water was artificially applied by controlled means to include preplant, partial, supplemental, and semi-irrigation, during the calendar year. Land flooded during high water periods is included as irrigation only if the water was diverted to agricultural land by dams, canals, or other works. It is equal to the sum of all crop acreage irrigated minus the multiple-cropped acreage.

Multiple-cropped acreage. The same acreage used to produce two or more crops in the same year. When conducting inventories of irrigated acreage, each irrigated crop is included as part of the planted acreage, but the multiple-cropped acreage is subtracted from the sum of all crop acreage irrigated to obtain the net acreage irrigated.

Off-farm conveyance efficiency (Ec). The ratio, expressed as a percentage of the quantity of water delivered to the farm headgate by an open or closed conveyance system, to the quantity of water introduced into the conveyance system at the source or sources of supply.

On-farm distribution system. An on-farm distribution system may consist of a series of ditches or pipes, and related appurtenances, which convey the water delivered to the farm, to the appropriate field.

On-farm irrigation efficiency (Ef). The ratio, expressed as a percentage, of the average low-quarter depth or volume of irrigation water infiltrated and stored in the root zone to the depth or volume of water diverted from the farm headgate or a source of water originating on the farm itself, such as a well or spring. So that the reader may clearly understand what the low quarter means, let's assume that we have measured the change in soil moisture content in the root zone after an irrigation at 12 sampling sites on a field. The low quarter, would be the average of the three lowest values recorded. The on-farm efficiency reflects the efficiency of the on-farm distribution system and application system and includes deep percolation losses necessary as a beneficial use for leaching excess salts from the root zone. In the design and operation of an irrigation system and in the administration of water rights, it is the on-farm irrigation efficiency which is used in the determination of the farm delivery requirement.

Per capita use. The average quantity of water used per person or per head of livestock, per day.

Preplant irrigation. Water applied to fields before seed is sown to provide optimum soil moisture conditions for germination and to store water in the soil profile for consumptive use by plants during the growing season.

Project diversion requirement or off-farm diversion requirement (PDR). When the source of irrigation water does not originate on the farm, the project diversion requirement or off-farm diversion requirement is defined as the quantity of water exclusive of effective rainfall, which is diverted from an off-farm source to satisfy the farm delivery requirement in a specific period of time. An additional quantity of water must be diverted from the ultimate source of supply to make up for conveyance losses between the farm headgate and the source of water. Estimated conveyance losses are added to the farm delivery requirement to arrive at the project diversion requirement. The off-farm diversion requirement may also be computed by dividing the farm delivery requirement by the off-farm conveyance efficiency, expressed as a decimal.

Project or system irrigation efficiency (Ej). The combined efficiency of the entire irrigation system, from the ultimate diversion point to the crop root zone. In mathematical terms it is the product expressed as a percentage of the on-farm efficiency (E_f) and the off-farm conveyance efficiency (E_c). When the irrigation water originates on the farm itself, such as from a well or spring, the off-farm conveyance efficiency does not apply and thus the project or system efficiency is the same as the on-farm irrigation efficiency.

River basin. The entire area drained by a stream (or river) or system of connecting streams so that all the streamflow originating in the area is discharged through a single outlet.

Rural. Any community, incorporated or unincorporated with a population of less than 2,500 inhabitants and not within a larger community that is classified as urban, is classified as rural by the U.S. Bureau of the Census.

Self-supplied. Water users who withdraw water directly from a ground or surface water source.

Surface water. An open body of water such as a river, stream, or lake.

Transpiration. The process by which water in plants is transferred into water vapor in the atmosphere.

Urban. Any community, incorporated or unincorporated with a population of 2,500 inhabitants or more is classified as urban by the U.S. Bureau of the Census. A self-supplied subdivision or residence (single family home or multiple housing unit) with a population of less than 2,500 inhabitants is classified as urban if it is within the established boundaries of a larger community or metropolitan area which is classified as urban by the Bureau of the Census.

Withdrawal. The quantify of water taken from a ground or surface water source. A diversion is the same as a withdrawal.

TERMS OF CONFUSION

There are three terms which are frequently used in discussions pertaining to water which open the door to confusion and misunderstanding. They are (1) consumed, (2) consumption, and (3) consumptive use.

Water consumed and water consumption are often taken as meaning water delivered to a water user whether the user be a water utility, and individual household, or a commercial or industrial enterprise. When used in this sense, these terms do not mean the same thing as depletion as defined in this glossary. Furthermore, water consumption in this context is not synonymous with consumptive use as it is defined in this report.

When water consumed and water consumption are used in reference to a human or an animal taking a drink of water, or water that is evaporated from a water body or land surface, these terms become synonymous with a depletion of water and consumptive use.

1995 Water Use Tables

Table A-1. County code numbers established by the National Bureau of Standards and whole or part counties included in each river basin.

Table A-2. Acronyms for river basins.

Table 1. Summary of water use (acre-feet) in New Mexico, 1995.

Table 2. Water use by category expressed as a percent of state totals in New Mexico, 1995

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

Table 5. Summary of water use (acre-feet) in New Mexico river basins, 1995.

Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, populations, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

Table 7. Populations in New Mexico River Basins, 1995.

Table 8. Irrigated Agriculture. Withdrawals (acre-feet) in New Mexico counties, 1995.

Table 9. Irrigated Agriculture. Depletions (acre-feet) in New Mexico counties, 1995.

Table 10. Irrigated Agriculture. Summary of acreage irrigated, withdrawals, conveyance losses, and depletions (acre-feet) in New Mexico river basins, 1995.

Table 11. Irrigated acreage and sources of irrigation water in New Mexico counties, 1995.

Table 12. Acreage irrigated by drip, flood, and sprinkler application methods and sources of irrigation water in New Mexico counties, 1995.

Table 13. Acreage irrigated by drip, flood, and sprinkler application methods and sources of irrigation water in New Mexico river basins, 1995.

Table A-1. County code numbers (CN) established by the National Bureau of Standards and whole or part counties included in each river basin. See Table A-2 for river basin acronyms.

		RIVER BASINS					
CN	COUNTY	AWR	TG	P	RG	UC	LC
1	Bernalillo	-	-	-	X	-	-
3	Catron	-	-	-	X	-	X
5	Chaves	-	-	X	-	-	-
6	Cibola	-	-	-	X	-	X
7	Colfax	X	-	-	-	-	-
9	Curry	X	X	-	-	-	-
11	De Baca	-	-	X	-	-	-
13	Dona Ana	-	-	-	X	-	-
15	Eddy	-	-	X	-	-	-
17	Grant	-	-	-	X	-	X
19	Guadalupe	X	-	X	-	-	-
21	Harding	X	-	-	-	-	-
23	Hidalgo	-	-	-	X	-	X
25	Lea	-	X	X	-	-	-
27	Lincoln	-	-	X	X	-	-
28	Los Alamos	-	-	-	-	-	-
29	Luna	-	-	-	X	-	X
31	McKinley	-	-	-	X	X	X
33	Mora	X	-	-	-	-	-
35	Otero	-	-	X	X	-	-
37	Quay	X	-	X	-	-	-
39	Rio Arriba	-	-	-	X	X	-
41	Roosevelt	-	X	-	-	-	-
43	Sandoval	-	-	-	X	X	-
45	San Juan	-	-	-	-	X	-
47	San Miguel	X	-	X	X	-	-
49	Santa Fe	-	-	X	X	-	-
51	Sierra	-	-	-	X	-	-
53	Socorro	-	-	-	X	-	-
55	Taos	-	-	-	X	-	-
57	Torrance	-	-	X	X	-	-
59	Union	X	-	-	-	-	-
61	Valencia	-	-	-	X	-	-

Table A-2. Acronyms (RVB) for river basins.

RVB	RIVER BASIN
AWR	Arkansas-White-Red
LC	Lower Colorado
P	Pecos
RG	Rio Grande
TG	Texas Gulf
UC	Upper Colorado

Table 1. Summary of water use (acre-feet) in New Mexico, 1995.

CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
Public Water Supply	38171.80	310870.16	349041.96	18947.33	179421.94	198369.27	19224.47	131448.22	150672.69
Domestic (self-supplied)	0.00	29731.56	29731.56	0.00	13900.48	13900.48	0.00	15831.08	15831.08
Irrigated Agriculture	1921796.00	1431842.00	3353638.00	815892.00	1063765.00	1879657.00	1105904.00	368077.00	1473981.00
Livestock (self-supplied)	4024.86	29005.51	33030.37	4024.86	27320.34	31345.20	0.00	1685.17	1685.17
Commercial (self-supplied)	2138.09	19856.63	21994.72	1712.34	12436.89	14149.23	425.75	7419.74	7845.49
Industrial (self-supplied)	2255.36	6594.00	8849.36	2245.14	4414.87	6660.01	10.22	2179.13	2189.35
Mining (self-supplied)	831.98	68005.74	68837.72	503.38	42837.61	43340.99	328.60	25168.13	25496.73
Power (self-supplied)	51911.44	10699.37	62610.81	43070.21	10572.24	53642.45	8841.23	127.13	8968.36
Reservoir Evaporation	521432.40	0.00	521432.40	521432.40	0.00	521432.40	0.00	0.00	0.00
State Totals	2542561.93	1906604.97	4449166.90	1407827.66	1354669.37	2762497.03	1134734.27	551935.60	1686669.87

Key: WSW=withdrawal, surface water; WGW=withdrawal, ground water; TW=total withdrawal; DSW=depletion, surface water; DGW=depletion, ground water; TD=total depletion; RFSW=return flow, surface water; RFGW=return flow, ground water; TRF=total return flow.

Table 2. Water use by category expressed as a percent of state totals in New Mexico, 1995.

CATEGORY	WITHDRAWALS % OF TOTAL	DEPLETIONS % OF TOTAL
Public Water Supply	7.84	7.18
Domestic (self-supplied)	0.67	0.50
Irrigated Agriculture	75.38	68.04
Livestock (self-supplied)	0.74	1.14
Commercial (self-supplied)	0.49	0.51
Industrial (self-supplied)	0.20	0.24
Mining (self-supplied)	1.55	1.57
Power (self-supplied)	1.41	1.94
Reservoir Evaporation	11.72	18.88
Totals	100.00	100.00

Table 3. Percent of withdrawals measured in each water use category in New Mexico, 1995.

CATEGORY	MSW	MGW	MTW
Public Water Supply	99.46	99.42	99.42
Domestic (self-supplied)	0.00	0.00	0.00
Irrigated Agriculture	69.93	25.08	50.78
Livestock (self-supplied)	0.00	24.04	21.11
Commercial (self-supplied)	54.89	77.04	74.89
Industrial (self-supplied)	98.05	79.67	84.36
Mining (self-supplied)	100.00	93.82	93.90
Power (self-supplied)	99.27	99.98	99.97
Reservoir Evaporation	97.24	0.00	97.24

Key: MSW=percent of surface water withdrawals measured; MGW=percent of groundwater withdrawals measured; MTW=per-cent of total withdrawals that were measured.

Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
1	Bernalillo	Public Water Supply	0.00	135467.80	135467.80	0.00	70223.67	70223.67	0.00	65244.13	65244.13
1	Bernalillo	Domestic (self-supplied)	0.00	2162.33	2162.33	0.00	1084.18	1084.18	0.00	1078.15	1078.15
1	Bernalillo	Irrigated Agriculture	65221.00	3893.00	69114.00	18552.00	2299.00	20851.00	46669.00	1594.00	48263.00
1	Bernalillo	Livestock (self-supplied)	40.43	768.87	809.30	40.43	712.86	753.29	0.00	56.01	56.01
1	Bernalillo	Commercial (self-supplied)	0.00	3722.89	3722.89	0.00	2446.58	2446.58	0.00	1276.31	1276.31
1	Bernalillo	Industrial (self-supplied)	0.00	779.19	779.19	0.00	205.11	205.11	0.00	574.08	574.08
1	Bernalillo	Mining (self-supplied)	0.00	352.47	352.47	0.00	89.51	89.51	0.00	262.96	262.96
1	Bernalillo	Power (self-supplied)	0.00	253.41	253.41	0.00	163.41	163.41	0.00	90.00	90.00
1	Bernalillo	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	65261.43	147399.96	212661.39	18592.43	77224.32	95816.75	46669.00	70175.64	116844.64
3	Catron	Public Water Supply	0.00	144.01	144.01	0.00	58.64	58.64	0.00	85.37	85.37
3	Catron	Domestic (self-supplied)	0.00	154.39	154.39	0.00	69.48	69.48	0.00	84.91	84.91
3	Catron	Irrigated Agriculture	18143.00	343.00	18486.00	2536.00	197.00	2733.00	15607.00	146.00	15753.00
3	Catron	Livestock (self-supplied)	269.09	287.64	556.73	269.09	287.64	556.73	0.00	0.00	0.00
3	Catron	Commercial (self-supplied)	8.00	35.26	43.26	8.00	16.46	24.46	0.00	18.80	18.80
3	Catron	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Catron	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Catron	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Catron	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	18420.09	964.30	19384.39	2813.09	629.22	3442.31	15607.00	335.08	15942.08

Key: CN=county number; WSW=withdrawal, surface water; WGW=withdrawal, ground water; TW=total withdrawal; DSW=depletion, surface water; DGW=depletion, ground water; TD=total depletion; RFSW=return flow, surface water; RFGW=return flow, ground water; TRF=total return flow.

Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
5	Chaves	Public Water Supply	0.00	18845.60	18845.60	0.00	15265.34	15265.34	0.00	3580.26	3580.26
5	Chaves	Domestic (self-supplied)	0.00	897.35	897.35	0.00	468.48	468.48	0.00	428.87	428.87
5	Chaves	Irrigated Agriculture	30130.00	263608.00	293738.00	14665.00	181235.00	195900.00	15465.00	82373.00	97838.00
5	Chaves	Livestock (self-supplied)	171.38	7516.61	7687.99	171.38	6835.11	7006.49	0.00	681.50	681.50
5	Chaves	Commercial (self-supplied)	0.00	2487.80	2487.80	0.00	709.42	709.42	0.00	1778.38	1778.38
5	Chaves	Industrial (self-supplied)	0.00	635.99	635.99	0.00	512.27	512.27	0.00	123.72	123.72
5	Chaves	Mining (self-supplied)	0.00	85.60	85.60	0.00	33.12	33.12	0.00	52.48	52.48
5	Chaves	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Chaves	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	30301.38	294076.95	324378.33	14836.38	205058.74	219895.12	15465.00	89018.21	104483.21
6	Cibola	Public Water Supply	0.00	2840.01	2840.01	0.00	1925.40	1925.40	0.00	914.61	914.61
6	Cibola	Domestic (self-supplied)	0.00	968.76	968.76	0.00	435.95	435.95	0.00	532.81	532.81
6	Cibola	Irrigated Agriculture	3082.00	2333.00	5415.00	1394.00	1398.00	2792.00	1688.00	935.00	2623.00
6	Cibola	Livestock (self-supplied)	49.31	201.07	250.38	49.31	201.07	250.38	0.00	0.00	0.00
6	Cibola	Commercial (self-supplied)	0.00	30.83	30.83	0.00	13.88	13.88	0.00	16.95	16.95
6	Cibola	Industrial (self-supplied)	0.00	58.06	58.06	0.00	58.06	58.06	0.00	0.00	0.00
6	Cibola	Mining (self-supplied)	0.00	318.53	318.53	0.00	171.11	171.11	0.00	147.42	147.42
6	Cibola	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Cibola	Reservoir Evaporation	1080.00	0.00	1080.00	1080.00	0.00	1080.00	0.00	0.00	0.00
		County Totals	4211.31	6750.26	10961.57	2523.31	4203.47	6726.78	1688.00	2546.79	4234.79

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
7	Colfax	Public Water Supply	2092.13	629.54	2721.67	1136.29	296.00	1432.29	955.84	333.54	1289.38
7	Colfax	Domestic (self-supplied)	0.00	120.71	120.71	0.00	54.32	54.32	0.00	66.39	66.39
7	Colfax	Irrigated Agriculture	47496.00	828.00	48324.00	19636.00	453.00	20089.00	27860.00	375.00	28235.00
7	Colfax	Livestock (self-supplied)	364.91	371.90	736.81	364.91	371.90	736.81	0.00	0.00	0.00
7	Colfax	Commercial (self-supplied)	92.56	68.77	161.33	41.65	34.27	75.92	50.91	34.50	85.41
7	Colfax	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Colfax	Mining (self-supplied)	615.90	10.00	625.90	418.81	2.00	420.81	197.09	8.00	205.09
7	Colfax	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Colfax	Reservoir Evaporation	7204.20	0.00	7204.20	7204.20	0.00	7204.20	0.00	0.00	0.00
		County Totals	57865.70	2028.92	59894.62	28801.86	1211.49	30013.35	29063.84	817.43	29881.27
9	Curry	Public Water Supply	0.00	9618.53	9618.53	0.00	4977.29	4977.29	0.00	4641.24	4641.24
9	Curry	Domestic (self-supplied)	0.00	247.67	247.67	0.00	111.45	111.45	0.00	136.22	136.22
9	Curry	Irrigated Agriculture	0.00	245049.00	245049.00	0.00	199264.00	199264.00	0.00	45785.00	45785.00
9	Curry	Livestock (self-supplied)	115.72	2501.70	2617.42	115.72	2356.08	2471.80	0.00	145.62	145.62
9	Curry	Commercial (self-supplied)	0.00	232.10	232.10	0.00	188.15	188.15	0.00	43.95	43.95
9	Curry	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Curry	Mining (self-supplied)	0.00	10.00	10.00	0.00	2.00	2.00	0.00	8.00	8.00
9	Curry	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
9	Curry	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	115.72	257659.00	257774.72	115.72	206898.97	207014.69	0.00	50760.03	50760.03

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
11	De Baca	Public Water Supply	0.00	492.00	492.00	0.00	297.64	297.64	0.00	194.36	194.36
11	De Baca	Domestic (self-supplied)	0.00	29.66	29.66	0.00	13.35	13.35	0.00	16.31	16.31
11	De Baca	Irrigated Agriculture	44663.00	13248.00	57911.00	18196.00	10580.00	28776.00	26467.00	2668.00	29135.00
11	De Baca	Livestock (self-supplied)	89.32	363.95	453.27	89.32	363.95	453.27	0.00	0.00	0.00
11	De Baca	Commercial (self-supplied)	0.00	3.56	3.56	0.00	1.60	1.60	0.00	1.96	1.96
11	De Baca	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	De Baca	Mining (self-supplied)	0.00	10.00	10.00	0.00	2.00	2.00	0.00	8.00	8.00
11	De Baca	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
11	De Baca	Reservoir Evaporation	14392.00	0.00	14392.00	14392.00	0.00	14392.00	0.00	0.00	0.00
		County Totals	59144.32	14147.17	73291.49	32677.32	11258.54	43935.86	26467.00	2888.63	29355.63
13	Dona Ana	Public Water Supply	0.00	35211.88	35211.88	0.00	20716.49	20716.49	0.00	14495.39	14495.39
13	Dona Ana	Domestic (self-supplied)	0.00	1537.85	1537.85	0.00	768.93	768.93	0.00	768.92	768.92
13	Dona Ana	Irrigated Agriculture	374455.00	72157.00	446612.00	171156.00	49150.00	220306.00	203299.00	23007.00	226306.00
13	Dona Ana	Livestock (self-supplied)	41.02	3732.50	3773.52	41.02	3385.26	3426.28	0.00	347.24	347.24
13	Dona Ana	Commercial (self-supplied)	130.81	4468.43	4599.24	88.95	2980.51	3069.46	41.86	1487.92	1529.78
13	Dona Ana	Industrial (self-supplied)	0.00	67.61	67.61	0.00	43.45	43.45	0.00	24.16	24.16
13	Dona Ana	Mining (self-supplied)	0.00	65.80	65.80	0.00	15.36	15.36	0.00	50.44	50.44
13	Dona Ana	Power (self-supplied)	0.00	2439.54	2439.54	0.00	2439.54	2439.54	0.00	0.00	0.00
13	Dona Ana	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	374626.83	119680.61	494307.44	171285.97	79499.54	250785.51	203340.86	40181.07	243521.93

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
15	Eddy	Public Water Supply	471.20	14939.12	15410.32	433.50	10330.82	10764.32	37.70	4608.30	4646.00
15	Eddy	Domestic (self-supplied)	0.00	448.28	448.28	0.00	224.14	224.14	0.00	224.14	224.14
15	Eddy	Irrigated Agriculture	124090.00	113278.00	237368.00	63390.00	87329.00	150719.00	60700.00	25949.00	86649.00
15	Eddy	Livestock (self-supplied)	139.30	573.48	712.78	139.30	573.48	712.78	0.00	0.00	0.00
15	Eddy	Commercial (self-supplied)	319.73	431.97	751.70	315.67	240.34	556.01	4.06	191.63	195.69
15	Eddy	Industrial (self-supplied)	0.00	664.59	664.59	0.00	640.23	640.23	0.00	24.36	24.36
15	Eddy	Mining (self-supplied)	60.86	11123.44	11184.30	18.26	3632.02	3650.28	42.60	7491.42	7534.02
15	Eddy	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
15	Eddy	Reservoir Evaporation	19646.00	0.00	19646.00	19646.00	0.00	19646.00	0.00	0.00	0.00
		County Totals	144727.09	141458.88	286185.97	83942.73	102970.03	186912.76	60784.36	38488.85	99273.21
17	Grant	Public Water Supply	126.02	3931.41	4057.43	63.01	2573.13	2636.14	63.01	1358.28	1421.29
17	Grant	Domestic (self-supplied)	0.00	822.99	822.99	0.00	370.35	370.35	0.00	452.64	452.64
17	Grant	Irrigated Agriculture	31309.00	5183.00	36492.00	3875.00	3019.00	6894.00	27434.00	2164.00	29598.00
17	Grant	Livestock (self-supplied)	319.36	334.94	654.30	319.36	334.94	654.30	0.00	0.00	0.00
17	Grant	Commercial (self-supplied)	0.00	230.70	230.70	0.00	103.87	103.87	0.00	126.83	126.83
17	Grant	Industrial (self-supplied)	0.00	7.48	7.48	0.00	6.54	6.54	0.00	0.94	0.94
17	Grant	Mining (self-supplied)	0.00	25848.11	25848.11	0.00	20567.00	20567.00	0.00	5281.11	5281.11
17	Grant	Power (self-supplied)	0.00	282.52	282.52	0.00	282.52	282.52	0.00	0.00	0.00
17	Grant	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	31754.38	36641.15	68395.53	4257.37	27257.35	31514.72	27497.01	9383.80	36880.81

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
19	Guadalupe	Public Water Supply	0.00	727.26	727.26	0.00	462.72	462.72	0.00	264.54	264.54
19	Guadalupe	Domestic (self-supplied)	0.00	95.70	95.70	0.00	43.07	43.07	0.00	52.63	52.63
19	Guadalupe	Irrigated Agriculture	18475.00	1761.00	20236.00	7304.00	1030.00	8334.00	11171.00	731.00	11902.00
19	Guadalupe	Livestock (self-supplied)	105.47	437.97	543.44	105.47	437.97	543.44	0.00	0.00	0.00
19	Guadalupe	Commercial (self-supplied)	0.00	22.43	22.43	0.00	10.10	10.10	0.00	12.33	12.33
19	Guadalupe	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	Guadalupe	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	Guadalupe	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
19	Guadalupe	Reservoir Evaporation	14071.00	0.00	14071.00	14071.00	0.00	14071.00	0.00	0.00	0.00
		County Totals	32651.47	3044.36	35695.83	21480.47	1983.86	23464.33	11171.00	1060.50	12231.50
21	Harding	Public Water Supply	0.00	83.39	83.39	0.00	37.53	37.53	0.00	45.86	45.86
21	Harding	Domestic (self-supplied)	0.00	37.01	37.01	0.00	16.65	16.65	0.00	20.36	20.36
21	Harding	Irrigated Agriculture	0.00	3905.00	3905.00	0.00	3321.00	3321.00	0.00	584.00	584.00
21	Harding	Livestock (self-supplied)	118.94	480.12	599.06	118.94	480.12	599.06	0.00	0.00	0.00
21	Harding	Commercial (self-supplied)	0.00	0.06	0.06	0.00	0.03	0.03	0.00	0.03	0.03
21	Harding	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	Harding	Mining (self-supplied)	0.00	0.30	0.30	0.00	0.15	0.15	0.00	0.15	0.15
21	Harding	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
21	Harding	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	118.94	4505.88	4624.82	118.94	3855.48	3974.42	0.00	650.40	650.40

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
23	Hidalgo	Public Water Supply	0.00	1468.09	1468.09	0.00	734.06	734.06	0.00	734.03	734.03
23	Hidalgo	Domestic (self-supplied)	0.00	177.08	177.08	0.00	79.68	79.68	0.00	97.40	97.40
23	Hidalgo	Irrigated Agriculture	6501.00	31169.00	37670.00	2924.00	18846.00	21770.00	3577.00	12323.00	15900.00
23	Hidalgo	Livestock (self-supplied)	85.18	356.31	441.49	85.18	356.31	441.49	0.00	0.00	0.00
23	Hidalgo	Commercial (self-supplied)	0.00	458.47	458.47	0.00	298.84	298.84	0.00	159.63	159.63
23	Hidalgo	Industrial (self-supplied)	0.00	73.99	73.99	0.00	37.56	37.56	0.00	36.43	36.43
23	Hidalgo	Mining (self-supplied)	0.00	5172.50	5172.50	0.00	4913.88	4913.88	0.00	258.62	258.62
23	Hidalgo	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
23	Hidalgo	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	6586.18	38875.44	45461.62	3009.18	25266.33	28275.51	3577.00	13609.11	17186.11
25	Lea	Public Water Supply	0.00	16126.06	16126.06	0.00	7256.73	7256.73	0.00	8869.33	8869.33
25	Lea	Domestic (self-supplied)	0.00	1330.73	1330.73	0.00	598.83	598.83	0.00	731.90	731.90
25	Lea	Irrigated Agriculture	0.00	131163.00	131163.00	0.00	104350.00	104350.00	0.00	26813.00	26813.00
25	Lea	Livestock (self-supplied)	64.33	1432.23	1496.56	64.33	1348.22	1412.55	0.00	84.01	84.01
25	Lea	Commercial (self-supplied)	0.00	1345.77	1345.77	0.00	1050.08	1050.08	0.00	295.69	295.69
25	Lea	Industrial (self-supplied)	0.00	1497.32	1497.32	0.00	1220.31	1220.31	0.00	277.01	277.01
25	Lea	Mining (self-supplied)	0.00	18974.55	18974.55	0.00	10767.15	10767.15	0.00	8207.40	8207.40
25	Lea	Power (self-supplied)	0.00	4445.00	4445.00	0.00	4445.00	4445.00	0.00	0.00	0.00
25	Lea	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	64.33	176314.66	176378.99	64.33	131036.32	131100.65	0.00	45278.34	45278.34

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
27	Lincoln	Public Water Supply	1428.33	1523.63	2951.96	299.79	386.20	685.99	1128.54	1137.43	2265.97
27	Lincoln	Domestic (self-supplied)	0.00	399.31	399.31	0.00	179.69	179.69	0.00	219.62	219.62
27	Lincoln	Irrigated Agriculture	23165.00	10787.00	33952.00	9156.00	6063.00	15219.00	14009.00	4724.00	18733.00
27	Lincoln	Livestock (self-supplied)	264.36	279.30	543.66	264.36	279.30	543.66	0.00	0.00	0.00
27	Lincoln	Commercial (self-supplied)	0.00	968.38	968.38	0.00	751.67	751.67	0.00	216.71	216.71
27	Lincoln	Industrial (self-supplied)	0.00	57.38	57.38	0.00	46.24	46.24	0.00	11.14	11.14
27	Lincoln	Mining (self-supplied)	8.00	28.50	36.50	1.60	5.70	7.30	6.40	22.80	29.20
27	Lincoln	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
27	Lincoln	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	24865.69	14043.50	38909.19	9721.75	7711.80	17433.55	15143.94	6331.70	21475.64
28	Los Alamos	Public Water Supply	0.00	5836.10	5836.10	0.00	5602.66	5602.66	0.00	233.44	233.44
28	Los Alamos	Domestic (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Los Alamos	Irrigated Agriculture	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Los Alamos	Livestock (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Los Alamos	Commercial (self-supplied)	0.00	1.38	1.38	0.00	0.62	0.62	0.00	0.76	0.76
28	Los Alamos	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Los Alamos	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Los Alamos	Power (self-supplied)	3.76	115.15	118.91	3.76	78.02	81.78	0.00	37.13	37.13
28	Los Alamos	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	3.76	5952.63	5956.39	3.76	5681.30	5685.06	0.00	271.33	271.33

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
29	Luna	Public Water Supply	0.00	4210.06	4210.06	0.00	2105.04	2105.04	0.00	2105.02	2105.02
29	Luna	Domestic (self-supplied)	0.00	810.43	810.43	0.00	364.69	364.69	0.00	445.74	445.74
29	Luna	Irrigated Agriculture	21785.00	119550.00	141335.00	10048.00	71356.00	81404.00	11737.00	48194.00	59931.00
29	Luna	Livestock (self-supplied)	87.47	359.87	447.34	87.47	359.87	447.34	0.00	0.00	0.00
29	Luna	Commercial (self-supplied)	0.00	192.10	192.10	0.00	138.65	138.65	0.00	53.45	53.45
29	Luna	Industrial (self-supplied)	0.00	62.21	62.21	0.00	43.95	43.95	0.00	18.26	18.26
29	Luna	Mining (self-supplied)	0.00	256.03	256.03	0.00	66.00	66.00	0.00	190.03	190.03
29	Luna	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
29	Luna	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	21872.47	125440.70	147313.17	10135.47	74434.20	84569.67	11737.00	51006.50	62743.50
31	McKinley	Public Water Supply	0.00	5380.74	5380.74	0.00	4778.92	4778.92	0.00	601.82	601.82
31	McKinley	Domestic (self-supplied)	0.00	2839.24	2839.24	0.00	1277.65	1277.65	0.00	1561.59	1561.59
31	McKinley	Irrigated Agriculture	4768.00	0.00	4768.00	2123.00	0.00	2123.00	2645.00	0.00	2645.00
31	McKinley	Livestock (self-supplied)	96.04	388.64	484.68	96.04	388.64	484.68	0.00	0.00	0.00
31	McKinley	Commercial (self-supplied)	0.00	89.90	89.90	0.00	40.47	40.47	0.00	49.43	49.43
31	McKinley	Industrial (self-supplied)	0.00	1059.17	1059.17	0.00	1010.52	1010.52	0.00	48.65	48.65
31	McKinley	Mining (self-supplied)	0.00	3241.97	3241.97	0.00	1529.82	1529.82	0.00	1712.15	1712.15
31	McKinley	Power (self-supplied)	0.00	3148.27	3148.27	0.00	3148.27	3148.27	0.00	0.00	0.00
31	McKinley	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	4864.04	16147.93	21011.97	2219.04	12174.29	14393.33	2645.00	3973.64	6618.64

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
33	Mora	Public Water Supply	0.00	231.69	231.69	0.00	104.26	104.26	0.00	127.43	127.43
33	Mora	Domestic (self-supplied)	0.00	289.89	289.89	0.00	130.45	130.45	0.00	159.44	159.44
33	Mora	Irrigated Agriculture	36450.00	35.00	36485.00	16946.00	30.00	16976.00	19504.00	5.00	19509.00
33	Mora	Livestock (self-supplied)	145.99	156.57	302.56	145.99	156.57	302.56	0.00	0.00	0.00
33	Mora	Commercial (self-supplied)	0.00	6.41	6.41	0.00	2.89	2.89	0.00	3.52	3.52
33	Mora	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	Mora	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	Mora	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
33	Mora	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	36595.99	719.56	37315.55	17091.99	424.17	17516.16	19504.00	295.39	19799.39
35	Otero	Public Water Supply	7709.15	4840.88	12550.03	3859.84	2639.22	6499.06	3849.31	2201.66	6050.97
35	Otero	Domestic (self-supplied)	0.00	1126.19	1126.19	0.00	506.79	506.79	0.00	619.40	619.40
35	Otero	Irrigated Agriculture	7544.00	29219.00	36763.00	3603.00	23767.00	27370.00	3941.00	5452.00	9393.00
35	Otero	Livestock (self-supplied)	100.39	216.09	316.48	100.39	216.09	316.48	0.00	0.00	0.00
35	Otero	Commercial (self-supplied)	1006.64	329.02	1335.66	884.81	286.90	1171.71	121.83	42.12	163.95
35	Otero	Industrial (self-supplied)	0.00	25.39	25.39	0.00	24.41	24.41	0.00	0.98	0.98
35	Otero	Mining (self-supplied)	0.00	20.00	20.00	0.00	4.00	4.00	0.00	16.00	16.00
35	Otero	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
35	Otero	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	16360.18	35776.57	52136.75	8448.04	27444.41	35892.45	7912.14	8332.16	16244.30

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
37	Quay	Public Water Supply	81.00	2059.58	2140.58	69.66	995.86	1065.52	11.34	1063.72	1075.06
37	Quay	Domestic (self-supplied)	0.00	139.08	139.08	0.00	62.58	62.58	0.00	76.50	76.50
37	Quay	Irrigated Agriculture	119333.00	28023.00	147356.00	40077.00	21387.00	61464.00	79256.00	6636.00	85892.00
37	Quay	Livestock (self-supplied)	71.89	660.40	732.29	71.89	660.40	732.29	0.00	0.00	0.00
37	Quay	Commercial (self-supplied)	0.00	10.54	10.54	0.00	4.74	4.74	0.00	5.80	5.80
37	Quay	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	Quay	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	Quay	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
37	Quay	Reservoir Evaporation	32938.00	0.00	32938.00	32938.00	0.00	32938.00	0.00	0.00	0.00
		County Totals	152423.89	30892.60	183316.49	73156.55	23110.58	96267.13	79267.34	7782.02	87049.36
39	Rio Arriba	Public Water Supply	683.90	1601.36	2285.26	307.89	445.18	753.07	376.01	1156.18	1532.19
39	Rio Arriba	Domestic (self-supplied)	0.00	1747.61	1747.61	0.00	786.42	786.42	0.00	961.19	961.19
39	Rio Arriba	Irrigated Agriculture	89024.00	886.00	89910.00	32921.00	485.00	33406.00	56103.00	401.00	56504.00
39	Rio Arriba	Livestock (self-supplied)	182.67	193.07	375.74	182.67	193.07	375.74	0.00	0.00	0.00
39	Rio Arriba	Commercial (self-supplied)	105.67	257.27	362.94	46.05	125.37	171.42	59.62	131.90	191.52
39	Rio Arriba	Industrial (self-supplied)	0.00	119.27	119.27	0.00	70.41	70.41	0.00	48.86	48.86
39	Rio Arriba	Mining (self-supplied)	0.00	555.80	555.80	0.00	452.42	452.42	0.00	103.38	103.38
39	Rio Arriba	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
39	Rio Arriba	Reservoir Evaporation	29592.50	0.00	29592.50	29592.50	0.00	29592.50	0.00	0.00	0.00
		County Totals	119588.74	5360.38	124949.12	63050.11	2557.87	65607.98	56538.63	2802.51	59341.14

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
41	Roosevelt	Public Water Supply	0.00	5148.75	5148.75	0.00	3483.64	3483.64	0.00	1665.11	1665.11
41	Roosevelt	Domestic (self-supplied)	0.00	269.85	269.85	0.00	121.43	121.43	0.00	148.42	148.42
41	Roosevelt	Irrigated Agriculture	0.00	152551.00	152551.00	0.00	127398.00	127398.00	0.00	25153.00	25153.00
41	Roosevelt	Livestock (self-supplied)	40.32	2659.04	2699.36	40.32	2430.53	2470.85	0.00	228.51	228.51
41	Roosevelt	Commercial (self-supplied)	0.00	140.83	140.83	0.00	128.00	128.00	0.00	12.83	12.83
41	Roosevelt	Industrial (self-supplied)	0.00	18.59	18.59	0.00	18.59	18.59	0.00	0.00	0.00
41	Roosevelt	Mining (self-supplied)	0.00	16.61	16.61	0.00	8.61	8.61	0.00	8.00	8.00
41	Roosevelt	Power (self-supplied)	0.00	13.48	13.48	0.00	13.48	13.48	0.00	0.00	0.00
41	Roosevelt	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	40.32	160818.15	160858.47	40.32	133602.28	133642.60	0.00	27215.87	27215.87
43	Sandoval	Public Water Supply	125.95	15201.07	15327.02	61.11	12428.87	12489.98	64.84	2772.20	2837.04
43	Sandoval	Domestic (self-supplied)	0.00	2529.00	2529.00	0.00	1210.34	1210.34	0.00	1318.66	1318.66
43	Sandoval	Irrigated Agriculture	54529.00	899.00	55428.00	17169.00	515.00	17684.00	37360.00	384.00	37744.00
43	Sandoval	Livestock (self-supplied)	100.41	267.95	368.36	100.41	252.25	352.66	0.00	15.70	15.70
43	Sandoval	Commercial (self-supplied)	10.00	646.35	656.35	10.00	491.97	501.97	0.00	154.38	154.38
43	Sandoval	Industrial (self-supplied)	0.00	1318.65	1318.65	0.00	360.72	360.72	0.00	957.93	957.93
43	Sandoval	Mining (self-supplied)	0.00	22.60	22.60	0.00	4.20	4.20	0.00	18.40	18.40
43	Sandoval	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
43	Sandoval	Reservoir Evaporation	15033.00	0.00	15033.00	15033.00	0.00	15033.00	0.00	0.00	0.00
		County Totals	69798.36	20884.62	90682.98	32373.52	15263.35	47636.87	37424.84	5621.27	43046.11

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
45	San Juan	Public Water Supply	17209.44	664.08	17873.52	9126.96	492.48	9619.44	8082.48	171.60	8254.08
45	San Juan	Domestic (self-supplied)	0.00	1519.67	1519.67	0.00	683.85	683.85	0.00	835.82	835.82
45	San Juan	Irrigated Agriculture	313051.00	0.00	313051.00	198148.00	0.00	198148.00	114903.00	0.00	114903.00
45	San Juan	Livestock (self-supplied)	80.02	358.96	438.98	80.02	356.72	436.74	0.00	2.24	2.24
45	San Juan	Commercial (self-supplied)	147.50	62.10	209.60	127.43	30.47	157.90	20.07	31.63	51.70
45	San Juan	Industrial (self-supplied)	2230.36	12.09	2242.45	2220.14	9.38	2229.52	10.22	2.71	12.93
45	San Juan	Mining (self-supplied)	82.70	283.00	365.70	53.74	283.00	336.74	28.96	0.00	28.96
45	San Juan	Power (self-supplied)	51907.68	0.00	51907.68	43066.45	0.00	43066.45	8841.23	0.00	8841.23
45	San Juan	Reservoir Evaporation	38738.50	0.00	38738.50	38738.50	0.00	38738.50	0.00	0.00	0.00
		County Totals	423447.20	2899.90	426347.10	291561.24	1855.90	293417.14	131885.96	1044.00	132929.96
47	San Miguel	Public Water Supply	2879.13	408.01	3287.14	1013.82	222.87	1236.69	1865.31	185.14	2050.45
47	San Miguel	Domestic (self-supplied)	0.00	798.35	798.35	0.00	359.26	359.26	0.00	439.09	439.09
47	San Miguel	Irrigated Agriculture	29512.00	0.00	29512.00	11388.00	0.00	11388.00	18124.00	0.00	18124.00
47	San Miguel	Livestock (self-supplied)	325.09	371.00	696.09	325.09	371.00	696.09	0.00	0.00	0.00
47	San Miguel	Commercial (self-supplied)	184.74	134.68	319.42	169.96	82.40	252.36	14.78	52.28	67.06
47	San Miguel	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	San Miguel	Mining (self-supplied)	0.00	20.00	20.00	0.00	4.00	4.00	0.00	16.00	16.00
47	San Miguel	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
47	San Miguel	Reservoir Evaporation	47406.40	0.00	47406.40	47406.40	0.00	47406.40	0.00	0.00	0.00
		County Totals	80307.36	1732.04	82039.40	60303.27	1039.53	61342.80	20004.09	692.51	20696.60

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
49	Santa Fe	Public Water Supply	5365.55	10039.81	15405.36	2575.46	4678.95	7254.41	2790.09	5360.86	8150.95
49	Santa Fe	Domestic (self-supplied)	0.00	2341.46	2341.46	0.00	1062.39	1062.39	0.00	1279.07	1279.07
49	Santa Fe	Irrigated Agriculture	18808.00	13596.00	32404.00	8540.00	10859.00	19399.00	10268.00	2737.00	13005.00
49	Santa Fe	Livestock (self-supplied)	163.28	170.43	333.71	163.28	170.43	333.71	0.00	0.00	0.00
49	Santa Fe	Commercial (self-supplied)	19.54	471.61	491.15	4.03	278.72	282.75	15.51	192.89	208.40
49	Santa Fe	Industrial (self-supplied)	0.00	61.05	61.05	0.00	50.46	50.46	0.00	10.59	10.59
49	Santa Fe	Mining (self-supplied)	0.00	9.43	9.43	0.00	2.00	2.00	0.00	7.43	7.43
49	Santa Fe	Power (self-supplied)	0.00	2.00	2.00	0.00	2.00	2.00	0.00	0.00	0.00
49	Santa Fe	Reservoir Evaporation	143.00	0.00	143.00	143.00	0.00	143.00	0.00	0.00	0.00
		County Totals	24499.37	26691.79	51191.16	11425.77	17103.95	28529.72	13073.60	9587.84	22661.44
51	Sierra	Public Water Supply	0.00	2466.91	2466.91	0.00	1397.80	1397.80	0.00	1069.11	1069.11
51	Sierra	Domestic (self-supplied)	0.00	119.36	119.36	0.00	53.71	53.71	0.00	65.65	65.65
51	Sierra	Irrigated Agriculture	28650.00	15013.00	43663.00	13301.00	9796.00	23097.00	15349.00	5217.00	20566.00
51	Sierra	Livestock (self-supplied)	72.51	487.70	560.21	72.51	468.66	541.17	0.00	19.04	19.04
51	Sierra	Commercial (self-supplied)	0.00	546.40	546.40	0.00	427.61	427.61	0.00	118.79	118.79
51	Sierra	Industrial (self-supplied)	25.00	0.20	25.20	25.00	0.10	25.10	0.00	0.10	0.10
51	Sierra	Mining (self-supplied)	0.00	17.93	17.93	0.00	3.59	3.59	0.00	14.34	14.34
51	Sierra	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
51	Sierra	Reservoir Evaporation	292561.00	0.00	292561.00	292561.00	0.00	292561.00	0.00	0.00	0.00
		County Totals	321308.51	18651.50	339960.01	305959.51	12147.47	318106.98	15349.00	6504.03	21853.03

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
53	Socorro	Public Water Supply	0.00	2183.55	2183.55	0.00	816.02	816.02	0.00	1367.53	1367.53
53	Socorro	Domestic (self-supplied)	0.00	323.23	323.23	0.00	145.45	145.45	0.00	177.78	177.78
53	Socorro	Irrigated Agriculture	122538.00	37709.00	160247.00	36427.00	21425.00	57852.00	86111.00	16284.00	102395.00
53	Socorro	Livestock (self-supplied)	72.61	887.13	959.74	72.61	840.08	912.69	0.00	47.05	47.05
53	Socorro	Commercial (self-supplied)	0.00	1048.70	1048.70	0.00	675.53	675.53	0.00	373.17	373.17
53	Socorro	Industrial (self-supplied)	0.00	15.53	15.53	0.00	15.53	15.53	0.00	0.00	0.00
53	Socorro	Mining (self-supplied)	0.00	15.53	15.53	0.00	7.77	7.77	0.00	7.76	7.76
53	Socorro	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
53	Socorro	Reservoir Evaporation	7570.00	0.00	7570.00	7570.00	0.00	7570.00	0.00	0.00	0.00
		County Totals	130180.61	42182.67	172363.28	44069.61	23925.38	67994.99	86111.00	18257.29	104368.29
55	Taos	Public Water Supply	0.00	2024.20	2024.20	0.00	799.20	799.20	0.00	1225.00	1225.00
55	Taos	Domestic (self-supplied)	0.00	1262.81	1262.81	0.00	568.26	568.26	0.00	694.55	694.55
55	Taos	Irrigated Agriculture	102584.00	2022.00	104606.00	39361.00	1592.00	40953.00	63223.00	430.00	63653.00
55	Taos	Livestock (self-supplied)	66.42	85.63	152.05	66.42	85.63	152.05	0.00	0.00	0.00
55	Taos	Commercial (self-supplied)	112.90	241.11	354.01	15.79	113.76	129.55	97.11	127.35	224.46
55	Taos	Industrial (self-supplied)	0.00	5.07	5.07	0.00	3.82	3.82	0.00	1.25	1.25
55	Taos	Mining (self-supplied)	64.52	1516.18	1580.70	10.97	258.14	269.11	53.55	1258.04	1311.59
55	Taos	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
55	Taos	Reservoir Evaporation	578.00	0.00	578.00	578.00	0.00	578.00	0.00	0.00	0.00
		County Totals	103405.84	7157.00	110562.84	40032.18	3420.81	43452.99	63373.66	3736.19	67109.85

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Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
57	Torrance	Public Water Supply	0.00	982.72	982.72	0.00	442.23	442.23	0.00	540.49	540.49
57	Torrance	Domestic (self-supplied)	0.00	745.39	745.39	0.00	335.43	335.43	0.00	409.96	409.96
57	Torrance	Irrigated Agriculture	0.00	45170.00	45170.00	0.00	33533.00	33533.00	0.00	11637.00	11637.00
57	Torrance	Livestock (self-supplied)	29.82	279.74	309.56	29.82	279.74	309.56	0.00	0.00	0.00
57	Torrance	Commercial (self-supplied)	0.00	88.09	88.09	0.00	57.78	57.78	0.00	30.31	30.31
57	Torrance	Industrial (self-supplied)	0.00	16.57	16.57	0.00	16.57	16.57	0.00	0.00	0.00
57	Torrance	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	Torrance	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
57	Torrance	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	29.82	47282.51	47312.33	29.82	34664.75	34694.57	0.00	12617.76	12617.76
59	Union	Public Water Supply	0.00	624.95	624.95	0.00	281.22	281.22	0.00	343.73	343.73
59	Union	Domestic (self-supplied)	0.00	137.20	137.20	0.00	61.74	61.74	0.00	75.46	75.46
59	Union	Irrigated Agriculture	3780.00	79798.00	83578.00	1716.00	68386.00	70102.00	2064.00	11412.00	13476.00
59	Union	Livestock (self-supplied)	124.78	1129.48	1254.26	124.78	1129.48	1254.26	0.00	0.00	0.00
59	Union	Commercial (self-supplied)	0.00	8.19	8.19	0.00	3.69	3.69	0.00	4.50	4.50
59	Union	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59	Union	Mining (self-supplied)	0.00	27.26	27.26	0.00	11.26	11.26	0.00	16.00	16.00
59	Union	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
59	Union	Reservoir Evaporation	478.80	0.00	478.80	478.80	0.00	478.80	0.00	0.00	0.00
		County Totals	4383.58	81725.08	86108.66	2319.58	69873.39	72192.97	2064.00	11851.69	13915.69

Key: CN=county number; WSW=withdrawal, surface water; WGW=withdrawal, ground water; TW=total withdrawal; DSW=depletion, surface water; DGW=depletion, ground water; TD=total depletion; RFSW=return flow, surface water; RFGW=return flow, ground water; TRF=total return flow.

Table 4. Summary of water use (acre-feet) in New Mexico counties, 1995.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
61	Valencia	Public Water Supply	0.00	4917.37	4917.37	0.00	2165.86	2165.86	0.00	2751.51	2751.51
61	Valencia	Domestic (self-supplied)	0.00	3302.98	3302.98	0.00	1651.49	1651.49	0.00	1651.49	1651.49
61	Valencia	Irrigated Agriculture	182710.00	8666.00	191376.00	51340.00	4702.00	56042.00	131370.00	3964.00	135334.00
61	Valencia	Livestock (self-supplied)	27.03	695.22	722.25	27.03	636.97	664.00	0.00	58.25	58.25
61	Valencia	Commercial (self-supplied)	0.00	1074.53	1074.53	0.00	701.52	701.52	0.00	373.01	373.01
61	Valencia	Industrial (self-supplied)	0.00	38.60	38.60	0.00	20.64	20.64	0.00	17.96	17.96
61	Valencia	Mining (self-supplied)	0.00	3.60	3.60	0.00	1.80	1.80	0.00	1.80	1.80
61	Valencia	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
61	Valencia	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	182737.03	18698.30	201435.33	51367.03	9880.28	61247.31	131370.00	8818.02	140188.02
		State Totals	2542561.93	1906604.97	4449166.90	1407827.66	1354669.37	2762497.03	1134734.27	551935.60	1686669.87

Key: CN=county number; WSW=withdrawal, surface water; WGW=withdrawal, ground water; TW=total withdrawal; DSW=depletion, surface water; DGW=depletion, ground water; TD=total depletion; RFSW=return flow, surface water; RFGW=return flow, ground water; TRF=total return flow.

Table 5. Summary of water use (acre-feet) in New Mexico river basins, 1995.

RVB	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
AWR	Public Water Supply	2234.32	3699.14	5933.46	1233.49	1747.75	2981.24	1000.83	1951.39	2952.22
AWR	Domestic (self-supplied)	0.00	821.90	821.90	0.00	369.85	369.85	0.00	452.05	452.05
AWR	Irrigated Agriculture	217098.00	118285.00	335383.00	82539.00	96594.00	179133.00	134559.00	21691.00	156250.00
AWR	Livestock (self-supplied)	1036.93	3267.70	4304.63	1036.93	3267.70	4304.63	0.00	0.00	0.00
AWR	Commercial (self-supplied)	277.30	111.21	388.51	211.61	53.38	264.99	65.69	57.83	123.52
AWR	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AWR	Mining (self-supplied)	615.90	37.56	653.46	418.81	13.41	432.22	197.09	24.15	221.24
AWR	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AWR	Reservoir Evaporation	85675.40	0.00	85675.40	85675.40	0.00	85675.40	0.00	0.00	0.00
	River Basin Totals	306937.85	126222.51	433160.36	171115.24	102046.09	273161.33	135822.61	24176.42	159999.03
TG	Public Water Supply	0.00	28401.11	28401.11	0.00	14594.76	14594.76	0.00	13806.35	13806.35
TG	Domestic (self-supplied)	0.00	1612.12	1612.12	0.00	725.45	725.45	0.00	886.67	886.67
TG	Irrigated Agriculture	0.00	510116.00	510116.00	0.00	416896.00	416896.00	0.00	93220.00	93220.00
TG	Livestock (self-supplied)	151.20	5968.38	6119.58	151.20	5510.24	5661.44	0.00	458.14	458.14
TG	Commercial (self-supplied)	0.00	1489.50	1489.50	0.00	1155.37	1155.37	0.00	334.13	334.13
TG	Industrial (self-supplied)	0.00	395.06	395.06	0.00	320.93	320.93	0.00	74.13	74.13
TG	Mining (self-supplied)	0.00	12464.61	12464.61	0.00	7513.91	7513.91	0.00	4950.70	4950.70
TG	Power (self-supplied)	0.00	4458.48	4458.48	0.00	4458.48	4458.48	0.00	0.00	0.00
TG	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	River Basin Totals	151.20	564905.26	565056.46	151.20	451175.14	451326.34	0.00	113730.12	113730.12

Key: RVB=river basin; WSW=withdrawal, surface water; WGW=withdrawal, ground water; TW=total withdrawal; DSW=depletion, surface water; DGW=depletion, ground water; TD=total depletion; RFSW=return flow, surface water; RFGW=return flow, ground water; TRF=total return flow. See Table A-2 for river basin acronyms.

Table 5. Summary of water use (acre-feet) in New Mexico river basins, 1995.

RVB	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
P	Public Water Supply	4723.46	39560.34	44283.80	1724.55	28151.98	29876.53	2998.91	11408.36	14407.27
P	Domestic (self-supplied)	0.00	2976.57	2976.57	0.00	1426.55	1426.55	0.00	1550.02	1550.02
P	Irrigated Agriculture	261847.00	413091.00	674938.00	120776.00	295796.00	416572.00	141071.00	117295.00	258366.00
P	Livestock (self-supplied)	915.91	9750.98	10666.89	915.91	9069.48	9985.39	0.00	681.50	681.50
P	Commercial (self-supplied)	803.73	3999.61	4803.34	743.17	1749.43	2492.60	60.56	2250.18	2310.74
P	Industrial (self-supplied)	0.00	2478.81	2478.81	0.00	2116.71	2116.71	0.00	362.10	362.10
P	Mining (self-supplied)	68.86	17804.09	17872.95	19.86	6940.69	6960.55	49.00	10863.40	10912.40
P	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P	Reservoir Evaporation	50461.00	0.00	50461.00	50461.00	0.00	50461.00	0.00	0.00	0.00
	River Basin Totals	318819.96	489661.40	808481.36	174640.49	345250.84	519891.33	144179.47	144410.56	288590.03
RG	Public Water Supply	13498.11	232034.92	245533.03	6634.42	129099.91	135734.33	6863.69	102935.01	109798.70
RG	Domestic (self-supplied)	0.00	19317.76	19317.76	0.00	9127.19	9127.19	0.00	10190.57	10190.57
RG	Irrigated Agriculture	1072419.00	357505.00	1429924.00	404431.00	234745.00	639176.00	667988.00	122760.00	790748.00
RG	Livestock (self-supplied)	1296.36	8550.88	9847.24	1296.36	8007.59	9303.95	0.00	543.29	543.29
RG	Commercial (self-supplied)	901.56	13415.31	14316.87	622.13	9004.56	9626.69	279.43	4410.75	4690.18
RG	Industrial (self-supplied)	25.00	2562.99	2587.99	25.00	913.58	938.58	0.00	1649.41	1649.41
RG	Mining (self-supplied)	64.52	30537.58	30602.10	10.97	22344.00	22354.97	53.55	8193.58	8247.13
RG	Power (self-supplied)	3.76	6240.89	6244.65	3.76	6113.76	6117.52	0.00	127.13	127.13
RG	Reservoir Evaporation	346499.00	0.00	346499.00	346499.00	0.00	346499.00	0.00	0.00	0.00
	River Basin Totals	1434707.31	670165.33	2104872.64	759522.64	419355.59	1178878.23	675184.67	250809.74	925994.41

Key: RVB=river basin; WSW=withdrawal, surface water; WGW=withdrawal, ground water; TW=total withdrawal; DSW=depletion, surface water; DGW=depletion, ground water; TD=total depletion; RFSW=return flow, surface water; RFGW=return flow, ground water; TRF=total return flow. See Table A-2 for river basin acronyms.

Table 5. Summary of water use (acre-feet) in New Mexico river basins, 1995.

RVB	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
UC	Public Water Supply	17715.91	668.09	18384.00	9354.87	494.28	9849.15	8361.04	173.81	8534.85
UC	Domestic (self-supplied)	0.00	2657.26	2657.26	0.00	1195.76	1195.76	0.00	1461.50	1461.50
UC	Irrigated Agriculture	315665.00	0.00	315665.00	199267.00	0.00	199267.00	116398.00	0.00	116398.00
UC	Livestock (self-supplied)	172.03	547.87	719.90	172.03	545.63	717.66	0.00	2.24	2.24
UC	Commercial (self-supplied)	147.50	64.10	211.60	127.43	31.37	158.80	20.07	32.73	52.80
UC	Industrial (self-supplied)	2230.36	45.03	2275.39	2220.14	36.62	2256.76	10.22	8.41	18.63
UC	Mining (self-supplied)	82.70	652.01	734.71	53.74	652.01	705.75	28.96	0.00	28.96
UC	Power (self-supplied)	51907.68	0.00	51907.68	43066.45	0.00	43066.45	8841.23	0.00	8841.23
UC	Reservoir Evaporation	38797.00	0.00	38797.00	38797.00	0.00	38797.00	0.00	0.00	0.00
	River Basin Totals	426718.18	4634.36	431352.54	293058.66	2955.67	296014.33	133659.52	1678.69	135338.21
LC	Public Water Supply	0.00	6506.56	6506.56	0.00	5333.26	5333.26	0.00	1173.30	1173.30
LC	Domestic (self-supplied)	0.00	2345.95	2345.95	0.00	1055.68	1055.68	0.00	1290.27	1290.27
LC	Irrigated Agriculture	54767.00	32845.00	87612.00	8879.00	19734.00	28613.00	45888.00	13111.00	58999.00
LC	Livestock (self-supplied)	452.43	919.70	1372.13	452.43	919.70	1372.13	0.00	0.00	0.00
LC	Commercial (self-supplied)	8.00	776.90	784.90	8.00	442.78	450.78	0.00	334.12	334.12
LC	Industrial (self-supplied)	0.00	1112.11	1112.11	0.00	1027.03	1027.03	0.00	85.08	85.08
LC	Mining (self-supplied)	0.00	6509.89	6509.89	0.00	5373.59	5373.59	0.00	1136.30	1136.30
LC	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LC	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	River Basin Totals	55227.43	51016.11	106243.54	9339.43	33886.04	43225.47	45888.00	17130.07	63018.07

Key: RVB=river basin; WSW=withdrawal, surface water; WGW=withdrawal, ground water; TW=total withdrawal; DSW=depletion, surface water; DGW=depletion, ground water; TD=total depletion; RFSW=return flow, surface water; RFGW=return flow, ground water; TRF=total return flow. See Table A-2 for river basin acronyms.

Table 5. Summary of water use (acre-feet) in New Mexico river basins, 1995.

RVB	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
	State Totals	2542561.93	1906604.97	4449166.90	1407827.66	1354669.37	2762497.03	1134734.27	551935.60	1686669.87

Key: RVB=river basin; WSW=withdrawal, surface water; WGW=withdrawal, ground water; TW=total withdrawal; DSW=depletion, surface water; DGW=depletion, ground water; TD=total depletion; RFSW=return flow, surface water; RFGW=return flow, ground water; TRF=total return flow. See Table A-2 for river basin acronyms.

Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
1	RG	Alamo Acres MHP	R	59	95	0	-	Y	0.00	6.28	0.00	0.50	0.00	3.14
1	RG	Albuquerque Water System	U	470771	237	4	-	Y	0.00	125139.00	0.00	0.51	0.00	63820.89
1	RG	Baker's MHP	R	200	63	0	-	Y	0.00	14.13	0.00	0.50	0.00	7.07
1	RG	Barcelona MHP (90dat)	R	300	92	0	-	N	0.00	31.05	0.00	0.50	0.00	15.53
1	RG	Bearcat Homeowners Assn.	R	75	64	0	-	Y	0.00	5.36	0.00	0.50	0.00	2.68
1	RG	Chilili WUA	R	89	71	0	-	Y	0.00	7.05	0.00	0.50	0.00	3.53
1	RG	Coronado Village MHP	U	1000	117	0	-	Y	0.00	131.56	0.00	0.50	0.00	65.78
1	RG	Corrales--self-supplied homes (prt)	U	598	150	0	-	N	0.00	100.48	0.00	0.53	0.00	53.25
1	RG	Desert Palms MHP (90dat)	R	175	127	0	-	N	0.00	24.96	0.00	0.50	0.00	12.48
1	RG	Entranosa Wtr Co-Op (part)-Edgewood	U	3262	91	1	-	Y	0.00	332.00	0.00	0.45	0.00	149.40
1	RG	Forest Park Property Owners Co-Op	R	200	79	0	-	Y	0.00	17.81	0.00	0.50	0.00	8.91
1	RG	Green Acres MHP	R	83	142	0	-	Y	0.00	13.23	0.00	0.50	0.00	6.62
1	RG	Green Valley MHP	R	300	129	0	-	Y	0.00	43.48	0.00	0.50	0.00	21.74
1	RG	Hamilton MHP	R	85	299	0	-	Y	0.00	28.43	0.00	0.50	0.00	14.22
1	RG	Homestead Mobile Home Community	R	150	114	0	-	Y	0.00	19.17	0.00	0.50	0.00	9.59
1	RG	Kirtland Air Force Base	U	5697	648	10	-	Y	0.00	4133.34	0.00	0.60	0.00	2480.00
1	RG	La Mesa MHP	R	85	125	0	-	Y	0.00	11.93	0.00	0.50	0.00	5.97
1	RG	Mountain View MHP	R	90	68	0	-	Y	0.00	6.87	0.00	0.50	0.00	3.44
1	RG	Oakland Heights Homeowners Assn.	U	29	183	0	-	Y	0.00	5.93	0.00	0.50	0.00	2.97
1	RG	Paradise Acres MHP	R	165	125	0	-	Y	0.00	23.16	0.00	0.50	0.00	11.58
1	RG	Paradise Hills--NM Utilities	U	12012	313	2,3	-	Y	0.00	4207.95	0.00	0.70	0.00	2945.57

Key: CN=county number; RVB=river basin; C=census classification (urban/rural); POP=population; GPCD=gallons per capita per day; WTC=water transfer code; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); WSW=withdrawals, surface water; WGW=withdrawals, ground water; DFSW=depletion factor, surface water; DFGW=depletion factor, ground water; DSW=depletion, surface water; DGW=depletion, ground water; See Table A-1 for county numbers, Table A-2 for river basin acronyms, and "Notes on Individual Water Systems" in Section 3 of text for water transfer codes.

Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
1	RG	Rural self-supplied homes	R	18407	100	0	-	N	0.00	2061.85	0.00	0.50	0.00	1030.93
1	RG	Sandia Peak Utility Company	U	6000	125	0	-	Y	0.00	840.26	0.00	0.50	0.00	420.13
1	RG	Sierra Vista South Water Co-Op	R	125	95	0	-	Y	0.00	13.34	0.00	0.50	0.00	6.67
1	RG	Sunburst Ranch--South Hills Wtr Co.	R	400	134	0	-	Y	0.00	59.84	0.00	0.50	0.00	29.92
1	RG	Tierra Monte WUA	U	60	137	0	-	Y	0.00	9.22	0.00	0.50	0.00	4.61
1	RG	Tierra West Estates--MHP	R	1500	140	0	-	Y	0.00	235.02	0.00	0.50	0.00	117.51
1	RG	Tranquillo Pines Water System	R	850	54	0	-	Y	0.00	51.41	0.00	0.50	0.00	25.71
1	RG	Valle Grande MHP	R	80	239	0	-	Y	0.00	21.44	0.00	0.50	0.00	10.72
1	RG	Western Heights MHP	U	183	169	0	-	Y	0.00	34.58	0.00	0.50	0.00	17.29
		River Basin Subtotals		523030					0.00	137630.13			0.00	71307.85
		County Totals		523030					0.00	137630.13			0.00	71307.85
3	LC	Quemado Water Works (90dat)	R	150	66	0	-	N	0.00	11.13	0.00	0.45	0.00	5.01
3	LC	Rancho Grande Water Assn.	R	180	276	0	-	Y	0.00	55.70	0.00	0.45	0.00	25.07
3	LC	Reserve Water Works	R	325	212	0	-	Y	0.00	77.18	0.00	0.37	0.00	28.56
3	LC	Rural self-supplied homes	R	1610	70	0	-	N	0.00	126.24	0.00	0.45	0.00	56.81
		River Basin Subtotals		2265					0.00	270.25			0.00	115.45
3	RG	Rural self-supplied homes	R	359	70	0	-	N	0.00	28.15	0.00	0.45	0.00	12.67
		River Basin Subtotals		359					0.00	28.15			0.00	12.67
		County Totals		2624					0.00	298.40			0.00	128.12
5	P	Berrendo WUA	U	3600	361	3	-	Y	0.00	1456.88	0.00	0.50	0.00	728.44
5	P	Cumberland WUA	R	500	279	0	-	Y	0.00	156.20	0.00	0.50	0.00	78.10
5	P	Dexter Municipal Water System	R	1350	674	0	-	Y	0.00	1019.20	0.00	0.40	0.00	407.68
5	P	Fambrough Water Co-Op	R	200	156	0	-	Y	0.00	35.00	0.00	0.50	0.00	17.50

Key: CN=county number; RVB=river basin; C=census classification (urban/rural); POP=population; GPCD=gallons per capita per day; WTC=water transfer code; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); WSW=withdrawals, surface water; WGW=withdrawals, ground water; DFSW=depletion factor, surface water; DFGW=depletion factor, ground water; DSW=depletion, surface water; DGW=depletion, ground water; See Table A-1 for county numbers, Table A-2 for river basin acronyms, and "Notes on Individual Water Systems" in Section 3 of text for water transfer codes.

Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
5	P	Greenfield MDWCA	R	228	186	0	-	Y	0.00	47.60	0.00	0.50	0.00	23.80
5	P	Hagerman Water System	R	1200	579	0	-	Y	0.00	778.20	0.00	0.50	0.00	389.10
5	P	Lake Arthur Water Co-Op	R	336	144	0	-	Y	0.00	54.20	0.00	0.50	0.00	27.10
5	P	Riverside WUA	R	150	176	0	-	Y	0.00	29.50	0.00	0.50	0.00	14.75
5	P	Roswell Municipal Water System	U	47784	282	0	-	Y	0.00	15120.50	0.00	0.89	0.00	13457.25
5	P	Roswell--domestic irrigation wells	U	0	0	0	-	N	0.00	165.00	0.00	0.62	0.00	102.30
5	P	Rural self-supplied homes	R	6538	100	0	-	N	0.00	732.35	0.00	0.50	0.00	366.18
5	P	South Springs Acres	R	60	2207	7	-	Y	0.00	148.32	0.00	0.82	0.00	121.62
		River Basin Subtotals		61946					0.00	19742.95			0.00	15733.82
		County Totals		61946					0.00	19742.95			0.00	15733.82
6	LC	Rural self-supplied homes	R	3307	70	0	-	N	0.00	259.30	0.00	0.45	0.00	116.69
		River Basin Subtotals		3307					0.00	259.30			0.00	116.69
6	RG	Bluewater Acres Domestic WUA	R	250	92	0	-	Y	0.00	25.64	0.00	0.45	0.00	11.54
6	RG	Grants Domestic Water System	U	8666	222	0	-	Y	0.00	2158.00	0.00	0.75	0.00	1618.50
6	RG	Milan Community Water System	U	2572	200	4	-	Y	0.00	577.14	0.00	0.45	0.00	259.71
6	RG	Rural self-supplied homes	R	9048	70	0	-	N	0.00	709.46	0.00	0.45	0.00	319.26
6	RG	San Rafael Water & Sanitation Dist.	R	1000	71	0	-	Y	0.00	79.23	0.00	0.45	0.00	35.65
		River Basin Subtotals		21536					0.00	3549.47			0.00	2244.66
		County Totals		24843					0.00	3808.77			0.00	2361.35
7	AWR	Angel Fire Services Corp.	R	105	4432	9	-	Y	0.00	521.24	0.00	0.47	0.00	247.26
7	AWR	Cimarron Water System	R	833	185	0	Y	-	172.39	0.00	0.45	0.00	77.58	0.00
7	AWR	Eagle Nest Water & Sanitation	R	233	180	0	-	Y	0.00	46.94	0.00	0.45	0.00	21.12

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
		Dist.												
7	AWR	Maxwell Cooperative WUA	R	400	86	0	-	Y	0.00	38.50	0.00	0.45	0.00	17.33
7	AWR	Maxwell Water System	R	287	71	0	-	Y	0.00	22.86	0.00	0.45	0.00	10.29
7	AWR	Miami WUA	R	150	86	0	Y	N	14.50	0.00	0.45	0.00	6.53	0.00
7	AWR	Raton Domestic Water System	U	8597	169	4	Y	-	1623.50	0.00	0.57	0.00	925.40	0.00
7	AWR	Rural self-supplied homes	R	1347	80	0	-	N	0.00	120.71	0.00	0.45	0.00	54.32
7	AWR	Springer Water System	R	1960	128	0	Y	-	281.74	0.00	0.45	0.00	126.78	0.00
		River Basin Subtotals		13912					2092.13	750.25			1136.29	350.32
		County Totals		13912					2092.13	750.25			1136.29	350.32
9	AWR	Grady Water System	R	131	190	0	-	Y	0.00	27.86	0.00	0.50	0.00	13.93
9	AWR	Rural self-supplied homes	R	415	100	0	-	N	0.00	46.49	0.00	0.45	0.00	20.92
		River Basin Subtotals		546					0.00	74.35			0.00	34.85
9	TG	Cannon Air Force Base	U	6174	243	10	-	Y	0.00	1680.20	0.00	0.60	0.00	1008.12
9	TG	Desert Ranch Water System	R	99	124	0	-	Y	0.00	13.72	0.00	0.50	0.00	6.86
9	TG	Melrose Water System	R	732	205	0	-	Y	0.00	167.96	0.00	0.50	0.00	83.98
9	TG	NM American Water Co.--Clovis	U	37375	179	0	-	Y	0.00	7503.09	0.00	0.50	0.00	3751.55
9	TG	Rural self-supplied homes	R	1796	100	0	-	N	0.00	201.18	0.00	0.45	0.00	90.53
9	TG	Texico Water System	R	1020	179	0	-	Y	0.00	205.00	0.00	0.50	0.00	102.50
9	TG	Turquoise Estates Wtr Co-Op--Clovis	R	150	137	0	-	Y	0.00	20.70	0.00	0.50	0.00	10.35
		River Basin Subtotals		47346					0.00	9791.85			0.00	5053.89
		County Totals		47892					0.00	9866.20			0.00	5088.74
11	P	Fort Sumner Municipal Water System	R	1297	254	3	-	Y	0.00	368.83	0.00	0.64	0.00	236.05

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
11	P	Puerto de Luna MDWCA	R	180	102	0	-	Y	0.00	20.52	0.00	0.50	0.00	10.26
11	P	Rural self-supplied homes	R	331	80	0	-	N	0.00	29.66	0.00	0.45	0.00	13.35
11	P	Valley WUA	R	565	162	6	-	Y	0.00	102.65	0.00	0.50	0.00	51.33
		River Basin Subtotals		2373					0.00	521.66			0.00	310.99
		County Totals		2373					0.00	521.66			0.00	310.99
13	RG	Alameda MHP	R	250	100	0	-	Y	0.00	28.09	0.00	0.50	0.00	14.05
13	RG	Alto de Las Flores MDWCA	R	763	98	0	-	Y	0.00	83.70	0.00	0.50	0.00	41.85
13	RG	Anthony Water Works	U	7500	138	0	-	Y	0.00	1160.55	0.00	0.46	0.00	533.85
13	RG	Berino WUA	R	1050	136	0	-	Y	0.00	160.20	0.00	0.50	0.00	80.10
13	RG	Brazito MDWCA	R	360	88	0	-	Y	0.00	35.41	0.00	0.50	0.00	17.71
13	RG	Butterfield Park MDWCA	R	1350	70	0	-	Y	0.00	105.21	0.00	0.50	0.00	52.61
13	RG	Chaparral Water System	U	8200	128	0	-	Y	0.00	1173.25	0.00	0.50	0.00	586.63
13	RG	Country Mobile Manor	R	183	68	0	-	Y	0.00	13.90	0.00	0.50	0.00	6.95
13	RG	Covered Wagon MHP	R	125	116	0	-	N	0.00	16.20	0.00	0.50	0.00	8.10
13	RG	Delara Estates MDWCA	R	831	151	0	-	Y	0.00	140.64	0.00	0.50	0.00	70.32
13	RG	Desert Sands MDWCA	R	648	186	0	-	Y	0.00	135.14	0.00	0.50	0.00	67.57
13	RG	Dona Ana MDWCA	U	9471	127	0	-	Y	0.00	1344.38	0.00	0.50	0.00	672.19
13	RG	Fairview Estates Water System	U	120	154	0	-	Y	0.00	20.69	0.00	0.50	0.00	10.35
13	RG	Ft Seldon Subdivision	R	800	123	0	-	Y	0.00	110.19	0.00	0.50	0.00	55.10
13	RG	Garfield MDWCA	R	1740	96	0	-	Y	0.00	186.60	0.00	0.50	0.00	93.30
13	RG	Hacienda Acres Water System	U	2174	174	0	-	Y	0.00	424.00	0.00	0.50	0.00	212.00
13	RG	Hatch Water Supply System	R	1868	122	4	-	Y	0.00	254.62	0.00	0.29	0.00	73.84
13	RG	Holly Gardens MHP	U	233	136	0	-	Y	0.00	35.40	0.00	0.50	0.00	17.70
13	RG	Johnson, Floyd--MHP	R	250	121	0	-	Y	0.00	33.86	0.00	0.50	0.00	16.93
13	RG	La Mesa MDWCA	R	450	86	0	-	Y	0.00	43.15	0.00	0.50	0.00	21.58

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
13	RG	La Quinta Water Company	R	235	144	0	-	Y	0.00	37.94	0.00	0.50	0.00	18.97
13	RG	Las Alturas Estates	R	746	255	0	-	Y	0.00	213.48	0.00	0.50	0.00	106.74
13	RG	Las Cruces Municipal Water System	U	70000	243	3	-	Y	0.00	19070.68	0.00	0.60	0.00	11442.41
13	RG	Leasburg MDWCA	R	636	106	0	-	Y	0.00	75.28	0.00	0.50	0.00	37.64
13	RG	Mesa Development Center	U	819	126	0	-	Y	0.00	115.31	0.00	0.50	0.00	57.66
13	RG	Mesilla Park Manor Water System	R	1029	202	0	-	Y	0.00	232.39	0.00	0.50	0.00	116.20
13	RG	Mesilla Water System	U	2191	96	6	-	Y	0.00	235.53	0.00	0.50	0.00	117.77
13	RG	Mesquite MDWCA	U	2288	249	0	-	Y	0.00	637.18	0.00	0.50	0.00	318.59
13	RG	Moongate Water System	U	6000	131	0	-	Y	0.00	883.17	0.00	0.50	0.00	441.59
13	RG	Mountain View MDWCA	R	750	132	0	-	Y	0.00	111.26	0.00	0.50	0.00	55.63
13	RG	Organ Water & Sewer Assn.	R	567	93	0	-	Y	0.00	59.13	0.00	0.50	0.00	29.57
13	RG	Picacho Hills Water System	R	650	846	4	-	Y	0.00	616.23	0.00	0.82	0.00	505.31
13	RG	Picacho MDWCA	R	1000	118	0	-	Y	0.00	131.89	0.00	0.50	0.00	65.95
13	RG	Raasaf Hills Water System	R	105	180	0	-	Y	0.00	21.22	0.00	0.50	0.00	10.61
13	RG	Rancho Vista MHP	U	120	118	0	-	Y	0.00	15.90	0.00	0.50	0.00	7.95
13	RG	Rincon Water Consumers Co-Op	R	450	105	4	-	Y	0.00	53.07	0.00	0.50	0.00	26.54
13	RG	Rural self-supplied homes	R	13729	100	0	-	N	0.00	1537.85	0.00	0.50	0.00	768.93
13	RG	San Andres Estates Water System	R	868	155	0	-	Y	0.00	150.78	0.00	0.50	0.00	75.39
13	RG	Santa Teresa Water System	U	2400	1112	3	-	Y	0.00	2988.68	0.00	0.82	0.00	2450.72
13	RG	Silver Spur MHP	R	148	119	0	-	Y	0.00	19.77	0.00	0.50	0.00	9.89
13	RG	Skoshi Mobile Home Park	R	151	101	0	-	Y	0.00	17.14	0.00	0.50	0.00	8.57
13	RG	St John's MHP	R	485	132	0	-	Y	0.00	71.93	0.00	0.50	0.00	35.97
13	RG	Sunland Park Water System	U	9331	94	7	-	Y	0.00	985.36	0.00	0.43	0.00	423.70

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
13	RG	Talavera Water Co-Op (90dat)	R	70	114	0	-	N	0.00	8.95	0.00	0.50	0.00	4.48
13	RG	University Estates	U	2720	218	0	-	Y	0.00	664.54	0.00	0.50	0.00	332.27
13	RG	Val Verde MHP	R	220	147	0	-	Y	0.00	36.21	0.00	0.50	0.00	18.11
13	RG	Valle de Rio Water System	R	225	202	0	-	Y	0.00	50.91	0.00	0.50	0.00	25.46
13	RG	Vista Real MHP	R	100	143	0	-	Y	0.00	15.99	0.00	0.50	0.00	8.00
13	RG	White Sands Missile Range	U	2450	797	10	-	Y	0.00	2186.78	0.00	0.60	0.00	1312.07
		River Basin Subtotals		158849					0.00	36749.73			0.00	21485.42
		County Totals		158849					0.00	36749.73			0.00	21485.42
15	P	Artesia Domestic Water System	U	12026	324	3	-	Y	0.00	4365.03	0.00	1.00	0.00	4365.03
15	P	Artesia Rural Water Co-Op	R	1700	219	0	-	Y	0.00	416.50	0.00	0.50	0.00	208.25
15	P	Carlsbad Municipal Water System	U	27480	291	4	Y	Y	471.20	8484.30	0.92	0.58	433.50	4920.89
15	P	Cottonwood Water Cooperative	R	1388	143	0	-	Y	0.00	222.00	0.00	0.50	0.00	111.00
15	P	Happy Valley Water Co-Op	R	800	135	0	-	Y	0.00	120.80	0.00	0.50	0.00	60.40
15	P	Hope Water System	R	130	383	0	-	Y	0.00	55.80	0.00	0.50	0.00	27.90
15	P	Loving Water System	R	1303	340	3	-	Y	0.00	496.04	0.00	0.50	0.00	248.02
15	P	Malaga Water Users Co-Op	R	640	184	6	-	Y	0.00	131.56	0.00	0.50	0.00	65.78
15	P	Morningside Water Cooperative	R	200	153	6	-	Y	0.00	34.37	0.00	0.50	0.00	17.19
15	P	Otis Water Co-Op	U	3286	166	7	-	Y	0.00	612.72	0.00	0.50	0.00	306.36
15	P	Rural self-supplied homes	R	4002	100	0	-	N	0.00	448.28	0.00	0.50	0.00	224.14
		River Basin Subtotals		52955					471.20	15387.40			433.50	10554.96
		County Totals		52955					471.20	15387.40			433.50	10554.96
17	LC	Pinos Altos MDWCA	R	175	120	6	-	N	0.00	23.49	0.00	0.50	0.00	11.75
17	LC	Rural self-supplied homes	R	2772	80	0	-	N	0.00	248.40	0.00	0.45	0.00	111.78

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
17	LC	Tyrone Water System	R	200	833	6	-	Y	0.00	186.61	0.00	0.50	0.00	93.31
		River Basin Subtotals		3147					0.00	458.50			0.00	216.84
17	RG	Arenas Valley MDWCA	R	1100	67	6	-	Y	0.00	82.77	0.00	0.50	0.00	41.39
17	RG	Bayard Municipal Water System	U	2584	136	0	-	Y	0.00	394.98	0.00	0.50	0.00	197.49
17	RG	Casas Adobes Water Company	R	180	72	0	-	Y	0.00	14.55	0.00	0.50	0.00	7.28
17	RG	Central Water System	R	2113	120	0	-	Y	0.00	282.90	0.00	0.50	0.00	141.45
17	RG	Ft Bayard Medical Center	R	450	250	0	N	-	126.02	0.00	0.50	0.00	63.01	0.00
17	RG	Hanover MDWCA	R	300	64	0	-	Y	0.00	21.61	0.00	0.50	0.00	10.81
17	RG	Hurley Water Supply System	R	1534	126	6	-	Y	0.00	217.14	0.00	0.50	0.00	108.57
17	RG	North Hurley MDWCA	R	365	99	0	-	Y	0.00	40.61	0.00	0.50	0.00	20.31
17	RG	Rosedale WUA	R	255	50	6	-	Y	0.00	14.21	0.00	0.50	0.00	7.10
17	RG	Rural self-supplied homes	R	6412	80	0	-	N	0.00	574.59	0.00	0.45	0.00	258.57
17	RG	Silver City Water System	U	11714	201	3	-	Y	0.00	2640.88	0.00	0.73	0.00	1927.84
17	RG	Whiskey Creek Mobile Ranch	R	102	102	0	-	Y	0.00	11.66	0.00	0.50	0.00	5.83
		River Basin Subtotals		27109					126.02	4295.90			63.01	2726.64
		County Totals		30256					126.02	4754.40			63.01	2943.48
19	AWR	Rural self-supplied homes	R	96	80	0	-	N	0.00	8.60	0.00	0.45	0.00	3.87
		River Basin Subtotals		96					0.00	8.60			0.00	3.87
19	P	Rio Pecos Villa WUA	R	37	91	6	-	Y	0.00	3.79	0.00	0.50	0.00	1.90
19	P	Rural self-supplied homes	R	972	80	0	-	N	0.00	87.10	0.00	0.45	0.00	39.20
19	P	Santa Rosa Water Supply	R	2263	244	3	-	Y	0.00	619.24	0.00	0.66	0.00	408.70
19	P	Upper Anton Chico MDWCA	R	130	99	0	-	Y	0.00	14.42	0.00	0.50	0.00	7.21
19	P	Vaughn Water System	R	633	127	2,3	-	Y	0.00	89.81	0.00	0.50	0.00	44.91
		River Basin Subtotals		4035					0.00	814.36			0.00	501.92
		County Totals		4131					0.00	822.96			0.00	505.79

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
21	AWR	Mosquero Water System	R	164	106	0	-	Y	0.00	19.44	0.00	0.45	0.00	8.75
21	AWR	Roy Water Works	R	362	158	0	-	Y	0.00	63.95	0.00	0.45	0.00	28.78
21	AWR	Rural self-supplied homes	R	413	80	0	-	N	0.00	37.01	0.00	0.45	0.00	16.65
		River Basin Subtotals		939					0.00	120.40			0.00	54.18
		County Totals		939					0.00	120.40			0.00	54.18
23	LC	Glen Acres Community Water System	R	200	259	0	-	Y	0.00	57.96	0.00	0.50	0.00	28.98
23	LC	Lordsburg Water Supply System	U	3025	230	0	-	Y	0.00	780.23	0.00	0.50	0.00	390.12
23	LC	Rodeo WUA	R	125	132	0	-	Y	0.00	18.55	0.00	0.50	0.00	9.28
23	LC	Rural self-supplied homes	R	1659	80	0	-	N	0.00	148.67	0.00	0.45	0.00	66.90
23	LC	Virden Water System	R	130	73	0	-	Y	0.00	10.56	0.00	0.50	0.00	5.28
		River Basin Subtotals		5139					0.00	1015.97			0.00	500.56
23	RG	Playas Townsite Water System	R	800	670	0	-	Y	0.00	600.79	0.00	0.50	0.00	300.40
23	RG	Rural self-supplied homes	R	317	80	0	-	N	0.00	28.41	0.00	0.45	0.00	12.78
		River Basin Subtotals		1117					0.00	629.20			0.00	313.18
		County Totals		6256					0.00	1645.17			0.00	813.74
25	P	Eunice Water Supply System	U	2824	476	5	-	Y	0.00	1506.00	0.00	0.45	0.00	677.70
25	P	Jal Water Supply System	R	1911	413	0	-	Y	0.00	884.37	0.00	0.45	0.00	397.97
25	P	Monument WUA	R	175	378	0	-	Y	0.00	74.00	0.00	0.45	0.00	33.30
25	P	Rural self-supplied homes	R	1377	100	0	-	N	0.00	154.24	0.00	0.45	0.00	69.41
		River Basin Subtotals		6287					0.00	2618.61			0.00	1178.38
25	TG	Hobbs Municipal Water Supply	U	29860	298	0	-	Y	0.00	9972.00	0.00	0.45	0.00	4487.40
25	TG	Lovington Municipal Water	U	9322	334	0	-	Y	0.00	3485.00	0.00	0.45	0.00	1568.25

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
		Supply												
25	TG	Rural self-supplied homes	R	10503	100	0	-	N	0.00	1176.49	0.00	0.45	0.00	529.42
25	TG	Tatum Water System	R	768	230	0	-	Y	0.00	198.00	0.00	0.45	0.00	89.10
25	TG	Triple J Trailer Park--Hobbs	R	53	113	0	-	Y	0.00	6.69	0.00	0.45	0.00	3.01
		River Basin Subtotals		50506					0.00	14838.18			0.00	6677.18
		County Totals		56793					0.00	17456.79			0.00	7855.56
27	P	Agua Fria Water Company	R	200	105	0	Y	-	23.50	0.00	0.45	0.00	10.58	0.00
27	P	Alpine Village Sanitation District	R	48	149	9	-	Y	0.00	8.00	0.00	0.45	0.00	3.60
27	P	Alto North Water Co-Op	R	62	86	0	-	Y	0.00	6.00	0.00	0.45	0.00	2.70
27	P	Apple Blossom & White Angel Mesa	R	23	121	0	-	Y	0.00	3.12	0.00	0.45	0.00	1.40
27	P	Capitan Water System	R	862	170	7	Y	Y	1.16	163.00	0.45	0.45	0.52	73.35
27	P	Corona Water System	R	215	133	0	-	Y	0.00	32.00	0.00	0.45	0.00	14.40
27	P	Ft Stanton Medical Center	R	400	210	6	Y	-	94.00	0.00	0.45	0.00	42.30	0.00
27	P	Lincoln MDWCA	R	65	302	0	-	Y	0.00	22.00	0.00	0.45	0.00	9.90
27	P	Rancho Ruidoso Village	R	118	189	0	-	Y	0.00	25.00	0.00	0.45	0.00	11.25
27	P	Ruidoso Downs Water System	R	1395	166	9	Y	Y	215.19	45.03	0.18	0.18	38.73	8.11
27	P	Ruidoso Water System	U	5728	330	9	Y	Y	1055.00	1064.00	0.18	0.18	189.90	191.52
27	P	Rural self-supplied homes	R	3672	80	0	-	N	0.00	329.05	0.00	0.45	0.00	148.07
27	P	Sun Valley Sanitation Dist.	R	80	212	9	-	Y	0.00	19.00	0.00	0.45	0.00	8.55
		River Basin Subtotals		12868					1388.85	1716.20			282.03	472.85
27	RG	Carrizozo Water System	R	1056	146	7	Y	Y	36.07	136.48	0.45	0.45	16.23	61.42
27	RG	Nogal WUA	R	42	72	6	Y	-	3.41	0.00	0.45	0.00	1.53	0.00
27	RG	Rural self-supplied homes	R	784	80	0	-	N	0.00	70.26	0.00	0.45	0.00	31.62

Key: CN=county number; RVB=river basin; C=census classification (urban/rural); POP=population; GPCD=gallons per capita per day; WTC=water transfer code; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); WSW=withdrawals, surface water; WGW=withdrawals, ground water; DFSW=depletion factor, surface water; DFGW=depletion factor, ground water; DSW=depletion, surface water; DGW=depletion, ground water; See Table A-1 for county numbers, Table A-2 for river basin acronyms, and "Notes on Individual Water Systems" in Section 3 of text for water transfer codes.

Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
		River Basin Subtotals		1882					39.48	206.74			17.76	93.04
		County Totals		14750					1428.33	1922.94			299.79	565.89
28	RG	Los Alamos & White Rock Mun Wtr Sys	U	18708	278	4	-	Y	0.00	5836.10	0.00	0.96	0.00	5602.66
		River Basin Subtotals		18708					0.00	5836.10			0.00	5602.66
		County Totals		18708					0.00	5836.10			0.00	5602.66
29	RG	Columbus Water System	R	796	184	0	-	Y	0.00	163.84	0.00	0.50	0.00	81.92
29	RG	Deming Municipal Water System	U	14015	256	0	-	Y	0.00	4012.49	0.00	0.50	0.00	2006.25
29	RG	Pecan Park MDWCA	R	75	401	0	-	Y	0.00	33.73	0.00	0.50	0.00	16.87
29	RG	Rural self-supplied homes	R	7235	100	0	-	N	0.00	810.43	0.00	0.45	0.00	364.69
		River Basin Subtotals		22121					0.00	5020.49			0.00	2469.73
		County Totals		22121					0.00	5020.49			0.00	2469.73
31	LC	Coal Basin Water Assn.	R	75	120	0	-	Y	0.00	10.11	0.00	0.45	0.00	4.55
31	LC	Ft Wingate Army Depot	R	100	69	7	-	Y	0.00	7.68	0.00	0.45	0.00	3.46
31	LC	Gallup Water System	U	20166	185	3,5	-	Y	0.00	4170.55	0.00	1.00	0.00	4170.55
31	LC	Gamerco Water & Sanitation District	R	1370	76	6	-	Y	0.00	115.94	0.00	1.00	0.00	115.94
31	LC	Ramah Water & Sanitation Dist.	R	319	133	0	-	Y	0.00	47.57	0.00	0.45	0.00	21.41
31	LC	Rural self-supplied homes	R	19938	70	0	-	N	0.00	1563.34	0.00	0.45	0.00	703.50
31	LC	Zuni Pueblo Water Works	U	8332	100	0	-	N	0.00	933.30	0.00	0.45	0.00	419.99
		River Basin Subtotals		50300					0.00	6848.49			0.00	5439.40
31	RG	Rural self-supplied homes	R	4116	70	0	-	N	0.00	322.74	0.00	0.45	0.00	145.23
31	RG	Thoreau Water & Sanitation	R	1000	85	0	-	Y	0.00	95.59	0.00	0.45	0.00	43.02

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
		District												
		River Basin Subtotals		5116					0.00	418.33			0.00	188.25
31	UC	Rural self-supplied homes	R	12156	70	0	-	N	0.00	953.16	0.00	0.45	0.00	428.92
		River Basin Subtotals		12156					0.00	953.16			0.00	428.92
		County Totals		67572					0.00	8219.98			0.00	6056.57
33	AWR	Mora MDWCA	R	1040	132	0	-	Y	0.00	154.00	0.00	0.45	0.00	69.30
33	AWR	Rural self-supplied homes	R	3235	80	0	-	N	0.00	289.89	0.00	0.45	0.00	130.45
33	AWR	Wagon Mound MDWCA	R	312	222	0	-	Y	0.00	77.69	0.00	0.45	0.00	34.96
		River Basin Subtotals		4587					0.00	521.58			0.00	234.71
		County Totals		4587					0.00	521.58			0.00	234.71
35	P	Cloud Country Estates WUA	R	100	223	0	Y	-	25.02	0.00	0.50	0.00	12.51	0.00
35	P	Cloud Country West Water System	R	200	81	0	-	Y	0.00	18.13	0.00	0.50	0.00	9.07
35	P	Mayhill Water Supply Company	R	150	49	0	-	Y	0.00	8.18	0.00	0.50	0.00	4.09
35	P	Pinon WUA	R	200	227	0	-	Y	0.00	50.75	0.00	0.50	0.00	25.38
35	P	Ponderosa Pines	R	75	155	0	-	Y	0.00	13.02	0.00	0.50	0.00	6.51
35	P	Robinhood Park WUA	R	325	56	0	Y	-	20.45	0.00	0.50	0.00	10.23	0.00
35	P	Rural self-supplied homes	R	2365	80	0	-	N	0.00	211.93	0.00	0.45	0.00	95.37
35	P	Silver Cloud WUA	R	130	74	0	-	Y	0.00	10.79	0.00	0.50	0.00	5.40
35	P	Weed WUA	R	32	111	0	-	Y	0.00	3.99	0.00	0.50	0.00	2.00
		River Basin Subtotals		3577					45.47	316.79			22.74	147.82
35	RG	Alamogordo Domestic Water System	U	30136	245	3	Y	Y	6649.21	1613.29	0.50	0.50	3324.61	806.65
35	RG	Boles Acres Water System	R	1095	129	0	-	Y	0.00	158.02	0.00	0.50	0.00	79.01

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
35	RG	Canyon Hills WUA	R	60	160	0	-	Y	0.00	10.73	0.00	0.50	0.00	5.37
35	RG	Cider Mill Farms WUA	R	36	155	0	-	Y	0.00	6.26	0.00	0.50	0.00	3.13
35	RG	Cloudcroft Water System	R	650	308	9	-	Y	0.00	224.00	0.00	0.43	0.00	96.32
35	RG	Dungan MDWCA	R	50	151	0	-	Y	0.00	8.48	0.00	0.50	0.00	4.24
35	RG	Freeman's MHP	R	43	139	0	-	Y	0.00	6.68	0.00	0.50	0.00	3.34
35	RG	High Rolls (90dat)	R	375	90	0	-	N	0.00	37.88	0.00	0.50	0.00	18.94
35	RG	Holloman Air Force Base	U	5547	386	10	Y	Y	52.48	2344.21	0.60	0.60	31.49	1406.53
35	RG	Karr Canyon Estates	R	50	153	0	Y	-	8.58	0.00	0.50	0.00	4.29	0.00
35	RG	La Luz MDWCA	R	2000	83	0	Y	Y	46.18	139.22	0.50	0.50	23.09	69.61
35	RG	Mountain Orchard WUA	R	90	100	0	-	Y	0.00	10.12	0.00	0.50	0.00	5.06
35	RG	Orogrande MDWCA	R	72	2083	5	-	Y	0.00	168.02	0.00	0.50	0.00	84.01
35	RG	Piney Woods WUA	R	55	148	0	-	Y	0.00	9.11	0.00	0.50	0.00	4.56
35	RG	Rural self-supplied homes	R	8162	100	0	-	N	0.00	914.26	0.00	0.45	0.00	411.42
35	RG	Tularosa Water System	U	3029	267	0	Y	-	907.23	0.00	0.50	0.50	453.62	0.00
		River Basin Subtotals		51450					7663.68	5650.28			3837.10	2998.19
		County Totals		55027					7709.15	5967.07			3859.84	3146.01
37	AWR	Logan Water System	R	968	246	8	-	Y	0.00	266.29	0.00	0.45	0.00	119.83
37	AWR	Nara Visa Water Co-Op	R	75	108	0	-	Y	0.00	8.15	0.00	0.45	0.00	3.67
37	AWR	Rural self-supplied homes	R	1360	80	0	-	N	0.00	121.87	0.00	0.45	0.00	54.84
37	AWR	San Jon Water Supply	R	251	161	0	-	Y	0.00	45.21	0.00	0.45	0.00	20.34
37	AWR	Tucumcari Water System	U	7431	217	4	N	Y	81.00	1726.14	0.86	0.49	69.66	845.81
		River Basin Subtotals		10085					81.00	2167.66			69.66	1044.49
37	P	House Water System	R	85	145	0	-	Y	0.00	13.79	0.00	0.45	0.00	6.21
37	P	Rural self-supplied homes	R	192	80	0	-	N	0.00	17.21	0.00	0.45	0.00	7.74
		River Basin Subtotals		277					0.00	31.00			0.00	13.95

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
		County Totals		10362					81.00	2198.66			69.66	1058.44
39	RG	Alcalde MDWCA	R	185	135	0	-	Y	0.00	27.92	0.00	0.45	0.00	12.56
39	RG	Barranco MDWCA	R	60	119	0	-	Y	0.00	7.98	0.00	0.45	0.00	3.59
39	RG	Canjilon MDWCA	R	390	63	0	-	Y	0.00	27.53	0.00	0.45	0.00	12.39
39	RG	Chama Water System	R	1205	131	0	Y	-	177.43	0.00	0.45	0.00	79.98	0.00
39	RG	Chamita MDWCA	R	246	114	0	-	Y	0.00	31.44	0.00	0.45	0.00	14.15
39	RG	Cordova MDWCA	R	300	62	0	-	Y	0.00	20.78	0.00	0.45	0.00	9.35
39	RG	Dixon MDWCA (90dat)	R	500	96	0	-	N	0.00	53.50	0.00	0.45	0.00	24.08
39	RG	Enchanted Mesa MHP	R	230	58	0	-	Y	0.00	14.99	0.00	0.45	0.00	6.75
39	RG	Ensenada WUA--Los Ojos	R	200	66	0	-	Y	0.00	14.73	0.00	0.45	0.00	6.63
39	RG	Espanola Water System (part)	U	8452	116	0	-	Y	0.00	1101.79	0.00	0.20	0.00	220.36
39	RG	La Puebla MDWCA	R	255	59	0	-	Y	0.00	16.87	0.00	0.45	0.00	7.59
39	RG	Ojo Caliente	R	300	84	0	-	Y	0.00	25.49	0.00	0.45	0.00	11.47
39	RG	Ojo Sarco MDWCA	R	150	146	0	-	Y	0.00	24.50	0.00	0.45	0.00	11.03
39	RG	Rural self-supplied homes	R	19103	80	0	-	N	0.00	1711.85	0.00	0.45	0.00	770.33
39	RG	South Hills Water Company	R	400	177	0	-	Y	0.00	79.11	0.00	0.45	0.00	35.60
39	RG	South Ojo Caliente MDWCA	R	60	204	0	-	Y	0.00	13.69	0.00	0.45	0.00	6.16
39	RG	Tierra Amarilla MDWCA	R	450	142	0	-	Y	0.00	71.49	0.00	0.45	0.00	32.17
39	RG	Truchas MDWCA	R	375	69	0	-	N	0.00	28.88	0.00	0.45	0.00	13.00
39	RG	Velarde MDWCA	R	330	99	0	-	Y	0.00	36.66	0.00	0.45	0.00	16.50
		River Basin Subtotals		33191					177.43	3309.20			79.98	1213.71
39	UC	Dulce--BIA, Jicarilla Agency	U	3240	140	0	Y	-	506.47	0.00	0.45	0.00	227.91	0.00
39	UC	Lindrith Community Water Co-Op	R	90	40	0	-	Y	0.00	4.01	0.00	0.45	0.00	1.80
39	UC	Rural self-supplied homes	R	399	80	0	-	N	0.00	35.76	0.00	0.45	0.00	16.09
		River Basin Subtotals		3729					506.47	39.77			227.91	17.89

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
		County Totals		36920					683.90	3348.97			307.89	1231.60
41	P	Rural self-supplied homes	R	316	100	0	-	N	0.00	35.40	0.00	0.45	0.00	15.93
		River Basin Subtotals		316					0.00	35.40			0.00	15.93
41	TG	Causey Water Association	R	57	100	0	-	N	0.00	6.38	0.00	0.50	0.00	3.19
41	TG	Dora Water Assn.	R	162	97	0	-	Y	0.00	17.68	0.00	0.50	0.00	8.84
41	TG	Elida Water System	R	201	250	0	-	Y	0.00	56.36	0.00	0.50	0.00	28.18
41	TG	Floyd Water Co-Op	R	186	262	0	-	Y	0.00	54.65	0.00	0.50	0.00	27.33
41	TG	Portales Water System	U	12678	320	3	-	Y	0.00	4546.28	0.00	0.70	0.00	3182.40
41	TG	Roosevelt County Water Co-Op	U	2772	151	6	-	Y	0.00	467.40	0.00	0.50	0.00	233.70
41	TG	Rural self-supplied homes	R	2093	100	0	-	N	0.00	234.45	0.00	0.45	0.00	105.50
		River Basin Subtotals		18149					0.00	5383.20			0.00	3589.14
		County Totals		18465					0.00	5418.60			0.00	3605.07
43	RG	Algodones WUA	R	600	105	0	-	Y	0.00	70.35	0.00	0.50	0.00	35.18
43	RG	Bernalillo Water System	U	6958	134	0	-	Y	0.00	1043.65	0.00	0.51	0.00	532.26
43	RG	Cochiti Lake Water System	R	465	171	0	-	Y	0.00	88.94	0.00	0.50	0.00	44.47
43	RG	Corrales--self-supplied homes (prt)	U	5378	150	0	-	N	0.00	903.62	0.00	0.53	0.00	478.92
43	RG	Cuba Water System	R	726	248	0	-	N	0.00	202.00	0.00	0.50	0.00	101.00
43	RG	Jemez Springs Water Co-Op	R	516	161	0	Y	-	93.25	0.00	0.48	0.00	44.76	0.00
43	RG	La Mesa Water Co-Op	R	380	85	0	-	Y	0.00	36.33	0.00	0.50	0.00	18.17
43	RG	North Ranchos de Placitas	R	310	105	0	-	Y	0.00	36.40	0.00	0.50	0.00	18.20
43	RG	Overlook Water Cooperative	R	69	134	0	-	Y	0.00	10.36	0.00	0.50	0.00	5.18
43	RG	Pena Blanca MDWCA	R	450	220	0	-	Y	0.00	110.97	0.00	0.50	0.00	55.49
43	RG	Placitas MDWCA	R	278	136	0	-	Y	0.00	42.25	0.00	0.50	0.00	21.13

Key: CN=county number; RVB=river basin; C=census classification (urban/rural); POP=population; GPCD=gallons per capita per day; WTC=water transfer code; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); WSW=withdrawals, surface water; WGW=withdrawals, ground water; DFSW=depletion factor, surface water; DFGW=depletion factor, ground water; DSW=depletion, surface water; DGW=depletion, ground water; See Table A-1 for county numbers, Table A-2 for river basin acronyms, and "Notes on Individual Water Systems" in Section 3 of text for water transfer codes.

Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
		County Totals		27890					2879.13	1206.36			1013.82	582.13
49	P	Glorieta Baptist Conference Center	R	300	600	9	-	Y	0.00	201.78	0.00	0.45	0.00	90.80
49	P	Glorieta Estates Water Co-Op	R	61	122	0	-	Y	0.00	8.36	0.00	0.45	0.00	3.76
49	P	Rural self-supplied homes	R	197	80	0	-	N	0.00	17.65	0.00	0.45	0.00	7.94
		River Basin Subtotals		558					0.00	227.79			0.00	102.50
49	RG	Agua Fria MHP	U	100	120	0	-	Y	0.00	13.45	0.00	0.45	0.00	6.05
49	RG	Canoncito MDWCA (90dat)	R	120	100	0	-	N	0.00	13.43	0.00	0.45	0.00	6.04
49	RG	Chimayo MDWCA	R	161	167	0	-	Y	0.00	30.20	0.00	0.45	0.00	13.59
49	RG	Country Club Estates (90dat)	R	85	162	0	-	N	0.00	15.41	0.00	0.45	0.00	6.93
49	RG	Country Club Gardens MHP	U	1023	94	0	-	Y	0.00	107.52	0.00	0.45	0.00	48.38
49	RG	East Glorieta MDWCA	R	63	57	0	-	Y	0.00	4.00	0.00	0.45	0.00	1.80
49	RG	Edgewood Water Inc.	U	4500	79	2	-	Y	0.00	398.66	0.00	0.45	0.00	180.00
49	RG	El Rancho MHP	R	50	68	0	-	Y	0.00	3.83	0.00	0.45	0.00	1.72
49	RG	El Vadito de Los Cerrillos MDWCA	R	450	67	0	-	Y	0.00	33.72	0.00	0.45	0.00	15.17
49	RG	Eldorado de Santa Fe	R	5000	90	0	-	Y	0.00	502.67	0.00	0.45	0.00	226.20
49	RG	Entranosa Wtr Co-Op (part)-Edgewood	U	1088	91	2	-	Y	0.00	110.67	0.00	0.45	0.00	49.80
49	RG	Espanola Water System (part)	U	1697	116	0	-	Y	0.00	221.21	0.00	0.20	0.00	44.24
49	RG	Galisteo WUA	R	150	216	0	-	Y	0.00	36.26	0.00	0.45	0.00	16.32
49	RG	Hyde Park Estates	R	200	60	0	-	Y	0.00	13.33	0.00	0.45	0.00	6.00
49	RG	Jemez Road MHP	R	200	67	0	-	Y	0.00	14.90	0.00	0.45	0.00	6.71
49	RG	Juniper Hills MHP (90dat)	R	78	48	0	-	N	0.00	4.22	0.00	0.45	0.00	1.90
49	RG	Juniper Hills PT Ranch (90dat)	R	35	78	0	-	N	0.00	3.07	0.00	0.45	0.00	1.38

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
49	RG	La Cienega Lakeside MHP (90dat)	R	50	91	0	-	N	0.00	5.10	0.00	0.45	0.00	2.30
49	RG	La Cienega MDWCA	R	130	107	0	-	Y	0.00	15.51	0.00	0.45	0.00	6.98
49	RG	La Puebla MDWCA	R	120	135	0	-	Y	0.00	18.10	0.00	0.45	0.00	8.15
49	RG	La Vista Homeowners Assn.	R	36	220	0	-	Y	0.00	8.87	0.00	0.45	0.00	3.99
49	RG	Madrid Water Co-Op	R	350	42	0	-	Y	0.00	16.64	0.00	0.45	0.00	7.49
49	RG	Penitentiary of New Mexico	R	1900	180	0	-	Y	0.00	382.12	0.00	0.45	0.00	171.95
49	RG	Pojoaque Terraces MHP	R	225	66	0	-	Y	0.00	16.52	0.00	0.45	0.00	7.43
49	RG	Ranchitos de Galisteo WUA	R	40	279	0	-	Y	0.00	12.51	0.00	0.45	0.00	5.63
49	RG	Rio En Medio MDWCA	R	110	49	0	-	Y	0.00	6.03	0.00	0.45	0.00	2.71
49	RG	Road Runner MHP	U	425	94	0	-	Y	0.00	44.98	0.00	0.45	0.00	20.24
49	RG	Rufina Apartments	U	50	55	0	-	Y	0.00	3.09	0.00	0.45	0.00	1.39
49	RG	Rural self-supplied homes	R	23982	80	0	-	N	0.00	2149.07	0.00	0.45	0.00	967.08
49	RG	Sangre de Cristo Water Company	U	66000	170	4	Y	Y	5365.55	7191.91	0.48	0.48	2575.46	3452.12
49	RG	Santa Cruz MDWCA	R	279	48	0	-	N	0.00	14.84	0.00	0.45	0.00	6.68
49	RG	Santa Fe Country Club Apartments	R	130	143	0	-	Y	0.00	20.83	0.00	0.45	0.00	9.37
49	RG	Santa Fe Mobile Home Hacienda	R	400	54	0	-	Y	0.00	24.41	0.00	0.45	0.00	10.98
49	RG	Santa Fe West MHP	R	250	49	0	-	Y	0.00	13.70	0.00	0.45	0.00	6.17
49	RG	Santa Fe--urban self-supplied homes	U	1200	130	0	-	N	0.00	174.74	0.00	0.50	0.00	87.37
49	RG	Shalom MHP	R	54	90	0	-	Y	0.00	5.43	0.00	0.45	0.00	2.44
49	RG	Solacito Homeownerns Assn.	R	38	109	0	-	Y	0.00	4.62	0.00	0.45	0.00	2.08
49	RG	Sunlit Hills of Santa Fe	R	990	118	0	-	Y	0.00	130.92	0.00	0.45	0.00	58.91
49	RG	Sunset Mobile Home Park (90dat)	R	133	121	0	-	N	0.00	17.99	0.00	0.45	0.00	8.10

Key: CN=county number; RVB=river basin; C=census classification (urban/rural); POP=population; GPCD=gallons per capita per day; WTC=water transfer code; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); WSW=withdrawals, surface water; WGW=withdrawals, ground water; DFSW=depletion factor, surface water; DFGW=depletion factor, ground water; DSW=depletion, surface water; DGW=depletion, ground water; See Table A-1 for county numbers, Table A-2 for river basin acronyms, and "Notes on Individual Water Systems" in Section 3 of text for water transfer codes.

Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
49	RG	Tesuque MDWCA (90dat)	R	300	61	0	-	N	0.00	20.65	0.00	0.45	0.00	9.29
49	RG	Thunder Mtn Water Co.--Edgewood	R	1194	76	0	-	Y	0.00	102.05	0.00	0.45	0.00	45.92
49	RG	Trailer Ranch MHP	U	140	99	0	-	Y	0.00	15.50	0.00	0.45	0.00	6.98
49	RG	Valle Vista MHP	R	975	64	0	-	Y	0.00	70.29	0.00	0.45	0.00	31.63
49	RG	Valley Cove MHP (90dat)	R	75	135	0	-	N	0.00	11.34	0.00	0.45	0.00	5.10
49	RG	Village MHP	R	120	104	0	-	Y	0.00	13.95	0.00	0.45	0.00	6.28
49	RG	Villitas de Santa Fe MHP	U	984	82	0	-	Y	0.00	90.29	0.00	0.45	0.00	40.63
49	RG	Vista Redonda MDWCA	R	106	210	0	-	Y	0.00	24.93	0.00	0.45	0.00	11.22
		River Basin Subtotals		115786					5365.55	12153.48			2575.46	5638.84
		County Totals		116344					5365.55	12381.27			2575.46	5741.34
51	RG	Desertaire Water Company	U	55	121	0	-	Y	0.00	7.46	0.00	0.50	0.00	3.73
51	RG	Hillsboro MDWCA	R	105	157	0	-	Y	0.00	18.50	0.00	0.50	0.00	9.25
51	RG	Lakeshore Sanitation District	R	386	308	9	-	Y	0.00	133.33	0.00	0.50	0.00	66.67
51	RG	National Utilities--Elephant Butte	R	669	184	9	-	Y	0.00	137.50	0.00	0.50	0.00	68.75
51	RG	National Utilities--Meadow Lake	R	976	106	0	-	Y	0.00	115.90	0.00	0.50	0.00	57.95
51	RG	Rural self-supplied homes	R	1332	80	0	-	N	0.00	119.36	0.00	0.45	0.00	53.71
51	RG	Truth or Consequences	U	7162	256	4	-	Y	0.00	2054.22	0.00	0.58	0.00	1191.45
		River Basin Subtotals		10685					0.00	2586.27			0.00	1451.51
		County Totals		10685					0.00	2586.27			0.00	1451.51
53	RG	La Joya MDWCA	R	135	63	0	-	Y	0.00	9.48	0.00	0.50	0.00	4.74
53	RG	Magdalena Water Supply System	R	861	150	0	-	N	0.00	144.66	0.00	0.50	0.00	72.33

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
53	RG	New Mexico Boys Ranch (90dat)	R	82	298	0	-	N	0.00	27.35	0.00	0.50	0.00	13.68
53	RG	Polvadera MDWCA (90dat)	R	1038	103	0	-	N	0.00	119.22	0.00	0.50	0.00	59.61
53	RG	Rural self-supplied homes	R	3607	80	0	-	N	0.00	323.23	0.00	0.45	0.00	145.45
53	RG	San Acacia MDWCA	R	180	83	0	-	Y	0.00	16.75	0.00	0.50	0.00	8.38
53	RG	San Antonio MDWCA	R	1400	91	0	-	Y	0.00	142.51	0.00	0.50	0.00	71.26
53	RG	Socorro Water System	U	8550	180	0	-	Y	0.00	1723.58	0.00	0.34	0.00	586.02
		River Basin Subtotals		15853					0.00	2506.78			0.00	961.47
		County Totals		15853					0.00	2506.78			0.00	961.47
55	RG	Canon MDWCA	R	380	90	0	-	Y	0.00	38.30	0.00	0.45	0.00	17.24
55	RG	El Prado Water & Sanitation Dist.	R	600	65	0	-	Y	0.00	43.73	0.00	0.45	0.00	19.68
55	RG	El Salto MDWCA	R	200	68	0	-	Y	0.00	15.17	0.00	0.45	0.00	6.83
55	RG	Llano Quemado MDWCA	R	600	63	0	-	Y	0.00	42.11	0.00	0.45	0.00	18.95
55	RG	Lower Arroyo Hondo MDWCA	R	276	73	0	-	Y	0.00	22.51	0.00	0.45	0.00	10.13
55	RG	Ojo Caliente MDWCA	R	242	120	0	-	Y	0.00	32.64	0.00	0.45	0.00	14.69
55	RG	Penasco MDWCA	R	400	103	0	-	Y	0.00	46.27	0.00	0.45	0.00	20.82
55	RG	Questa Water System	R	1707	119	0	-	Y	0.00	228.20	0.00	0.45	0.00	102.69
55	RG	Ranchos de Taos MDWCA (90dat)	R	700	86	0	-	Y	0.00	67.24	0.00	0.45	0.00	30.26
55	RG	Red River Water System	R	429	894	9	-	Y	0.00	429.66	0.00	0.19	0.00	81.64
55	RG	Rural self-supplied homes	R	14092	80	0	-	N	0.00	1262.81	0.00	0.45	0.00	568.26
55	RG	San Cristobal MDWCA	R	130	47	0	-	Y	0.00	6.91	0.00	0.45	0.00	3.11
55	RG	Taos Municipal Water System	U	4525	165	0	-	Y	0.00	834.71	0.00	0.45	0.00	375.62
55	RG	Trampas MDWCA	R	80	53	0	-	Y	0.00	4.78	0.00	0.45	0.00	2.15
55	RG	Tres Piedras MDWCA (90dat)	R	150	76	0	-	Y	0.00	12.83	0.00	0.45	0.00	5.77
55	RG	Twining Water Sys--Taos Ski	R	50	2423	9	-	Y	0.00	135.70	0.00	0.45	0.00	61.07

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Table 6. Public Water Supply and Self-Supplied Domestic Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
		Valley												
55	RG	Upper Arroyo Hondo MDWCA	R	176	44	0	-	Y	0.00	8.70	0.00	0.45	0.00	3.92
55	RG	Upper Des Montes MDWCA	R	240	45	0	-	Y	0.00	12.13	0.00	0.45	0.00	5.46
55	RG	Upper Ranchitos MDWCA	R	190	98	0	-	Y	0.00	20.82	0.00	0.45	0.00	9.37
55	RG	Valle Escondido Water System	R	250	52	0	-	Y	0.00	14.65	0.00	0.45	0.00	6.59
55	RG	Vigils Trailer Park	R	115	55	0	-	Y	0.00	7.14	0.00	0.45	0.00	3.21
		River Basin Subtotals		25532					0.00	3287.01			0.00	1367.46
		County Totals		25532					0.00	3287.01			0.00	1367.46
57	P	Clines Corners Water System	R	90	179	0	-	Y	0.00	18.00	0.00	0.45	0.00	8.10
57	P	Duran Water System	R	70	76	1,6	-	Y	0.00	5.96	0.00	0.45	0.00	2.68
57	P	Rural self-supplied homes	R	117	80	0	-	N	0.00	10.48	0.00	0.45	0.00	4.72
		River Basin Subtotals		277					0.00	34.44			0.00	15.50
57	RG	Echo Valley Water Co.	R	232	103	0	-	Y	0.00	26.72	0.00	0.45	0.00	12.02
57	RG	Encino Water System	R	131	140	1,6	-	Y	0.00	20.59	0.00	0.45	0.00	9.27
57	RG	Estancia Water System	R	885	244	0	-	Y	0.00	242.27	0.00	0.45	0.00	109.02
57	RG	Moriarty Water System	R	1675	230	0	-	Y	0.00	430.90	0.00	0.45	0.00	193.91
57	RG	Mountainair	R	966	187	0	-	Y	0.00	202.22	0.00	0.45	0.00	91.00
57	RG	Rural self-supplied homes	R	8201	80	0	-	N	0.00	734.91	0.00	0.45	0.00	330.71
57	RG	Torreon MDWCA	R	290	43	0	-	Y	0.00	13.87	0.00	0.45	0.00	6.24
57	RG	Willard Water Supply System	R	183	108	0	-	Y	0.00	22.19	0.00	0.45	0.00	9.99
		River Basin Subtotals		12563					0.00	1693.67			0.00	762.16
		County Totals		12840					0.00	1728.11			0.00	777.66
59	AWR	Clayton Municipal Supply	R	2447	217	0	-	Y	0.00	594.67	0.00	0.45	0.00	267.60
59	AWR	Des Moines Water System	R	168	150	0	-	Y	0.00	28.16	0.00	0.45	0.00	12.67

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Table 6. Public Water Supply and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	WATER SUPPLIER	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
59	AWR	Grenville Water System	R	30	63	0	-	Y	0.00	2.12	0.00	0.45	0.00	0.95
59	AWR	Rural self-supplied homes	R	1531	80	0	-	N	0.00	137.20	0.00	0.45	0.00	61.74
		River Basin Subtotals		4176					0.00	762.15			0.00	342.96
		County Totals		4176					0.00	762.15			0.00	342.96
61	RG	Belen Water System	U	7482	197	0	-	Y	0.00	1653.33	0.00	0.33	0.00	545.60
61	RG	Bosque Farms Water Supply System	R	3500	95	0	-	Y	0.00	372.00	0.00	0.45	0.00	167.40
61	RG	Cyprus Gardens Water System	R	276	158	0	-	Y	0.00	48.80	0.00	0.45	0.00	21.96
61	RG	El Shaddi Water Co-Op	R	109	107	0	-	Y	0.00	13.09	0.00	0.45	0.00	5.89
61	RG	Hi-Mesa Estates MHP	R	246	45	0	-	Y	0.00	12.52	0.00	0.45	0.00	5.63
61	RG	Los Lunas Correctional Center	R	650	169	0	-	Y	0.00	123.28	0.00	0.45	0.00	55.48
61	RG	Los Lunas Water System	U	8837	153	0	-	Y	0.00	1514.46	0.00	0.55	0.00	832.95
61	RG	Monterey Mobile Home Estates	R	1050	81	0	-	Y	0.00	95.22	0.00	0.45	0.00	42.85
61	RG	Rio Grande Utilities	U	6000	161	0	-	Y	0.00	1081.49	0.00	0.45	0.00	486.67
61	RG	Rural self-supplied homes	R	29487	100	0	-	N	0.00	3302.98	0.00	0.50	0.00	1651.49
61	RG	Trinity MHP--Bosque Farms	R	50	57	0	-	Y	0.00	3.18	0.00	0.45	0.00	1.43
		River Basin Subtotals		57687					0.00	8220.35			0.00	3817.35
		County Totals		57687					0.00	8220.35			0.00	3817.35
		State Totals		1686477					38171.80	340601.72			18947.33	193322.42

Key: CN=county number; RVB=river basin; C=census classification (urban/rural); POP=population; GPCD=gallons per capita per day; WTC=water transfer code; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); WSW=withdrawals, surface water; WGW=withdrawals, ground water; DFSW=depletion factor, surface water; DFGW=depletion factor, ground water; DSW=depletion, surface water; DGW=depletion, ground water; See Table A-1 for county numbers, Table A-2 for river basin acronyms, and "Notes on Individual Water Systems" in Section 3 of text for water transfer codes.

Table 7. Populations in New Mexico river basins, 1995.

RIVER BASIN	CATEGORY	POPULATION	URBAN POPULATION	RURAL POPULATION
Arkansas-White-Red	Public Water Supply	26659	16028	10631
Arkansas-White-Red	Domestic (self-supplied)	9068	0	9068
	River Basin Totals	35727	16028	19699
Texas Gulf	Public Water Supply	101609	98181	3428
Texas Gulf	Domestic (self-supplied)	14392	0	14392
	River Basin Totals	116001	98181	17820
Pecos	Public Water Supply	143656	118528	25128
Pecos	Domestic (self-supplied)	28317	0	28317
	River Basin Totals	171973	118528	53445
Rio Grande	Public Water Supply	988668	899767	88901
Rio Grande	Domestic (self-supplied)	192028	7176	184852
	River Basin Totals	1180696	906943	273753
Upper Colorado	Public Water Supply	84327	75440	8887
Upper Colorado	Domestic (self-supplied)	33595	0	33595
	River Basin Totals	117922	75440	42482
Lower Colorado	Public Water Supply	34872	31523	3349
Lower Colorado	Domestic (self-supplied)	29286	0	29286
	River Basin Totals	64158	31523	32635
	State Totals	1686477	1246643	439834

Table 8. Irrigated Agriculture. Withdrawals (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC.	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
1	RG	Estancia Basin	F	0.000	1.118	0	20	0	0	20	0.6000	0.0000	0.0000	N	N	0	0	0	37
1	RG	Inside MRGCD but exclusive of CD	D	0.000	1.406	0	100	0	0	100	0.8500	0.0000	0.0000	-	N	0	0	0	165
1	RG	MRGCD only	F	2.009	2.170	5606	0	2403	801	8810	0.5000	0.4934	0.2467	Y	N	32180	33041	65221	3476
1	RG	Outside MRGCD	D	0.000	1.406	0	130	0	0	130	0.8500	0.0000	0.0000	-	N	0	0	0	215
		River Basin Subtotals				5606	250	2403	801	9060						32180	33041	65221	3893
		County Totals				5606	250	2403	801	9060						32180	33041	65221	3893
3	LC	Quemado & Vicinity	F	1.336	0.000	515	0	0	0	515	0.5500	0.7000	0.3850	N	-	1251	536	1787	0
3	LC	San Francisco River--Apache-Aragon	F	0.900	0.000	144	0	0	0	144	0.4000	0.9000	0.3600	Y	-	324	36	360	0
3	LC	San Francisco River--Glenwood	F	1.869	1.869	502	0	2	2	506	0.4000	0.2371	0.0948	Y	-	2355	7578	9933	9
3	LC	San Francisco River--Luna	F	2.127	0.000	62	0	0	0	62	0.4000	0.2177	0.0871	Y	-	330	1186	1516	0
3	LC	San Francisco River--Reserve	F	2.120	0.000	162	0	0	0	162	0.4000	0.1889	0.0756	Y	-	859	3688	4547	0
		River Basin Subtotals				1385	0	2	2	1389						5119	13024	18143	9
3	RG	San Augustin Plains	F	0.000	1.838	0	100	0	0	100	0.5500	0.0000	0.0000	-	N	0	0	0	334
		River Basin Subtotals				0	100	0	0	100						0	0	0	334
		County Totals				1385	100	2	2	1489						5119	13024	18143	343
5	P	Rio Hondo	F	1.862	0.000	900	0	0	0	900	0.5500	0.7000	0.3850	N	-	3047	1306	4353	0
5	P	Rio Hondo	S	0.000	1.849	0	100	0	0	100	0.6500	0.0000	0.0000	-	N	0	0	0	284
5	P	Rio Penasco	F	2.391	2.391	49	73	1170	293	1585	0.5500	0.7000	0.3850	N	N	5299	2271	7570	1591
5	P	Roswell Basin North	D	0.000	2.325	0	200	0	0	200	0.8500	0.0000	0.0000	-	Y	0	0	0	547
5	P	Roswell Basin North	S	0.000	2.418	0	18010	0	0	18010	0.7000	0.0000	0.0000	-	Y	0	0	0	62212
5	P	Roswell Basin North (part)	F	0.000	2.072	0	56855	0	0	56855	0.6000	0.0000	0.0000	-	Y	0	0	0	196339
5	P	Roswell Basin North (part)	F	2.072	0.000	946	0	2719	0	3665	0.6000	0.7500	0.4500	Y	-	12657	4219	16876	0
5	P	Scattered	F	2.874	2.874	0	50	250	500	800	0.6000	0.9000	0.5400	N	N	1198	133	1331	2635
		River Basin Subtotals				1895	75288	4139	793	82115						22201	7929	30130	263608
		County Totals				1895	75288	4139	793	82115						22201	7929	30130	263608
6	RG	Scattered	F	0.491	1.965	1812	394	605	259	3070	0.5500	0.7000	0.3850	N	N	2158	924	3082	2333
		River Basin Subtotals				1812	394	605	259	3070						2158	924	3082	2333
		County Totals				1812	394	605	259	3070						2158	924	3082	2333
7	AWR	Canadian River	F	0.851	0.000	4900	0	0	0	4900	0.5500	0.6000	0.3300	N	-	7582	5055	12637	0

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water, i.e., both surface and ground water; AGWC=ground water component of acreage irrigated with combined water; TAI=total acreage irrigated; EF=on-farm irrigation efficiency; EC=off-farm conveyance efficiency; EJ=project efficiency; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); TFWSW=total farm withdrawal, surface water; CLSW=surface water conveyance losses from stream or reservoir to farm headgate; TPWSW=total project withdrawals, surface water; TPWGW=total project withdrawals, ground water. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 8. Irrigated Agriculture. Withdrawals (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
7	AWR	Canadian River	S	0.818	0.000	600	0	0	0	600	0.6500	0.6000	0.3900	N	-	755	503	1258	0
7	AWR	Cimarron River	F	0.886	0.000	7675	0	0	0	7675	0.5500	0.6000	0.3300	N	-	12364	8243	20607	0
7	AWR	Cimarron River	S	0.000	0.855	0	530	0	0	530	0.6500	0.0000	0.0000	-	-	0	0	0	697
7	AWR	Dry Cimarron	F	0.780	0.000	480	0	0	0	480	0.5500	0.7000	0.3850	N	-	681	292	973	0
7	AWR	Near Capulin	F	1.236	0.000	380	0	0	0	380	0.5500	0.7000	0.3850	N	-	854	366	1220	0
7	AWR	Purgatoire	F	0.931	0.000	160	0	0	0	160	0.5500	0.7000	0.3850	N	-	271	116	387	0
7	AWR	Vermejo Conservancy District	F	0.735	0.000	5467	0	0	0	5467	0.5500	0.7141	0.3928	Y	-	7306	2925	10231	0
7	AWR	Vermejo Conservancy District	S	0.708	0.000	120	0	0	0	120	0.6500	0.7141	0.4642	Y	-	131	52	183	131
		River Basin Subtotals				19782	530	0	0	20312						29944	17552	47496	828
		County Totals				19782	530	0	0	20312						29944	17552	47496	828
9	AWR	Scattered	F	0.000	0.930	0	3920	0	0	3920	0.5500	0.0000	0.0000	-	N	0	0	0	6628
9	AWR	Scattered	S	0.000	0.930	0	4645	0	0	4645	0.6500	0.0000	0.0000	-	N	0	0	0	6646
		River Basin Subtotals				0	8565	0	0	8565						0	0	0	13274
9	P	Scattered	F	0.000	1.005	0	10	0	0	10	0.6000	0.0000	0.0000		N	0	0	0	17
9	P	Scattered	S	0.000	0.865	0	3095	0	0	3095	0.6500	0.0000	0.0000	-	N	0	0	0	4119
		River Basin Subtotals				0	3105	0	0	3105						0	0	0	4136
9	TG	Scattered	D	0.000	1.232	0	190	0	0	190	0.8500	0.0000	0.0000	-	N	0	0	0	275
9	TG	Scattered	F	0.000	1.053	0	28310	0	0	28310	0.6000	0.0000	0.0000	-	N	0	0	0	49684
9	TG	Scattered	S	0.000	1.157	0	99820	0	0	99820	0.6500	0.0000	0.0000	-	N	0	0	0	177680
		River Basin Subtotals				0	128320	0	0	128320						0	0	0	227639
		County Totals				0	139990	0	0	139990						0	0	0	245049
11	P	Fort Sumner Irrigation District	F	2.322	0.000	5720	0	0	0	5720	0.4390	0.6774	0.2974	Y	-	30255	14408	44663	0
11	P	Outside Fort Sumner Irrig. Dist.	F	0.000	2.276	0	551	0	0	551	0.5500	0.7000	0.3850	-	N	0	0	0	2280
11	P	Outside Fort Sumner Irrig. Dist.	S	0.000	1.329	0	30	0	0	30	0.6500	0.0000	0.0000			0	0	0	61
11	P	Scattered	S	0.000	2.748	0	2580	0	0	2580	0.6500	0.0000	0.0000	-	N	0	0	0	10907
		River Basin Subtotals				5720	3161	0	0	8881						30255	14408	44663	13248
		County Totals				5720	3161	0	0	8881						30255	14408	44663	13248
13	RG	EBID only	F	2.627	2.627	0	0	55591	11509	67100	0.6000	0.6500	0.3900	Y	N	243396	131059	374455	50390
13	RG	Hueco Basin	F	0.000	3.058	0	155	0	0	155	0.6000	0.0000	0.0000	-	N	0	0	0	790

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water, i.e., both surface and ground water; AGWC=ground water component of acreage irrigated with combined water; TAI=total acreage irrigated; EF=on-farm irrigation efficiency; EC=off-farm conveyance efficiency; EJ=project efficiency; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); TFWSW=total farm withdrawal, surface water; CLSW=surface water conveyance losses from stream or reservoir to farm headgate; TPWSW=total project withdrawals, surface water; TPWGW=total project withdrawals, ground water. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 8. Irrigated Agriculture. Withdrawals (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
13	RG	Hueco Basin	S	0.000	2.637	0	25	0	0	25	0.6500	0.0000	0.0000	-	N	0	0	0	101
13	RG	Inside EBID but exclusive of EBID	D	0.000	2.675	0	240	0	0	240	0.8500	0.0000	0.0000	-	N	0	0	0	755
13	RG	Inside EBID but exclusive of EBID	F	0.000	2.627	0	3025	0	0	3025	0.6000	0.0000	0.0000	-	N	0	0	0	13244
13	RG	Nutt-Hockett	F	0.000	1.721	0	180	0	0	180	0.6000	0.0000	0.0000	-	N	0	0	0	516
13	RG	Outside EBID	S	0.000	2.418	0	1310	0	0	1310	0.6500	0.0000	0.0000	-	N	0	0	0	4873
13	RG	Outside EBID--Santa Teresa Sod Farm	S	0.000	4.290	0	200	0	0	200	0.5766	0.0000	0.0000	-	Y	0	0	0	1488
		River Basin Subtotals				0	5135	55591	11509	72235						243396	131059	374455	72157
		County Totals				0	5135	55591	11509	72235						243396	131059	374455	72157
15	P	Black River	F	3.037	3.037	868	735	0	0	1603	0.5500	0.8000	0.4400	N	N	4793	1198	5991	4059
15	P	Carlsbad Basin--Scattered	F	2.929	2.929	107	1843	0	0	1950	0.5500	0.8000	0.4400	Y	N	570	143	713	9815
15	P	Carlsbad Irrigation District	F	2.974	2.974	2503	0	13579	149	16231	0.6000	0.7577	0.4546	Y	-	79714	25492	105206	739
15	P	Rio Penasco	F	2.675	2.675	0	0	1753	197	1950	0.5500	0.7000	0.3850	N	N	8526	3654	12180	958
15	P	Roswell Basin South	D	0.000	2.164	0	11	0	0	11	0.8500	0.0000	0.0000	-	Y	0	0	0	28
15	P	Roswell Basin South	F	0.000	1.669	0	10102	0	0	10102	0.6000	0.0000	0.0000	-	Y	0	0	0	28100
15	P	Roswell Basin South	S	0.000	2.106	0	23127	0	0	23127	0.7000	0.0000	0.0000	-	Y	0	0	0	69579
		River Basin Subtotals				3478	35818	15332	346	54974						93603	30487	124090	113278
		County Totals				3478	35818	15332	346	54974						93603	30487	124090	113278
17	LC	Gila River--Cliff Gila	F	1.987	1.987	821	0	27	27	875	0.4000	0.1725	0.0690	Y	-	4212	20206	24418	134
17	LC	Gila River--Red Rock	F	2.758	2.758	0	0	73	73	146	0.4000	0.3052	0.1221	Y	N	503	1145	1648	503
17	LC	Gila River--Upper Gila	F	2.443	0.000	34	0	0	0	34	0.4000	0.1454	0.0582	Y	-	208	1223	1431	0
17	LC	Lordsburg Valley	F	0.000	2.130	0	266	0	0	266	0.5500	0.0000	0.0000	-	N	0	0	0	1030
		River Basin Subtotals				855	266	100	100	1321						4923	22574	27497	1667
17	RG	Mimbres River	F	1.658	1.658	401	793	421	281	1896	0.5500	0.6500	0.3575	N	N	2478	1334	3812	3238
17	RG	Mimbres River	S	0.000	1.643	0	110	0	0	110	0.6500	0.0000	0.0000	-	N	0	0	0	278
		River Basin Subtotals				401	903	421	281	2006						2478	1334	3812	3516
		County Totals				1256	1169	521	381	3327						7401	23908	31309	5183
19	P	Anton Chico	F	1.887	0.000	2562	0	0	0	2562	0.5500	0.6000	0.3300	N	-	8790	5860	14650	0
19	P	Colonias	F	0.000	2.115	0	216	0	0	216	0.5500	0.0000	0.0000	-	N	0	0	0	831
19	P	Puerto de Luna	F	2.118	0.000	596	0	0	0	596	0.5500	0.6000	0.3300	N	-	2295	1530	3825	0

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water, i.e., both surface and ground water; AGWC=ground water component of acreage irrigated with combined water; TAI=total acreage irrigated; EF=on-farm irrigation efficiency; EC=off-farm conveyance efficiency; EJ=project efficiency; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); TFWSW=total farm withdrawal, surface water; CLSW=surface water conveyance losses from stream or reservoir to farm headgate; TPWSW=total project withdrawals, surface water; TPWGW=total project withdrawals, ground water. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 8. Irrigated Agriculture. Withdrawals (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
19	P	Scattered	F	0.000	1.297	0	371	0	0	371	0.5500	0.0000	0.0000	-	N	0	0	0	875
19	P	Scattered	S	0.000	1.777	0	20	0	0	20	0.6500	0.0000	0.0000	-	N	0	0	0	55
		River Basin Subtotals				3158	607	0	0	3765						11085	7390	18475	1761
		County Totals				3158	607	0	0	3765						11085	7390	18475	1761
21	AWR	Scattered	D	0.000	0.768	0	10	0	0	10	0.8500	0.0000	0.0000	-	N	0	0	0	9
21	AWR	Scattered	F	0.000	1.427	0	100	0	0	100	0.5500	0.0000	0.0000	-	N	0	0	0	259
21	AWR	Scattered	S	0.000	0.938	0	2520	0	0	2520	0.6500	0.0000	0.0000	-	N	0	0	0	3637
		River Basin Subtotals				0	2630	0	0	2630						0	0	0	3905
		County Totals				0	2630	0	0	2630						0	0	0	3905
23	LC	Animas Valley	F	0.000	1.865	0	6102	0	0	6102	0.5500	0.0000	0.0000	-	N	0	0	0	20691
23	LC	Animas Valley	S	0.000	1.684	0	1220	0	0	1220	0.6500	0.0000	0.0000	-	N	0	0	0	3161
23	LC	Gila River--Virden Valley	F	2.067	2.067	0	0	1211	808	2019	0.5500	0.7000	0.3850	N	N	4551	1950	6501	3037
23	LC	Lordsburg Valley	F	0.000	1.914	0	1015	0	0	1015	0.5500	0.0000	0.0000	-	N	0	0	0	3532
23	LC	San Simon Valley	F	0.000	2.288	0	157	0	0	157	0.4800	0.0000	0.0000	-	Y	0	0	0	748
		River Basin Subtotals				0	8494	1211	808	10513						4551	1950	6501	31169
		County Totals				0	8494	1211	808	10513						4551	1950	6501	31169
25	P	Scattered	D	0.000	2.444	0	80	0	0	80	0.8500	0.0000	0.0000	-	N	0	0	0	230
25	P	Scattered	F	0.000	1.798	0	165	0	0	165	0.5500	0.0000	0.0000	-	N	0	0	0	539
		River Basin Subtotals				0	245	0	0	245						0	0	0	769
25	TG	Scattered	D	0.000	2.224	0	605	0	0	605	0.8500	0.0000	0.0000	-	N	0	0	0	1583
25	TG	Scattered	F	0.000	1.800	0	4070	0	0	4070	0.5500	0.0000	0.0000	-	N	0	0	0	13320
25	TG	Scattered	S	0.000	1.617	0	46425	0	0	46425	0.6500	0.0000	0.0000	-	N	0	0	0	115491
		River Basin Subtotals				0	51100	0	0	51100						0	0	0	130394
		County Totals				0	51345	0	0	51345						0	0	0	131163
27	P	Rio Hondo & Tributaries	F	2.435	2.435	1734	695	1413	606	4448	0.5000	0.7000	0.3500	N	N	15326	6568	21894	6336
27	P	Rio Hondo & Tributaries	S	0.000	2.502	0	150	0	0	150	0.6500	0.0000	0.0000	-	N	0	0	0	577
27	P	Scattered	F	2.488	2.488	161	241	0	0	402	0.4500	0.7000	0.3150	N	N	890	381	1271	1332
		River Basin Subtotals				1895	1086	1413	606	5000						16216	6949	23165	8245
27	RG	Carrizozo & Vicinity	D	0.000	1.924	0	75	0	0	75	0.8500	0.0000	0.0000	-	N	0	0	0	170
27	RG	Carrizozo & Vicinity	F	0.000	2.623	0	475	0	0	475	0.5500	0.0000	0.0000	-	N	0	0	0	2265
27	RG	Carrizozo & Vicinity	S	0.000	1.073	0	65	0	0	65	0.6500	0.0000	0.0000	-	N	0	0	0	107

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Table 8. Irrigated Agriculture. Withdrawals (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
		River Basin Subtotals				0	615	0	0	615						0	0	0	2542
		County Totals				1895	1701	1413	606	5615						16216	6949	23165	10787
29	RG	Mimbres River	D	0.000	1.986	0	660	0	0	660	0.8500	0.0000	0.0000	-	N	0	0	0	1542
29	RG	Mimbres River	F	1.996	1.996	200	24445	600	600	25845	0.5500	0.6500	0.3575	N	N	2903	1563	4466	90890
29	RG	Mimbres River--Floodwater Area	F	0.753	0.000	10350	0	0	0	10350	0.4500	0.0000	0.4500	N	-	17319	0	17319	0
29	RG	Nutt-Hockett	F	0.000	1.934	0	7800	0	0	7800	0.6000	0.0000	0.0000	-	N	0	0	0	25142
29	RG	Nutt-Hockett	S	0.000	2.676	0	480	0	0	480	0.6500	0.0000	0.0000	-	N	0	0	0	1976
		River Basin Subtotals				10550	33385	600	600	45135						20222	1563	21785	119550
		County Totals				10550	33385	600	600	45135						20222	1563	21785	119550
31	LC	Zuni & Ramah	F	0.423	0.000	2390	0	0	0	2390	0.5500	0.7000	0.3850	N	-	1838	788	2626	0
		River Basin Subtotals				2390	0	0	0	2390						1838	788	2626	0
31	RG	Scattered	F	1.863	0.000	150	0	0	0	150	0.5500	0.8000	0.4400	N	-	454	114	568	0
		River Basin Subtotals				150	0	0	0	150						454	114	568	0
31	UC	Scattered	F	0.430	0.000	1410	0	0	0	1410	0.5500	0.7000	0.3850	N	-	1102	472	1574	0
		River Basin Subtotals				1410	0	0	0	1410						1102	472	1574	0
		County Totals				3950	0	0	0	3950						3394	1374	4768	0
33	AWR	Scattered	D	0.000	0.598	0	50	0	0	50	0.8500	0.0000	0.0000	-	N	0	0	0	35
33	AWR	Scattered	F	0.972	0.000	13460	0	0	0	13460	0.5500	0.7000	0.3850	N	-	23787	10194	33981	0
33	AWR	Scattered	S	1.021	0.000	1100	0	0	0	1100	0.6500	0.7000	0.4550	N	-	1728	741	2469	0
		River Basin Subtotals				14560	50	0	0	14610						25515	10935	36450	35
		County Totals				14560	50	0	0	14610						25515	10935	36450	35
35	P	Rio Penasco	F	1.358	0.000	525	0	0	0	525	0.5500	0.7000	0.3850	N	-	1296	555	1851	0
		River Basin Subtotals				525	0	0	0	525						1296	555	1851	0
35	RG	Salt Basin	F	0.000	2.470	0	325	0	0	325	0.6000	0.0000	0.0000	-	N	0	0	0	1338
35	RG	Salt Basin	S	0.000	2.658	0	2160	0	0	2160	0.6500	0.0000	0.0000	-	N	0	0	0	8833
35	RG	Tularosa Basin	D	0.000	2.827	0	1895	0	0	1895	0.8500	0.0000	0.0000	-	N	0	0	0	6303
35	RG	Tularosa Basin	F	2.985	2.985	250	0	551	184	985	0.6000	0.7000	0.4200	N	N	3985	1708	5693	915
35	RG	Tularosa Basin	S	0.000	2.698	0	2850	0	0	2850	0.6500	0.0000	0.0000	-	N	0	0	0	11830
		River Basin Subtotals				250	7230	551	184	8215						3985	1708	5693	29219
		County Totals				775	7230	551	184	8740						5281	2263	7544	29219

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water, i.e., both surface and ground water; AGWC=ground water component of acreage irrigated with combined water; TAI=total acreage irrigated; EF=on-farm irrigation efficiency; EC=off-farm conveyance efficiency; EJ=project efficiency; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); TFWSW=total farm withdrawal, surface water; CLSW=surface water conveyance losses from stream or reservoir to farm headgate; TPWSW=total project withdrawals, surface water; TPWGW=total project withdrawals, ground water. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 8. Irrigated Agriculture. Withdrawals (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
37	AWR	AHCD only	F	1.069	0.000	30907	0	0	0	30907	0.6000	0.5155	0.3093	Y	-	55066	51755	106821	0
37	AWR	Inside AHCD but exclusive of AHCD	F	0.000	1.268	0	5446	0	0	5446	0.5500	0.0000	0.0000	Y	-	6521	5991	12512	12556
37	AWR	Inside AHCD but exclusive of AHCD	S	0.000	1.427	0	2552	0	0	2552	0.6500	0.0000	0.0000	-	N	0	0	0	5603
37	AWR	Outside AHCD	S	0.000	2.477	0	600	0	0	600	0.6500	0.0000	0.0000	-	N	0	0	0	2286
		River Basin Subtotals				30907	8598	0	0	39505						61587	57746	119333	20445
37	P	House & Vicinity	S	0.000	1.453	0	3390	0	0	3390	0.6500	0.0000	0.0000	-	N	0	0	0	7578
		River Basin Subtotals				0	3390	0	0	3390						0	0	0	7578
		County Totals				30907	11988	0	0	42895						61587	57746	119333	28023
39	RG	Rio Chama	F	0.737	0.737	20930	500	210	70	21710	0.5000	0.6000	0.3000	N	N	31161	20774	51935	840
39	RG	Santa Cruz & Vicinity	F	0.894	0.000	4155	0	0	0	4155	0.5500	0.7000	0.3850	N	-	6754	2895	9649	0
39	RG	Truchas & Vicinity	F	1.126	0.000	2925	0	0	0	2925	0.4000	0.7000	0.2800	N	-	8234	3529	11763	0
39	RG	Velarde & Vicinity	D	0.000	1.122	0	35	0	0	35	0.8500	0.0000	0.0000	-	N	0	0	0	46
39	RG	Velarde & Vicinity	F	1.807	0.000	2835	0	0	0	2835	0.5000	0.7000	0.3500	N	-	10246	4391	14637	0
		River Basin Subtotals				30845	535	210	70	31660						56395	31589	87984	886
39	UC	Dulce & Vicinity	F	0.910	0.000	400	0	0	0	400	0.5000	0.7000	0.3500	N	-	728	312	1040	0
		River Basin Subtotals				400	0	0	0	400						728	312	1040	0
		County Totals				31245	535	210	70	32060						57123	31901	89024	886
41	P	Scattered	S	0.000	1.092	0	300	0	0	300	0.7000	0.0000	0.0000	-	N	0	0	0	468
		River Basin Subtotals				0	300	0	0	300						0	0	0	468
41	TG	Causey-Lingo	F	0.000	1.195	0	1670	0	0	1670	0.6000	0.0000	0.0000	-	N	0	0	0	3326
41	TG	Causey-Lingo	S	0.000	1.267	0	3530	0	0	3530	0.7000	0.0000	0.0000	-	N	0	0	0	6389
41	TG	Portales Basin	D	0.000	1.414	0	47	0	0	47	0.8500	0.0000	0.0000	-	N	0	0	0	78
41	TG	Portales Basin	F	0.000	1.165	0	9730	0	0	9730	0.6000	0.0000	0.0000	-	N	0	0	0	18892
41	TG	Portales Basin	S	0.000	1.165	0	74145	0	0	74145	0.7000	0.0000	0.0000	-	N	0	0	0	123398
		River Basin Subtotals				0	89122	0	0	89122						0	0	0	152083
		County Totals				0	89422	0	0	89422						0	0	0	152551
43	RG	Cuba & Vicinity	F	1.041	1.041	1550	70	0	0	1620	0.5000	0.7000	0.3500	N	N	3227	1383	4610	146
43	RG	Jemez Basin	F	1.658	0.000	1600	0	0	0	1600	0.5000	0.7000	0.3500	N	-	5306	2274	7580	0
43	RG	MRGCD only	F	1.837	2.298	5208	0	478	159	5845	0.5000	0.4934	0.2467	Y	N	20890	21449	42339	731
43	RG	Outside MRGCD	D	0.000	1.261	0	15	0	0	15	0.8500	0.0000	0.0000	-	N	0	0	0	22

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water, i.e., both surface and ground water; AGWC=ground water component of acreage irrigated with combined water; TAI=total acreage irrigated; EF=on-farm irrigation efficiency; EC=off-farm conveyance efficiency; EJ=project efficiency; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); TFWSW=total farm withdrawal, surface water; CLSW=surface water conveyance losses from stream or reservoir to farm headgate; TPWSW=total project withdrawals, surface water; TPWGW=total project withdrawals, ground water. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 8. Irrigated Agriculture. Withdrawals (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
		River Basin Subtotals				8358	85	478	159	9080						29423	25106	54529	899
		County Totals				8358	85	478	159	9080						29423	25106	54529	899
45	UC	Animas River	F	2.142	0.000	6009	0	0	0	6009	0.5500	0.7000	0.3850	N	-	23402	10029	33431	0
45	UC	Chaco River	F	0.383	0.000	384	0	0	0	384	0.4500	0.7000	0.3150	N	-	327	140	467	0
45	UC	Hammond Irrigation District	F	2.531	0.000	2609	0	0	0	2609	0.5000	0.7651	0.3826	Y	-	13207	4055	17262	0
45	UC	La Plata River	F	0.744	0.000	3328	0	0	0	3328	0.5500	0.7000	0.3850	N	-	4502	1929	6431	0
45	UC	Navajo Indian Irrigation Project	S	1.554	0.000	49745	0	0	0	49745	0.5203	0.8173	0.4252	Y	-	148575	33213	181788	0
45	UC	Navajo--Colorado River Storage Prj.	F	0.529	0.000	163	0	0	0	163	0.5000	0.7500	0.3750	Y	-	172	57	229	0
45	UC	Pine River Irrigation District	F	0.470	0.000	411	0	0	0	411	0.5000	0.7481	0.3740	Y	-	386	130	516	0
45	UC	San Juan River	F	2.393	0.000	11733	0	0	0	11733	0.5500	0.7000	0.3850	N	-	51049	21878	72927	0
		River Basin Subtotals				74382	0	0	0	74382						241620	71431	313051	0
		County Totals				74382	0	0	0	74382						241620	71431	313051	0
47	AWR	Canadian River	F	1.584	0.000	925	0	0	0	925	0.5500	0.7000	0.3850	N	-	2664	1142	3806	0
47	AWR	Sapello River	F	1.124	0.000	1700	0	0	0	1700	0.4500	0.7000	0.3150	N	-	4246	1820	6066	0
47	AWR	Sapello River	S	0.700	0.000	155	0	0	0	155	0.6500	0.0000	0.0000	N	-	167	0	167	0
		River Basin Subtotals				2780	0	0	0	2780						7077	2962	10039	0
47	P	Scattered	F	0.976	0.000	3215	0	0	0	3215	0.5000	0.6000	0.3000	N	-	6276	4184	10460	0
47	P	Storrie Irrigation Project	F	0.499	0.000	5065	0	0	0	5065	0.5000	0.6000	0.3000	N	-	5055	3370	8425	0
47	P	Storrie Irrigation Project	S	0.570	0.000	670	0	0	0	670	0.6500	1.0000	0.6500	N	-	588	0	588	0
		River Basin Subtotals				8950	0	0	0	8950						11919	7554	19473	0
		County Totals				11730	0	0	0	11730						18996	10516	29512	0
49	RG	Estancia Basin	F	0.000	1.023	0	440	0	0	440	0.6000	0.0000	0.0000	-	N	0	0	0	750
49	RG	Estancia Basin	S	0.000	1.154	0	6850	0	0	6850	0.6500	0.0000	0.0000	-	N	0	0	0	12161
49	RG	Pojoaque Valley Irrigation District	F	1.120	1.678	1975	0	280	120	2375	0.5500	0.7529	0.4141	Y	N	4592	1507	6099	386
49	RG	Santa Cruz & Vicinity	F	0.675	0.000	5735	0	0	0	5735	0.5500	0.7000	0.3850	N	-	7038	3016	10054	0
49	RG	Santa Fe & Vicinity	D	0.000	0.938	0	20	0	0	20	0.8500	0.0000	0.0000	-	N	0	0	0	22
49	RG	Santa Fe & Vicinity	F	1.140	1.140	705	20	110	110	945	0.5000	0.7000	0.3500	N	N	1858	797	2655	297
		River Basin Subtotals				8415	7330	390	230	16365						13488	5320	18808	13596
		County Totals				8415	7330	390	230	16365						13488	5320	18808	13596

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CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	WSW	WGW	TFWSW	CLSW	TPWSW	TPWGW
51	RG	Above Elephant Butte--Alamosa Creek	F	2.297	2.297	300	738	849	283	2170	0.6000	0.7000	0.4200	N	N	4399	1885	6284	3908
51	RG	Above Elephant Butte--Engle	D	0.000	1.917	0	660	0	0	660	0.8500	1.0000	0.8500	N	-	0	0	0	1488
51	RG	EBID only	F	2.307	2.307	0	0	3345	637	3982	0.6000	0.6500	0.3900	Y	N	12862	6926	19788	2449
51	RG	Lake Valley & Vicinity	F	0.000	2.369	0	180	0	0	180	0.5500	0.0000	0.0000	-	N	0	0	0	775
51	RG	Los Animas Creek and others	F	2.307	2.307	200	556	230	80	1066	0.5500	0.7000	0.3850	N	N	1804	774	2578	2668
51	RG	Nutt-Hockett	F	0.000	1.888	0	155	0	0	155	0.6000	0.0000	0.0000	-	N	0	0	0	488
51	RG	Truth or Consequences	F	0.000	2.307	0	842	0	0	842	0.6000	0.0000	0.0000	-	N	0	0	0	3237
		River Basin Subtotals				500	3131	4424	1000	9055						19065	9585	28650	15013
		County Totals				500	3131	4424	1000	9055						19065	9585	28650	15013
53	RG	MRGCD only	F	2.490	3.035	3084	0	8050	5366	16500	0.5000	0.4934	0.2467	Y	N	55447	56931	112378	32572
53	RG	Outside MRGCD	D	0.000	1.552	0	70	0	0	70	0.8500	0.0000	0.0000	-	N	0	0	0	128
53	RG	San Augustine Plains	S	0.000	1.838	0	60	0	0	60	0.6500	0.0000	0.0000	-	N	0	0	0	170
53	RG	Scattered	F	2.683	2.683	30	40	1428	952	2450	0.5500	0.7000	0.3850	N	N	7112	3048	10160	4839
		River Basin Subtotals				3114	170	9478	6318	19080						62559	59979	122538	37709
		County Totals				3114	170	9478	6318	19080						62559	59979	122538	37709
55	RG	Cerro-Questa	F	1.021	0.000	4210	0	0	0	4210	0.5000	0.6000	0.3000	N	-	8597	5731	14328	0
55	RG	Cerro-Questa	S	0.000	1.114	0	600	0	0	600	0.6500	0.0000	0.0000	-	N	0	0	0	1028
55	RG	Costilla	F	1.020	0.000	5480	0	0	0	5480	0.5000	0.6000	0.3000	N	-	11179	7453	18632	0
55	RG	Costilla	S	0.000	1.124	0	100	0	0	100	0.6500	0.0000	0.0000	N	-	0	0	0	173
55	RG	Embudo & Vicinity	F	1.158	0.000	4975	0	0	0	4975	0.5000	0.7000	0.3500	N	-	11522	4938	16460	0
55	RG	Embudo & Vicinity	S	0.000	1.212	0	250	0	0	250	0.6500	0.0000	0.0000	N	-	0	0	0	466
55	RG	Pilar & Ojo Caliente	F	0.814	0.000	80	0	0	0	80	0.5000	0.9000	0.4500	N	-	130	14	144	0
55	RG	Taos & Vicinity	F	1.358	1.358	13515	40	150	50	13755	0.5000	0.7000	0.3500	N	N	37114	15906	53020	245
55	RG	Taos & Vicinity	S	0.000	1.428	0	50	0	0	50	0.6500	0.0000	0.0000	N	-	0	0	0	110
		River Basin Subtotals				28260	1040	150	50	29500						68542	34042	102584	2022
		County Totals				28260	1040	150	50	29500						68542	34042	102584	2022
57	RG	Estancia Basin	D	0.000	0.724	0	10	0	0	10	0.8500	0.0000	0.0000	-	N	0	0	0	9
57	RG	Estancia Basin	F	0.000	1.671	0	6640	0	0	6640	0.6000	0.0000	0.0000	-	N	0	0	0	18492
57	RG	Estancia Basin	S	0.000	1.450	0	11955	0	0	11955	0.6500	0.0000	0.0000	-	N	0	0	0	26669
		River Basin Subtotals				0	18605	0	0	18605						0	0	0	45170

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water, i.e., both surface and ground water; AGWC=ground water component of acreage irrigated with combined water; TAI=total acreage irrigated; EF=on-farm irrigation efficiency; EC=off-farm conveyance efficiency; EJ=project efficiency; WSW=surface water withdrawals are measured (y/n); WGW=groundwater withdrawals are measured (y/n); TFWSW=total farm withdrawal, surface water; CLSW=surface water conveyance losses from stream or reservoir to farm headgate; TPWSW=total project withdrawals, surface water; TPWGW=total project withdrawals, ground water. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 8. Irrigated Agriculture. Withdrawals (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
				County Totals		0	18605	0	0	18605						0	0	0	45170
59	AWR	Clayton & Vicinity	F	0.000	0.955	0	785	0	0	785	0.6000	0.0000	0.0000	-	N	0	0	0	1249
59	AWR	Clayton & Vicinity	S	0.000	1.137	0	41950	0	0	41950	0.6500	0.0000	0.0000	-	N	0	0	0	73380
59	AWR	Dry Cimarron	F	0.649	1.298	1550	600	190	190	2530	0.5500	0.7000	0.3850	N	N	2053	880	2933	1864
59	AWR	Dry Cimarron	S	0.000	0.982	0	2100	0	0	2100	0.6500	0.0000	0.0000	N		0	0	0	3173
59	AWR	Tramperos Creek	F	0.453	0.907	720	80	0	0	800	0.5500	0.7000	0.3850	N	N	593	254	847	132
			River Basin Subtotals			2270	45515	190	190	48165						2646	1134	3780	79798
				County Totals		2270	45515	190	190	48165						2646	1134	3780	79798
61	RG	Inside MRGCD but exclusive of	D	0.000	1.612	0	45	0	0	45	0.8500	0.0000	0.0000	-	N	0			
		CD															0	0	85
61	RG	MRGCD only	F	2.354	2.435	13863	0	5285	1762	20910	0.5000	0.4934	0.2467	Y	N	90149	92561	182710	8581
			River Basin Subtotals			13863	45	5285	1762	20955						90149	92561	182710	8666
				County Totals		13863	45	5285	1762	20955						90149	92561	182710	8666
				State Totals		288866	545143	102973	26068	963050						1217719	704077	1921796	1431842

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water, i.e., both surface and ground water; AGWC=ground water component of acreage irrigated with combined water; TAI=total acreage irrigated; EF=on-farm irrigation efficiency; EC=off-farm conveyance efficiency; EJ=project efficiency; MSW=surface water withdrawals are measured (y/n); MGW=groundwater withdrawals are measured (y/n); TFWSW=total farm withdrawal, surface water; CLSW=surface water conveyance losses from stream or reservoir to farm headgate; TPWSW=total project withdrawals, surface water; TPWGW=total project withdrawals, ground water. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 9. Irrigated Agriculture. Depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	IDFCL	IDFOF	IDFBF	IDFSW	IDFGWO	IDFGWC	ASWO	AGWO	ASWC	AGWC	TAI	TPDSW	TPDGW
1	RG	Estancia Basin	F	0.000	1.118	0.000	0.050	0.000	0.000	0.050	0.000	0	20	0	0	20	0	23
1	RG	Inside MRGCD but exclusive of CD	D	0.000	1.406	0.000	0.000	0.000	0.000	0.000	0.000	0	100	0	0	100	0	141
1	RG	MRGCD only	F	2.009	2.170	0.030	0.050	0.073	0.153	0.000	0.123	5606	0	2403	801	8810	18552	1952
1	RG	Outside MRGCD	D	0.000	1.406	0.000	0.000	0.000	0.000	0.000	0.000	0	130	0	0	130	0	183
											River Basin Subtotals	5606	250	2403	801	9060	18552	2299
											County Totals	5606	250	2403	801	9060	18552	2299
3	LC	Quemado & Vicinity	F	1.336	0.000	0.020	0.050	0.030	0.100	0.000	0.000	515	0	0	0	515	757	0
3	LC	San Francisco River--Apache-Aragon	F	0.900	0.000	0.020	0.050	0.080	0.150	0.000	0.000	144	0	0	0	144	149	0
3	LC	San Francisco River--Glenwood	F	1.869	1.869	0.020	0.050	0.080	0.150	0.000	0.130	502	0	2	2	506	1083	4
3	LC	San Francisco River--Luna	F	2.127	0.000	0.020	0.050	0.080	0.150	0.000	0.000	62	0	0	0	62	152	0
3	LC	San Francisco River--Reserve	F	2.120	0.000	0.020	0.050	0.080	0.150	0.000	0.000	162	0	0	0	162	395	0
											River Basin Subtotals	1385	0	2	2	1389	2536	4
3	RG	San Augustin Plains	F	0.000	1.838	0.000	0.050	0.000	0.000	0.050	0.000	0	100	0	0	100	0	193
											River Basin Subtotals	0	100	0	0	100	0	193
											County Totals	1385	100	2	2	1489	2536	197
5	P	Rio Hondo	F	1.862	0.000	0.010	0.050	0.024	0.084	0.000	0.000	900	0	0	0	900	1817	0
5	P	Rio Hondo	S	0.000	1.849	0.000	0.262	0.000	0.000	0.262	0.000	0	100	0	0	100	0	233
5	P	Rio Penasco	F	2.391	2.391	0.030	0.050	0.100	0.180	0.000	0.150	49	73	1170	293	1585	3439	981
5	P	Roswell Basin North	D	0.000	2.325	0.000	0.000	0.000	0.000	0.000	0.000	0	200	0	0	200	0	465
5	P	Roswell Basin North	S	0.000	2.418	0.000	0.243	0.000	0.000	0.243	0.000	0	18010	0	0	18010	0	54130
5	P	Roswell Basin North (part)	F	0.000	2.072	0.000	0.050	0.050	0.000	0.050	0.100	0	56855	0	0	56855	0	123694
5	P	Roswell Basin North (part)	F	2.072	0.000	0.032	0.050	0.050	0.132	0.000	0.000	946	0	2719	0	3665	8596	0
5	P	Scattered	F	2.874	2.874	0.032	0.050	0.050	0.132	0.050	0.100	0	50	250	500	800	813	1732
											River Basin Subtotals	1895	75288	4139	793	82115	14665	181235
											County Totals	1895	75288	4139	793	82115	14665	181235
6	RG	Scattered	F	0.491	1.965	0.025	0.050	0.100	0.175	0.050	0.150	1812	394	605	259	3070	1394	1398
											River Basin Subtotals	1812	394	605	259	3070	1394	1398
											County Totals	1812	394	605	259	3070	1394	1398
7	AWR	Canadian River	F	0.851	0.000	0.030	0.050	0.120	0.200	0.000	0.000	4900	0	0	0	4900	5004	0

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; IDFCL=incidental depletion factor, canals and laterals, from stream or reservoir to farm headgate; IDFOF=incidental depletion factor, on-farm; IDFBF=incidental depletion factor, below farm; IDFSW=sum of incidental depletion factors which apply to surface water withdrawals; IDFGWO=incidental depletion factor which applies to withdrawals of ground water only; IDFGWC=sum of incidental depletion factors which apply to the groundwater component of withdrawals where both surface and ground water are applied (combined water); ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water; AGWC=groundwater component of acreage irrigated with combined water; TAI=total acreage irrigated; TPDSW=total project depletion, surface water; TPDGW=total project depletion, ground water. Note that incidental depletion factors are expressed as a function of the CIR. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 9. Irrigated Agriculture. Depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	IDFCL	IDFOF	IDFBF	IDFSW	IDFGWO	IDFGWC	ASWO	AGWO	ASWC	AGWC	TAI	TPDSW	TPDGW
7	AWR	Canadian River	S	0.818	0.000	0.030	0.262	0.000	0.292	0.000	0.000	600	0	0	0	600	634	0
7	AWR	Cimarron River	F	0.886	0.000	0.030	0.050	0.120	0.200	0.000	0.000	7675	0	0	0	7675	8160	0
7	AWR	Cimarron River	S	0.000	0.855	0.030	0.262	0.000	0.292	0.000	0.000	0	530	0	0	530	0	453
7	AWR	Dry Cimarron	F	0.780	0.000	0.043	0.050	0.100	0.193	0.000	0.000	480	0	0	0	480	447	0
7	AWR	Near Capulin	F	1.236	0.000	0.030	0.050	0.120	0.200	0.000	0.000	380	0	0	0	380	564	0
7	AWR	Purgatoire	F	0.931	0.000	0.030	0.050	0.120	0.200	0.000	0.000	160	0	0	0	160	179	0
7	AWR	Vermejo Conservancy District	F	0.735	0.000	0.030	0.050	0.050	0.130	0.000	0.000	5467	0	0	0	5467	4541	0
7	AWR	Vermejo Conservancy District	S	0.708	0.000	0.030	0.262	0.000	0.262	0.000	0.000	120	0	0	0	120	107	0
											River Basin Subtotals	19782	530	0	0	20312	19636	453
											County Totals	19782	530	0	0	20312	19636	453
9	AWR	Scattered	F	0.000	0.930	0.000	0.050	0.000	0.000	0.050	0.000	0	3920	0	0	3920	0	3828
9	AWR	Scattered	S	0.000	0.930	0.000	0.338	0.000	0.000	0.338	0.000	0	4645	0	0	4645	0	5780
											River Basin Subtotals	0	8565	0	0	8565	0	9608
9	P	Scattered	F	0.000	1.005	0.000	0.050	0.000	0.000	0.050	0.000	0	10	0	0	10	0	11
9	P	Scattered	S	0.000	0.865	0.000	0.338	0.000	0.000	0.338	0.000	0	3095	0	0	3095	0	3582
											River Basin Subtotals	0	3105	0	0	3105	0	3593
9	TG	Scattered	D	0.000	1.232	0.000	0.000	0.000	0.000	0.000	0.000	0	190	0	0	190	0	234
9	TG	Scattered	F	0.000	1.053	0.000	0.050	0.000	0.000	0.050	0.000	0	28310	0	0	28310	0	31301
9	TG	Scattered	S	0.000	1.157	0.000	0.338	0.000	0.000	0.338	0.000	0	99820	0	0	99820	0	154528
											River Basin Subtotals	0	128320	0	0	128320	0	186063
											County Totals	0	139990	0	0	139990	0	199264
11	P	Fort Sumner Irrigation District	F	2.322	0.000	0.030	0.050	0.290	0.370	0.000	0.000	5720	0	0	0	5720	18196	0
11	P	Outside Fort Sumner Irrig. Dist.	F	0.000	2.276	0.000	0.262	0.000	0.000	0.262	0.000	0	551	0	0	551	0	1583
11	P	Outside Fort Sumner Irrig. Dist.	S	0.000	1.329	0.000	0.262	0.000	0.000	0.262	0.000	0	30	0	0	30	0	50
11	P	Scattered	S	0.000	2.748	0.000	0.262	0.000	0.000	0.262	0.000	0	2580	0	0	2580	0	8947
											River Basin Subtotals	5720	3161	0	0	8881	18196	10580
											County Totals	5720	3161	0	0	8881	18196	10580
13	RG	EBID only	F	2.627	2.627	0.040	0.050	0.082	0.172	0.000	0.132	0	0	55591	11509	67100	171156	34225
13	RG	Hueco Basin	F	0.000	3.058	0.000	0.050	0.000	0.000	0.050	0.000	0	155	0	0	155	0	498

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; IDFCL=incidental depletion factor, canals and laterals, from stream or reservoir to farm headgate; IDFOF=incidental depletion factor, on-farm; IDFBF=incidental depletion factor, below farm; IDFSW=sum of incidental depletion factors which apply to surface water withdrawals; IDFGWO=incidental depletion factor which applies to withdrawals of ground water only; IDFGWC=sum of incidental depletion factors which apply to the groundwater component of withdrawals where both surface and ground water are applied (combined water); ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water; AGWC=groundwater component of acreage irrigated with combined water; TAI=total acreage irrigated; TPDSW=total project depletion, surface water; TPDGW=total project depletion, ground water. Note that incidental depletion factors are expressed as a function of the CIR. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 9. Irrigated Agriculture. Depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	IDFCL	IDFOF	IDFBF	IDFSW	IDFGWO	IDFGWC	ASWO	AGWO	ASWC	AGWC	TAI	TPDSW	TPDGW
13	RG	Hueco Basin	S	0.000	2.637	0.000	0.262	0.000	0.000	0.262	0.000	0	25	0	0	25	0	83
13	RG	Inside EBID but exclusive of EBID	D	0.000	2.675	0.000	0.000	0.000	0.000	0.000	0.000	0	240	0	0	240	0	642
13	RG	Inside EBID but exclusive of EBID	F	0.000	2.627	0.000	0.050	0.000	0.000	0.050	0.000	0	3025	0	0	3025	0	8344
13	RG	Nutt-Hockett	F	0.000	1.721	0.000	0.050	0.000	0.000	0.050	0.000	0	180	0	0	180	0	325
13	RG	Outside EBID	S	0.000	2.418	0.000	0.262	0.000	0.000	0.262	0.000	0	1310	0	0	1310	0	3997
13	RG	Outside EBID--Santa Teresa Sod Farm	S	0.000	4.290	0.000	0.208	0.000	0.000	0.208	0.000	0	200	0	0	200	0	1036
								River Basin Subtotals				0	5135	55591	11509	72235	171156	49150
								County Totals				0	5135	55591	11509	72235	171156	49150
15	P	Black River	F	3.037	3.037	0.030	0.050	0.050	0.130	0.050	0.100	868	735	0	0	1603	2979	2344
15	P	Carlsbad Basin--Scattered	F	2.929	2.929	0.030	0.050	0.050	0.130	0.050	0.100	107	1843	0	0	1950	354	5668
15	P	Carlsbad Irrigation District	F	2.974	2.974	0.040	0.050	0.050	0.140	0.000	0.000	2503	0	13579	149	16231	54524	443
15	P	Rio Penasco	F	2.675	2.675	0.030	0.050	0.100	0.180	0.000	0.150	0	0	1753	197	1950	5533	606
15	P	Roswell Basin South	D	0.000	2.164	0.000	0.000	0.000	0.000	0.000	0.000	0	11	0	0	11	0	24
15	P	Roswell Basin South	F	0.000	1.669	0.000	0.050	0.000	0.000	0.050	0.000	0	10102	0	0	10102	0	17703
15	P	Roswell Basin South	S	0.000	2.106	0.000	0.243	0.000	0.000	0.243	0.000	0	23127	0	0	23127	0	60541
								River Basin Subtotals				3478	35818	15332	346	54974	63390	87329
								County Totals				3478	35818	15332	346	54974	63390	87329
17	LC	Gila River--Cliff Gila	F	1.987	1.987	0.020	0.050	0.080	0.150	0.130	0.130	821	0	27	27	875	1938	61
17	LC	Gila River--Red Rock	F	2.758	2.758	0.020	0.050	0.080	0.150	0.050	0.130	0	0	73	73	146	232	228
17	LC	Gila River--Upper Gila	F	2.443	0.000	0.020	0.050	0.080	0.150	0.000	0.000	34	0	0	0	34	96	0
17	LC	Lordsburg Valley	F	0.000	2.130	0.000	0.050	0.000	0.000	0.050	0.000	0	266	0	0	266	0	595
								River Basin Subtotals				855	266	100	100	1321	2266	884
17	RG	Mimbres River	F	1.658	1.658	0.051	0.050	0.080	0.181	0.050	0.130	401	793	421	281	1896	1609	1907
17	RG	Mimbres River	S	0.000	1.643	0.000	0.262	0.000	0.000	0.262	0.000	0	110	0	0	110	0	228
								River Basin Subtotals				401	903	421	281	2006	1609	2135
								County Totals				1256	1169	521	381	3327	3875	3019
19	P	Anton Chico	F	1.887	0.000	0.030	0.050	0.118	0.198	0.000	0.000	2562	0	0	0	2562	5792	0
19	P	Colonias	F	0.000	2.115	0.000	0.050	0.000	0.000	0.050	0.000	0	216	0	0	216	0	480
19	P	Puerto de Luna	F	2.118	0.000	0.030	0.050	0.118	0.198	0.000	0.000	596	0	0	0	596	1512	0

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Table 9. Irrigated Agriculture. Depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	IDFCL	IDFOF	IDFBF	IDFSW	IDFGWO	IDFGWC	ASWO	AGWO	ASWC	AGWC	TAI	TPDSW	TPDGW
19	P	Scattered	F	0.000	1.297	0.000	0.050	0.000	0.000	0.050	0.000	0	371	0	0	371	0	505
19	P	Scattered	S	0.000	1.777	0.000	0.262	0.000	0.000	0.262	0.000	0	20	0	0	20	0	45
											River Basin Subtotals	3158	607	0	0	3765	7304	1030
											County Totals	3158	607	0	0	3765	7304	1030
21	AWR	Scattered	D	0.000	0.768	0.000	0.000	0.000	0.000	0.000	0.000	0	10	0	0	10	0	8
21	AWR	Scattered	F	0.000	1.427	0.000	0.050	0.000	0.000	0.050	0.000	0	100	0	0	100	0	150
21	AWR	Scattered	S	0.000	0.938	0.000	0.338	0.000	0.000	0.338	0.000	0	2520	0	0	2520	0	3163
											River Basin Subtotals	0	2630	0	0	2630	0	3321
											County Totals	0	2630	0	0	2630	0	3321
23	LC	Animas Valley	F	0.000	1.865	0.000	0.050	0.000	0.000	0.050	0.000	0	6102	0	0	6102	0	11949
23	LC	Animas Valley	S	0.000	1.684	0.000	0.262	0.000	0.000	0.262	0.000	0	1220	0	0	1220	0	2593
23	LC	Gila River--Virden Valley	F	2.067	2.067	0.038	0.050	0.080	0.168	0.000	0.130	0	0	1211	808	2019	2924	1887
23	LC	Lordsburg Valley	F	0.000	1.914	0.000	0.050	0.000	0.000	0.050	0.000	0	1015	0	0	1015	0	2040
23	LC	San Simon Valley	F	0.000	2.288	0.000	0.050	0.000	0.000	0.050	0.000	0	157	0	0	157	0	377
											River Basin Subtotals	0	8494	1211	808	10513	2924	18846
											County Totals	0	8494	1211	808	10513	2924	18846
25	P	Scattered	D	0.000	2.444	0.000	0.000	0.000	0.000	0.000	0.000	0	80	0	0	80	0	196
25	P	Scattered	F	0.000	1.798	0.000	0.050	0.000	0.000	0.050	0.000	0	165	0	0	165	0	312
											River Basin Subtotals	0	245	0	0	245	0	508
25	TG	Scattered	D	0.000	2.224	0.000	0.050	0.000	0.000	0.050	0.000	0	605	0	0	605	0	1413
25	TG	Scattered	F	0.000	1.800	0.000	0.050	0.000	0.000	0.050	0.000	0	4070	0	0	4070	0	7692
25	TG	Scattered	S	0.000	1.817	0.000	0.262	0.000	0.000	0.262	0.000	0	46425	0	0	46425	0	94737
											River Basin Subtotals	0	51100	0	0	51100	0	103842
											County Totals	0	51345	0	0	51345	0	104350
27	P	Rio Hondo & Tributaries	F	2.435	2.435	0.023	0.050	0.063	0.136	0.050	0.113	1734	695	1413	606	4448	8706	3419
27	P	Rio Hondo & Tributaries	S	0.000	2.502	0.000	0.262	0.000	0.000	0.262	0.000	0	150	0	0	150	0	474
27	P	Scattered	F	2.488	2.488	0.023	0.050	0.050	0.123	0.050	0.000	161	241	0	0	402	450	630
											River Basin Subtotals	1895	1086	1413	606	5000	9156	4523
27	RG	Carrizozo & Vicinity	D	0.000	1.924	0.000	0.000	0.000	0.000	0.000	0.000	0	75	0	0	75	0	144
27	RG	Carrizozo & Vicinity	F	0.000	2.623	0.000	0.050	0.000	0.000	0.050	0.000	0	475	0	0	475	0	1308
27	RG	Carrizozo & Vicinity	S	0.000	1.073	0.000	0.262	0.000	0.000	0.262	0.000	0	65	0	0	65	0	88

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; IDFCL=incidental depletion factor, canals and laterals, from stream or reservoir to farm headgate; IDFOF=incidental depletion factor, on-farm; IDFBF=incidental depletion factor, below farm; IDFSW=sum of incidental depletion factors which apply to surface water withdrawals; IDFGWO=incidental depletion factor which applies to withdrawals of ground water only; IDFGWC=sum of incidental depletion factors which apply to the groundwater component of withdrawals where both surface and ground water are applied (combined water); ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water; AGWC=groundwater component of acreage irrigated with combined water; TAI=total acreage irrigated; TPDSW=total project depletion, surface water; TPDGW=total project depletion, ground water. Note that incidental depletion factors are expressed as a function of the CIR. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 9. Irrigated Agriculture. Depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	IDFCL	IDFOF	IDFBF	IDFSW	IDFGWO	IDFGWC	ASWO	AGWO	ASWC	AGWC	TAI	TPDSW	TPDGW
											River Basin Subtotals	0	615	0	0	615	0	1540
											County Totals	1895	1701	1413	606	5615	9156	6063
29	RG	Mimbres River	D	0.000	1.986	0.000	0.000	0.000	0.000	0.000	0.000	0	660	0	0	660	0	1311
29	RG	Mimbres River	F	1.996	1.996	0.038	0.050	0.080	0.168	0.050	0.130	200	24445	600	600	25845	1865	52585
29	RG	Mimbres River--Floodwater Area	F	0.753	0.000	0.000	0.050	0.000	0.050	0.000	0.000	10350	0	0	0	10350	8183	0
29	RG	Nutt-Hockett	F	0.000	1.934	0.000	0.050	0.000	0.000	0.050	0.000	0	7800	0	0	7800	0	15839
29	RG	Nutt-Hockett	S	0.000	2.676	0.000	0.262	0.000	0.000	0.262	0.000	0	480	0	0	480	0	1621
											River Basin Subtotals	10550	33385	600	600	45135	10048	71356
											County Totals	10550	33385	600	600	45135	10048	71356
31	LC	Zuni & Ramah	F	0.423	0.000	0.030	0.050	0.060	0.140	0.000	0.000	2390	0	0	0	2390	1153	0
											River Basin Subtotals	2390	0	0	0	2390	1153	0
31	RG	Scattered	F	1.663	0.000	0.030	0.050	0.050	0.130	0.000	0.000	150	0	0	0	150	282	0
											River Basin Subtotals	150	0	0	0	150	282	0
31	UC	Scattered	F	0.430	0.000	0.025	0.050	0.060	0.135	0.000	0.000	1410	0	0	0	1410	688	0
											River Basin Subtotals	1410	0	0	0	1410	688	0
											County Totals	3950	0	0	0	3950	2123	0
33	AWR	Scattered	D	0.000	0.598	0.000	0.000	0.000	0.000	0.000	0.000	0	50	0	0	50	0	30
33	AWR	Scattered	F	0.972	0.000	0.034	0.050	0.100	0.184	0.000	0.000	13460	0	0	0	13460	15490	0
33	AWR	Scattered	S	1.021	0.000	0.034	0.262	0.000	0.296	0.000	0.000	1100	0	0	0	1100	1456	0
											River Basin Subtotals	14560	50	0	0	14610	16946	30
											County Totals	14560	50	0	0	14610	16946	30
35	P	Rio Penasco	F	1.358	0.000	0.030	0.050	0.100	0.180	0.000	0.000	525	0	0	0	525	841	0
											River Basin Subtotals	525	0	0	0	525	841	0
35	RG	Salt Basin	F	0.000	2.470	0.000	0.050	0.000	0.000	0.050	0.000	0	325	0	0	325	0	843
35	RG	Salt Basin	S	0.000	2.658	0.000	0.262	0.000	0.000	0.262	0.000	0	2160	0	0	2160	0	7245
35	RG	Tularosa Basin	D	0.000	2.827	0.000	0.000	0.000	0.000	0.000	0.000	0	1895	0	0	1895	0	5357
35	RG	Tularosa Basin	F	2.985	2.985	0.030	0.050	0.075	0.155	0.000	0.125	250	0	551	184	985	2762	618
35	RG	Tularosa Basin	S	0.000	2.698	0.000	0.262	0.000	0.000	0.262	0.000	0	2850	0	0	2850	0	9704
											River Basin Subtotals	250	7230	551	184	8215	2762	23767
											County Totals	775	7230	551	184	8740	3603	23767

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CN	RVB	LOCALE	T	CIRSW	CIRGW	IDFCL	IDFOF	IDFBF	IDFSW	IDFGWO	IDFGWC	ASWO	AGWO	ASWC	AGWC	TAI	TPDSW	TPDGW
37	AWR	AHCD only	F	1.069	0.000	0.064	0.050	0.099	0.213	0.000	0.000	30907	0	0	0	30907	40077	0
37	AWR	Inside AHCD but exclusive of AHCD	F	0.000	1.268	0.000	0.050	0.099	0.000	0.149	0.000	0	5446	0	0	5446	0	7934
37	AWR	Inside AHCD but exclusive of AHCD	S	0.000	1.427	0.000	0.338	0.000	0.000	0.338	0.000	0	2552	0	0	2552	0	4873
37	AWR	Outside AHCD	S	0.000	2.477	0.000	0.338	0.000	0.000	0.338	0.000	0	600	0	0	600	0	1989
											River Basin Subtotals	30907	8598	0	0	39505	40077	14796
37	P	House & Vicinity	S	0.000	1.453	0.000	0.338	0.000	0.000	0.338	0.000	0	3390	0	0	3390	0	6591
											River Basin Subtotals	0	3390	0	0	3390	0	6591
											County Totals	30907	11988	0	0	42895	40077	21387
39	RG	Rio Chama	F	0.737	0.737	0.038	0.050	0.097	0.185	0.050	0.147	20930	500	210	70	21710	18462	446
39	RG	Santa Cruz & Vicinity	F	0.894	0.000	0.029	0.050	0.100	0.179	0.000	0.000	4155	0	0	0	4155	4379	0
39	RG	Truchas & Vicinity	F	1.126	0.000	0.013	0.050	0.050	0.113	0.000	0.000	2925	0	0	0	2925	3666	0
39	RG	Velarde & Vicinity	D	0.000	1.122	0.000	0.000	0.000	0.000	0.000	0.000	0	35	0	0	35	0	39
39	RG	Velarde & Vicinity	F	1.807	0.000	0.038	0.050	0.080	0.168	0.000	0.000	2835	0	0	0	2835	5983	0
											River Basin Subtotals	30845	535	210	70	31660	32490	485
39	UC	Dulce & Vicinity	F	0.910	0.000	0.038	0.050	0.097	0.185	0.000	0.000	400	0	0	0	400	431	0
											River Basin Subtotals	400	0	0	0	400	431	0
											County Totals	31245	535	210	70	32060	32921	485
41	P	Scattered	S	0.000	1.092	0.000	0.243	0.000	0.000	0.243	0.000	0	300	0	0	300	0	407
											River Basin Subtotals	0	300	0	0	300	0	407
41	TG	Causey-Lingo	F	0.000	1.195	0.000	0.050	0.000	0.000	0.050	0.000	0	1670	0	0	1670	0	2095
41	TG	Causey-Lingo	S	0.000	1.267	0.000	0.243	0.000	0.000	0.243	0.000	0	3530	0	0	3530	0	5559
41	TG	Portales Basin	D	0.000	1.414	0.000	0.000	0.000	0.000	0.000	0.000	0	47	0	0	47	0	66
41	TG	Portales Basin	F	0.000	1.165	0.000	0.050	0.000	0.000	0.050	0.000	0	9730	0	0	9730	0	11902
41	TG	Portales Basin	S	0.000	1.165	0.000	0.243	0.000	0.000	0.243	0.000	0	74145	0	0	74145	0	107369
											River Basin Subtotals	0	89122	0	0	89122	0	126991
											County Totals	0	89422	0	0	89422	0	127398
43	RG	Cuba & Vicinity	F	1.041	1.041	0.018	0.050	0.060	0.128	0.050	0.000	1550	70	0	0	1620	1820	77
43	RG	Jemez Basin	F	1.658	0.000	0.038	0.050	0.060	0.148	0.000	0.000	1600	0	0	0	1600	3045	0
43	RG	MRGCD only	F	1.837	2.298	0.030	0.050	0.098	0.178	0.000	0.148	5208	0	478	159	5845	12304	419
43	RG	Outside MRGCD	D	0.000	1.261	0.000	0.000	0.000	0.000	0.000	0.000	0	15	0	0	15	0	19

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CN	RVB	LOCALE	T	CIRSW	CIRGW	IDFCL	IDFOF	IDFBF	IDFSW	IDFGWO	IDFGWC	ASWO	AGWO	ASWC	AGWC	TAI	TPDSW	TPDGW
											River Basin Subtotals	8358	85	478	159	9080	17169	515
											County Totals	8358	85	478	159	9080	17169	515
45	UC	Animas River	F	2.142	0.000	0.044	0.050	0.090	0.184	0.000	0.000	6009	0	0	0	6009	15240	0
45	UC	Chaco River	F	0.383	0.000	0.044	0.050	0.060	0.154	0.000	0.000	384	0	0	0	384	170	0
45	UC	Hammond Irrigation District	F	2.531	0.000	0.044	0.050	0.100	0.194	0.000	0.000	2609	0	0	0	2609	7884	0
45	UC	La Plata River	F	0.744	0.000	0.044	0.050	0.060	0.154	0.000	0.000	3328	0	0	0	3328	2857	0
45	UC	Navajo Indian Irrigation Project	S	1.554	0.000	0.020	0.767	0.000	0.787	0.000	0.000	49745	0	0	0	49745	138142	0
45	UC	Navajo--Colorado River Storage Prj.	F	0.529	0.000	0.044	0.050	0.090	0.184	0.000	0.000	163	0	0	0	163	102	0
45	UC	Pine River Irrigation District	F	0.470	0.000	0.044	0.050	0.090	0.184	0.000	0.000	411	0	0	0	411	229	0
45	UC	San Juan River	F	2.393	0.000	0.044	0.050	0.100	0.194	0.000	0.000	11733	0	0	0	11733	33524	0
											River Basin Subtotals	74382	0	0	0	74382	198148	0
											County Totals	74382	0	0	0	74382	198148	0
47	AWR	Canadian River	F	1.584	0.000	0.034	0.050	0.100	0.194	0.000	0.000	925	0	0	0	925	1749	0
47	AWR	Sapello River	F	1.124	0.000	0.034	0.050	0.106	0.190	0.000	0.000	1700	0	0	0	1700	2274	0
47	AWR	Sapello River	S	0.700	0.000	0.034	0.262	0.000	0.296	0.000	0.000	155	0	0	0	155	141	0
											River Basin Subtotals	2780	0	0	0	2780	4164	0
47	P	Scattered	F	0.976	0.000	0.034	0.050	0.106	0.190	0.000	0.000	3215	0	0	0	3215	3734	0
47	P	Storrie Irrigation Project	F	0.499	0.000	0.034	0.050	0.106	0.190	0.000	0.000	5065	0	0	0	5065	3008	0
47	P	Storrie Irrigation Project	S	0.570	0.000	0.000	0.262	0.000	0.262	0.000	0.000	670	0	0	0	670	482	0
											River Basin Subtotals	8950	0	0	0	8950	7224	0
											County Totals	11730	0	0	0	11730	11388	0
49	RG	Estancia Basin	F	0.000	1.023	0.000	0.050	0.000	0.000	0.050	0.000	0	440	0	0	440	0	473
49	RG	Estancia Basin	S	0.000	1.154	0.000	0.262	0.000	0.000	0.262	0.000	0	6850	0	0	6850	0	9976
49	RG	Pojoaque Valley Irrigation District	F	1.120	1.878	0.030	0.050	0.060	0.140	0.000	0.110	1975	0	280	120	2375	2880	224
49	RG	Santa Cruz & Vicinity	F	0.675	0.000	0.029	0.050	0.100	0.179	0.000	0.000	5735	0	0	0	5735	4564	0
49	RG	Santa Fe & Vicinity	D	0.000	0.938	0.000	0.000	0.000	0.000	0.000	0.000	0	20	0	0	20	0	19
49	RG	Santa Fe & Vicinity	F	1.140	1.140	0.029	0.050	0.100	0.179	0.000	0.150	705	20	110	110	945	1096	167
											River Basin Subtotals	8415	7330	390	230	16365	8540	10859
											County Totals	8415	7330	390	230	16365	8540	10859

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CN	RVB	LOCALE	T	CIRSW	CIRGW	IDFCL	IDFOF	IDFBF	IDFSW	IDFGWO	IDFGWC	ASWO	AGWO	ASWC	AGWC	TAI	TPDSW	TPDGW
51	RG	Above Elephant Butte--Alamosa	F	2.297	2.297	0.040	0.050	0.082	0.172	0.050	0.132	300	738	849	283	2170		
		Creek															3094	2516
51	RG	Above Elephant Butte--Engle	D	0.000	1.917	0.000	0.000	0.000	0.000	0.000	0.000	0	660	0	0	660	0	1265
51	RG	EBID only	F	2.307	2.307	0.040	0.050	0.082	0.172	0.000	0.132	0	0	3345	637	3982	9044	1664
51	RG	Lake Valley & Vicinity	F	0.000	2.369	0.000	0.050	0.000	0.000	0.050	0.000	0	180	0	0	180	0	448
51	RG	Los Animas Creek and others	F	2.307	2.307	0.040	0.050	0.082	0.172	0.050	0.132	200	556	230	80	1066	1163	1556
51	RG	Nutt-Hockett	F	0.000	1.888	0.000	0.050	0.000	0.000	0.050	0.000	0	155	0	0	155	0	307
51	RG	Truth or Consequences	F	0.000	2.307	0.000	0.050	0.000	0.000	0.050	0.000	0	842	0	0	842	0	2040
		River Basin Subtotals										500	3131	4424	1000	9055	13301	9796
		County Totals										500	3131	4424	1000	9055	13301	9796
53	RG	MRGCD only	F	2.490	3.035	0.034	0.050	0.068	0.152	0.000	0.118	3084	0	8050	5366	16500	31937	18208
53	RG	Outside MRGCD	D	0.000	1.552	0.000	0.000	0.000	0.000	0.000	0.000	0	70	0	0	70	0	109
53	RG	San Augustine Plains	S	0.000	1.838	0.000	0.262	0.000	0.000	0.262	0.000	0	60	0	0	60	0	139
53	RG	Scattered	F	2.683	2.683	0.030	0.050	0.068	0.148	0.050	0.118	30	40	1428	952	2450	4490	2969
		River Basin Subtotals										3114	170	9478	6318	19080	36427	21425
		County Totals										3114	170	9478	6318	19080	36427	21425
55	RG	Cerro-Questa	F	1.021	0.000	0.040	0.050	0.050	0.140	0.000	0.000	4210	0	0	0	4210	4900	0
55	RG	Cerro-Questa	S	0.000	1.114	0.000	0.262	0.000	0.000	0.262	0.000	0	600	0	0	600	0	844
55	RG	Costilla	F	1.020	0.000	0.040	0.050	0.050	0.140	0.000	0.000	5480	0	0	0	5480	6372	0
55	RG	Costilla	S	0.000	1.124	0.000	0.262	0.000	0.000	0.262	0.000	0	100	0	0	100	0	142
55	RG	Embudo & Vicinity	F	1.158	0.000	0.022	0.050	0.080	0.152	0.000	0.000	4975	0	0	0	4975	6637	0
55	RG	Embudo & Vicinity	S	0.000	1.212	0.000	0.262	0.000	0.000	0.262	0.000	0	250	0	0	250	0	382
55	RG	Pilar & Ojo Caliente	F	0.814	0.000	0.038	0.050	0.050	0.138	0.000	0.000	80	0	0	0	80	74	0
55	RG	Taos & Vicinity	F	1.358	1.358	0.022	0.050	0.080	0.152	0.050	0.130	13515	40	150	50	13755	21378	134
55	RG	Taos & Vicinity	S	0.000	1.428	0.000	0.262	0.000	0.000	0.262	0.000	0	50	0	0	50	0	90
		River Basin Subtotals										28260	1040	150	50	29500	39361	1592
		County Totals										28260	1040	150	50	29500	39361	1592
57	RG	Estancia Basin	D	0.000	0.724	0.000	0.000	0.000	0.000	0.000	0.000	0	10	0	0	10	0	7
57	RG	Estancia Basin	F	0.000	1.671	0.000	0.050	0.000	0.000	0.050	0.000	0	6640	0	0	6640	0	11650
57	RG	Estancia Basin	S	0.000	1.450	0.000	0.262	0.000	0.000	0.262	0.000	0	11955	0	0	11955	0	21876
		River Basin Subtotals										0	18605	0	0	18605	0	33533

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; IDFCL=incidental depletion factor, canals and laterals, from stream or reservoir to farm headgate; IDFOF=incidental depletion factor, on-farm; IDFBF=incidental depletion factor, below farm; IDFSW=sum of incidental depletion factors which apply to surface water withdrawals; IDFGWO=incidental depletion factor which applies to withdrawals of ground water only; IDFGWC=sum of incidental depletion factors which apply to the groundwater component of withdrawals where both surface and ground water are applied (combined water); ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water; AGWC=groundwater component of acreage irrigated with combined water; TAI=total acreage irrigated; TPDSW=total project depletion, surface water; TPDGW=total project depletion, ground water. Note that incidental depletion factors are expressed as a function of the CIR. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 9. Irrigated Agriculture. Depletions (acre-feet) in New Mexico counties, 1995.

CN	RVB	LOCALE	T	CIRSW	CIRGW	IDFCL	IDFOF	IDFBF	IDFSW	IDFGWO	IDFGWC	ASWO	AGWO	ASWC	AGWC	TAI	TPDSW	TPDGW
											County Totals	0	18605	0	0	18605	0	33533
59	AWR	Clayton & Vicinity	F	0.000	0.955	0.000	0.050	0.000	0.000	0.050	0.000	0	785	0	0	785	0	787
59	AWR	Clayton & Vicinity	S	0.000	1.137	0.000	0.338	0.000	0.000	0.338	0.000	0	41950	0	0	41950	0	63819
59	AWR	Dry Cimarron	F	0.649	1.298	0.043	0.050	0.100	0.193	0.050	0.150	1550	600	190	190	2530	1347	1102
59	AWR	Dry Cimarron	S	0.000	0.982	0.000	0.262	0.000	0.000	0.262	0.000	0	2100	0	0	2100	0	2602
59	AWR	Tramperos Creek	F	0.453	0.907	0.040	0.050	0.040	0.130	0.050	0.000	720	80	0	0	800	369	76
											River Basin Subtotals	2270	45515	190	190	48165	1716	68386
											County Totals	2270	45515	190	190	48165	1716	68386
61	RG	Inside MRGCD but exclusive of CD	D	0.000	1.612	0.000	0.000	0.000	0.000	0.000	0.000	0	45	0	0	45	0	73
61	RG	MRGCD only	F	2.354	2.435	0.060	0.050	0.029	0.139	0.000	0.079	13863	0	5285	1762	20910	51340	4629
											River Basin Subtotals	13863	45	5285	1762	20955	51340	4702
											County Totals	13863	45	5285	1762	20955	51340	4702
											State Totals	288866	545143	102973	26068	963050	815892	1063765

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); CIRSW=consumptive irrigation requirement for acreage irrigated with surface water; CIRGW=consumptive irrigation requirement for acreage irrigated with ground water; IDFCL=incidental depletion factor, canals and laterals, from stream or reservoir to farm headgate; IDFOF=incidental depletion factor, on-farm; IDFBF=incidental depletion factor, below farm; IDFSW=sum of incidental depletion factors which apply to surface water withdrawals; IDFGWO=incidental depletion factor which applies to withdrawals of ground water only; IDFGWC=sum of incidental depletion factors which apply to the groundwater component of withdrawals where both surface and ground water are applied (combined water); ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water; AGWC=groundwater component of acreage irrigated with combined water; TAI=total acreage irrigated; TPDSW=total project depletion, surface water; TPDGW=total project depletion, ground water. Note that incidental depletion factors are expressed as a function of the CIR. See Table A-1 for county numbers and Table A-2 for river basin acronyms.

Table 10. Irrigated Agriculture. Summary of acreage irrigated, withdrawals, conveyance losses, and depletions (acre-feet) in New Mexico river basins, 1995.

RIVER BASIN	T	ASWO	AGWO	ASWC	AGWC	TASW	TAGW	TAI	TFWSW	CLSW	TPWSW	TPWGW	TPDSW	TPDGW
Arkansas-White-Red	D	0	60	0	0	0	60	60	0	0	0	44	0	38
Arkansas-White-Red	F	68324	10931	190	190	68514	11121	79635	123988	89033	213021	22688	80201	13877
Arkansas-White-Red	S	1975	54897	0	0	1975	54897	56872	2781	1296	4077	95553	2338	82679
Basin Totals		70299	65888	190	190	70489	66078	136567	126769	90329	217098	118285	82539	96594
Texas Gulf	D	0	842	0	0	0	842	842	0	0	0	1936	0	1713
Texas Gulf	F	0	43780	0	0	0	43780	43780	0	0	0	85222	0	52990
Texas Gulf	S	0	223920	0	0	0	223920	223920	0	0	0	422958	0	362193
Basin Totals		0	268542	0	0	0	268542	268542	0	0	0	510116	0	416896
Pecos	D	0	291	0	0	0	291	291	0	0	0	805	0	685
Pecos	F	24951	71907	20884	1745	45835	73652	119487	185987	75272	261259	256446	120294	160111
Pecos	S	670	50802	0	0	670	50802	51472	588	0	588	155840	482	135000
Basin Totals		25621	123000	20884	1745	46505	124745	171250	186575	75272	261847	413091	120776	295796
Rio Grande	D	0	3955	0	0	0	3955	3955	0	0	0	10950	0	9309
Rio Grande	F	112124	47933	80586	23223	192710	71156	263866	644494	427925	1072419	276292	404431	167985
Rio Grande	S	0	27065	0	0	0	27065	27065	0	0	0	70263	0	57451
Basin Totals		112124	78953	80586	23223	192710	102176	294886	644494	427925	1072419	357505	404431	234745
Upper Colorado	D	0	0	0	0	0	0	0	0	0	0	0	0	0
Upper Colorado	F	26447	0	0	0	26447	0	26447	94875	39002	133877	0	61125	0
Upper Colorado	S	49745	0	0	0	49745	0	49745	148575	33213	181788	0	138142	0
Basin Totals		76192	0	0	0	76192	0	76192	243450	72215	315665	0	199267	0
Lower Colorado	D	0	0	0	0	0	0	0	0	0	0	0	0	0
Lower Colorado	F	4630	7540	1313	910	5943	8450	14393	16431	38336	54767	29684	8879	17141
Lower Colorado	S	0	1220	0	0	0	1220	1220	0	0	0	3161	0	2593
Basin Totals		4630	8760	1313	910	5943	9670	15613	16431	38336	54767	32845	8879	19734
State Totals		288866	545143	102973	26068	391839	571211	963050	1217719	704077	1921796	1431842	815892	1063765

Key: T=type of irrigation system, i.e., drip (D), flood (F), or sprinkler (S); ASWO=acreage irrigated with surface water only; AGWO=acreage irrigated with ground water only; ASWC=surface water component of acreage irrigated with combined water, i.e., both surface and ground water; AGWC=groundwater component of acreage irrigated with combined water; TASW=total acreage irrigated with surface water; TAGW=total acreage irrigated with ground water; TAI=total acreage irrigated; TFWSW=total farm withdrawal, surface water; CLSW=surface water conveyance losses from stream or reservoir to farm headgate; TPWSW=total project withdrawal, surface water; TPWGW=total project withdrawal, ground water; TPDSW=total project depletion, surface water; TPDGW=total project depletion, ground water.

Table 11. Irrigated acreage and sources of irrigation water in New Mexico counties, 1995.

COUNTY	TASWO	TAGWO	TACW	TAI	TAIF	TIC
Bernalillo	5606	250	3204	9060	1570	10630
Catron	1385	100	4	1489	2771	4260
Chaves	1895	75288	4932	82115	9485	91600
Cibola	1812	394	864	3070	5990	9060
Colfax	19782	530	0	20312	10488	30800
Curry	0	139990	0	139990	82210	222200
De Baca	5720	3161	0	8881	4339	13220
Dona Ana	0	5135	67100	72235	23795	96030
Eddy	3478	35818	15678	54974	19110	74084
Grant	1256	1169	902	3327	3623	6950
Guadalupe	3158	607	0	3765	415	4180
Harding	0	2630	0	2630	2050	4680
Hidalgo	0	8494	2019	10513	27907	38420
Lea	0	51345	0	51345	32155	83500
Lincoln	1895	1701	2019	5615	695	6310
Los Alamos	0	0	0	0	0	0
Luna	10550	33385	1200	45135	28815	73950
McKinley	3950	0	0	3950	2490	6440
Mora	14560	50	0	14610	850	15460
Otero	775	7230	735	8740	10550	19290
Quay	30907	11988	0	42895	12595	55490
Rio Arriba	31245	535	280	32060	9050	41110
Roosevelt	0	89422	0	89422	54248	143670
Sandoval	8358	85	637	9080	8190	17270
San Juan	74382	0	0	74382	18528	92910
San Miguel	11730	0	0	11730	1790	13520
Santa Fe	8415	7330	620	16365	1705	18070
Sierra	500	3131	5424	9055	2345	11400
Socorro	3114	170	15796	19080	2160	21240
Taos	28260	1040	200	29500	12400	41900
Torrance	0	18605	0	18605	19505	38110
Union	2270	45515	380	48165	11835	60000
Valencia	13863	45	7047	20955	7615	28570
State Totals	288866	545143	129041	963050	431274	1394324

Key: TASWO=total acreage irrigated with surface water only; TAGWO=total acreage irrigated with ground water only; TACW=total acreage irrigated with combined water, i.e., both surface and ground water; TAI=total acreage irrigated; TAIF=total irrigable acreage which is idle and fallow or planted but not irrigated; TIC=total irrigable acreage.

Table 12. Acreage irrigated by drip, flood, and sprinkler application methods and sources of irrigation water in New Mexico counties, 1995.

COUNTY	DASW	DAGW	TDA	FASW	FAGW	TFA	SASW	SAGW	TSA	TAI
Bernalillo	0	230	230	8009	821	8830	0	0	0	9060
Catron	0	0	0	1387	102	1489	0	0	0	1489
Chaves	0	200	200	6034	57771	63805	0	18110	18110	82115
Cibola	0	0	0	2417	653	3070	0	0	0	3070
Colfax	0	0	0	19062	0	19062	720	530	1250	20312
Curry	0	190	190	0	32240	32240	0	107560	107560	139990
De Baca	0	0	0	5720	551	6271	0	2610	2610	8881
Dona Ana	0	240	240	55591	14869	70460	0	1535	1535	72235
Eddy	0	11	11	18810	13026	31836	0	23127	23127	54974
Grant	0	0	0	1777	1440	3217	0	110	110	3327
Guadalupe	0	0	0	3158	587	3745	0	20	20	3765
Harding	0	10	10	0	100	100	0	2520	2520	2630
Hidalgo	0	0	0	1211	8082	9293	0	1220	1220	10513
Lea	0	685	685	0	4235	4235	0	46425	46425	51345
Lincoln	0	75	75	3308	2017	5325	0	215	215	5615
Los Alamos	0	0	0	0	0	0	0	0	0	0
Luna	0	660	660	11150	32845	43995	0	480	480	45135
McKinley	0	0	0	3950	0	3950	0	0	0	3950
Mora	0	50	50	13460	0	13460	1100	0	1100	14610
Otero	0	1895	1895	1326	509	1835	0	5010	5010	8740
Quay	0	0	0	30907	5446	36353	0	6542	6542	42895
Rio Arriba	0	35	35	31455	570	32025	0	0	0	32060
Roosevelt	0	47	47	0	11400	11400	0	77975	77975	89422
Sandoval	0	15	15	8836	229	9065	0	0	0	9080
San Juan	0	0	0	24637	0	24637	49745	0	49745	74382
San Miguel	0	0	0	10905	0	10905	825	0	825	11730
Santa Fe	0	20	20	8805	690	9495	0	6850	6850	16365
Sierra	0	660	660	4924	3471	8395	0	0	0	9055
Socorro	0	70	70	12592	6358	18950	0	60	60	19080
Taos	0	0	0	28410	90	28500	0	1000	1000	29500
Torrance	0	10	10	0	6640	6640	0	11955	11955	18605
Union	0	0	0	2460	1655	4115	0	44050	44050	48165
Valencia	0	45	45	19148	1762	20910	0	0	0	20955
State Totals	0	5148	5148	339449	208159	547608	52390	357904	410294	963050

Key: DASW=drip irrigated acreage supplied by surface water; DAGW=drip irrigated acreage supplied by ground water; TDA=total drip irrigated acreage; FASW=flood irrigated acreage supplied by surface water; FAGW=flood irrigated acreage supplied by ground water ; TFA=total flood irrigated acreage; SASW=sprinkler irrigated acreage supplied by surface water; SAGW=sprinkler irrigated acreage supplied by ground water; TSA=total sprinkler irrigated acreage; TAI=total acres irrigated.

Table 13. Acreage irrigated by drip, flood, and sprinkler application methods and sources of irrigation water in New Mexico river basins, 1995.

RIVER BASIN	DASW	DAGW	TDA	FASW	FAGW	TFA	SASW	SAGW	TSA	TAI
Arkansas-White-Red	0	60	60	68514	11121	79635	1975	54897	56872	136567
Texas Gulf	0	842	842	0	43780	43780	0	223920	223920	268542
Pecos	0	291	291	45835	73652	119487	670	50802	51472	171250
Rio Grande	0	3955	3955	192710	71156	263866	0	27065	27065	294886
Upper Colorado	0	0	0	26447	0	26447	49745	0	49745	76192
Lower Colorado	0	0	0	5943	8450	14393	0	1220	1220	15613
State Totals	0	5148	5148	339449	208159	547608	52390	357904	410294	963050

Key: DASW=drip irrigated acreage supplied by surface water; DAGW=drip irrigated acreage supplied by ground water; TDA=total drip irrigated acreage; FASW=flood irrigated acreage supplied by surface water; FAGW=flood irrigated acreage supplied by ground water; TFA=total flood irrigated acreage; SASW=sprinkler irrigated acreage supplied by surface water; SAGW=sprinkler irrigated acreage supplied by ground water; TSA=total sprinkler irrigated acreage; TAI=total acres irrigated.

Maps

NOTES ON MAPS

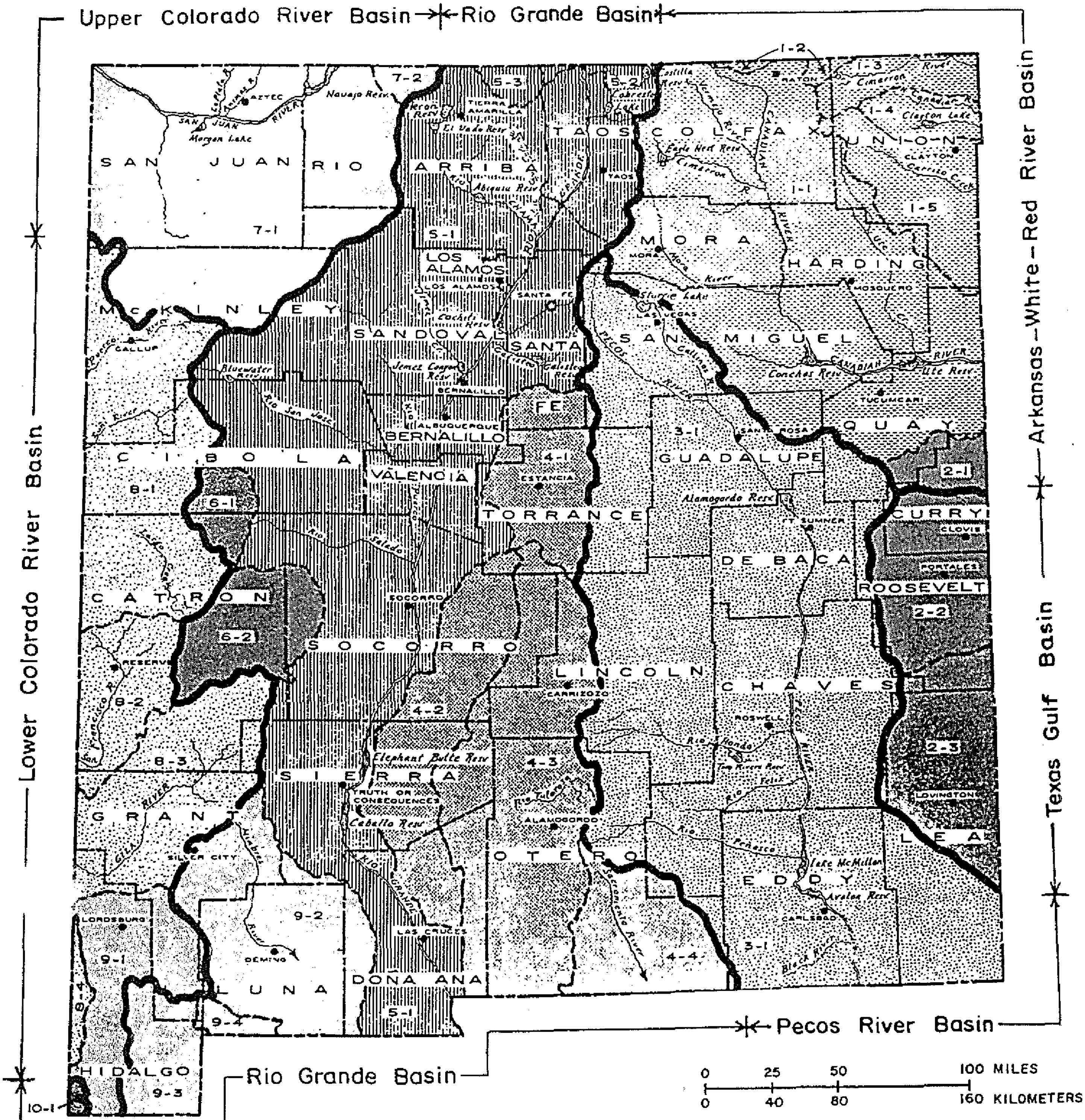
River Basins

Except for the Pecos River Basin, the river basins shown in Figure 1 have been adopted for planning purposes for national studies. The Pecos River is a tributary of the Rio Grande and joins the Rio Grande near Comstock, Texas. In national planning, the Pecos River Basin is included as a subbasin of the Rio Grande; however, in New Mexico, the basins are administered as separate units.

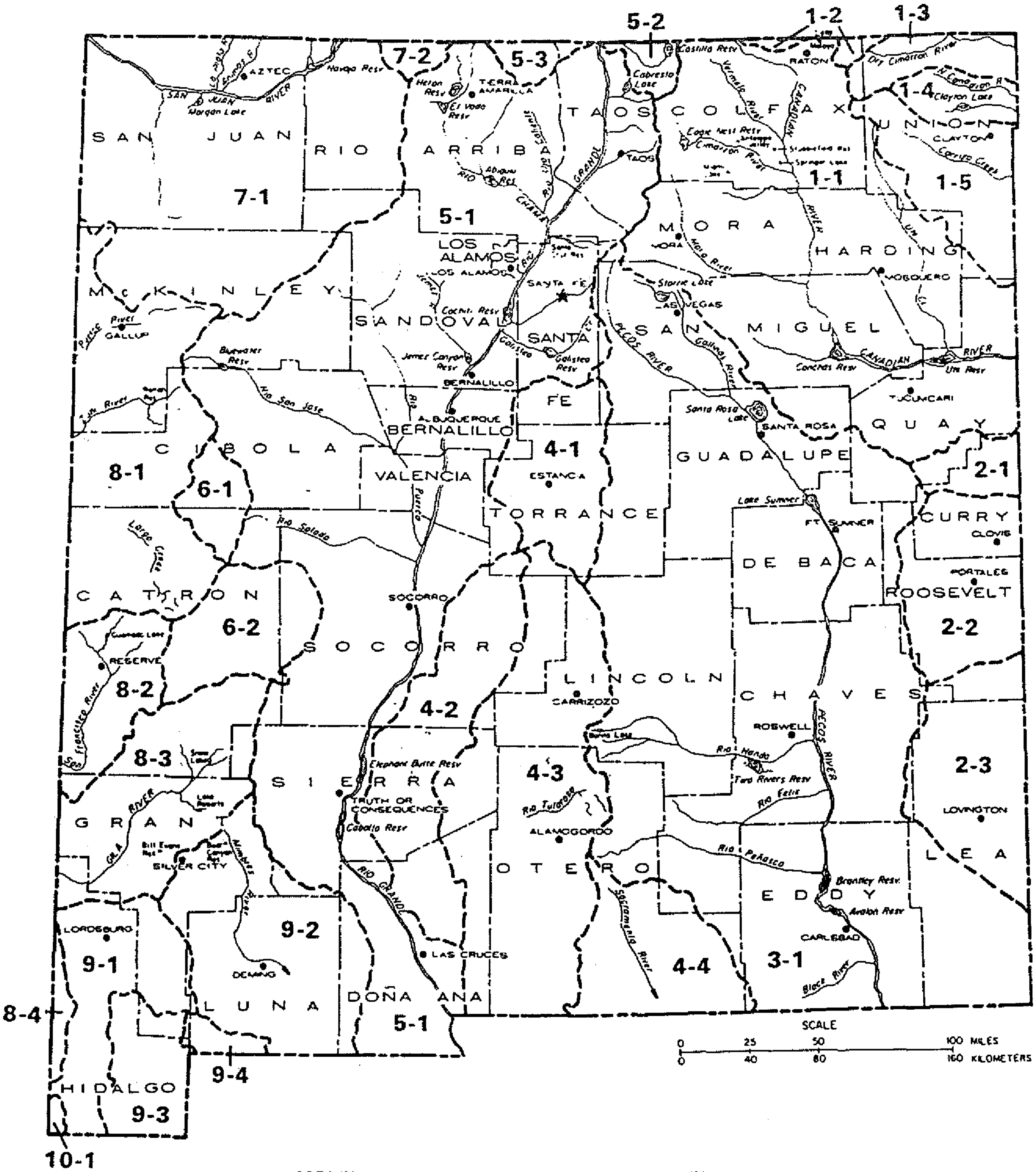
All river basins except the Rio Yaqui and the Pecos River encompass more than one surface-water drainage basin, some of which contribute surface flow to stream systems and some of which are topographically closed. These drainage basins are shown on Figure 2. Surface water in many of the subbasins of the Central, Western, and Southwestern Closed Basins drains into playa lakes and does not enter river drainage systems. Most surface-water flows on the Southern High Plains also terminate in playa lakes. Stream flow in the Arkansas, Pecos, Rio Grande, San Juan, and Lower Colorado River Basins is available for use within New Mexico.

Groundwater Basins

The state engineer has declared 32 groundwater basins. They cover approximately 102,597 square miles, or 85% of the state.

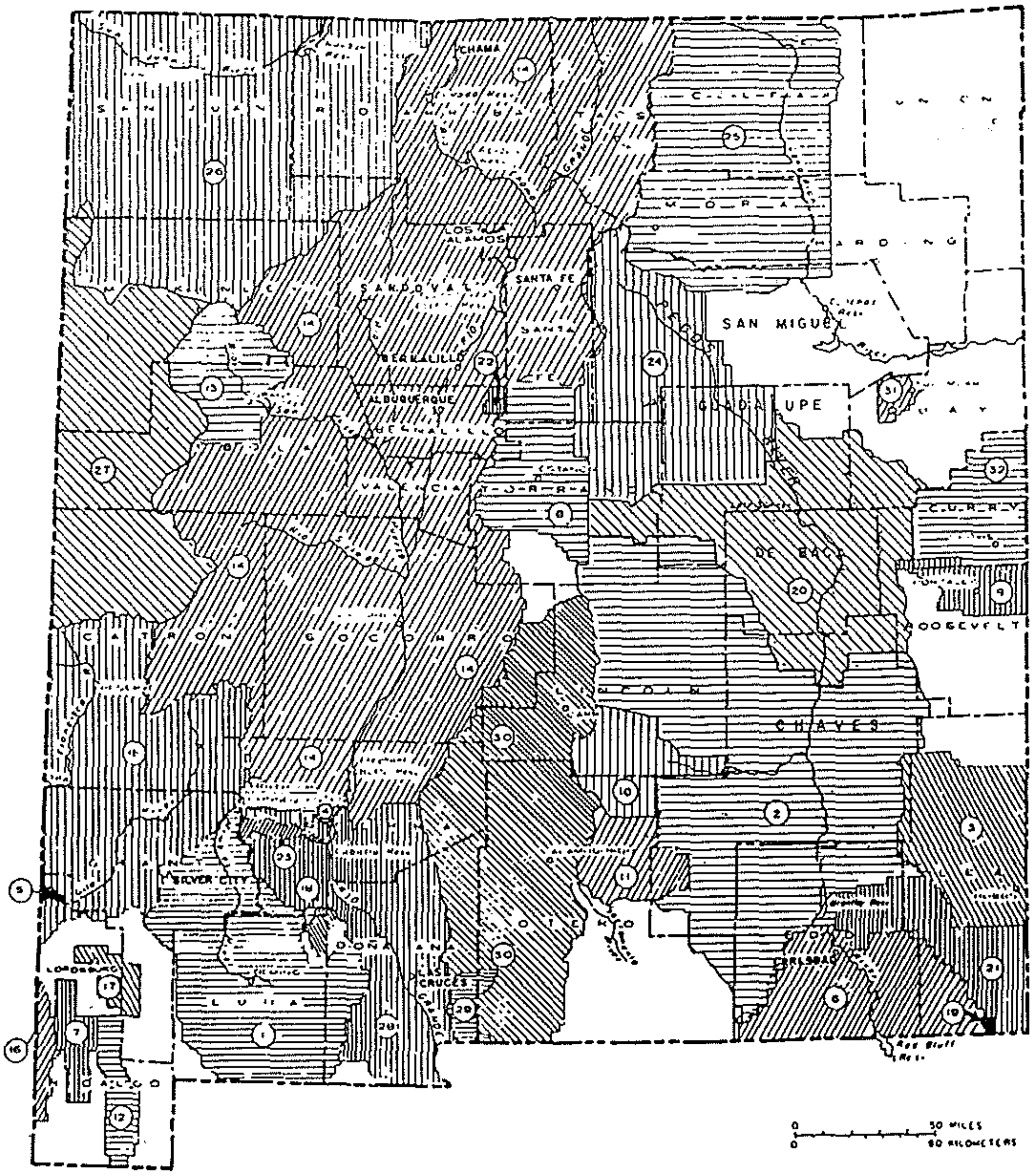


Basin	Area/Sq. Mi.
Arkansas-White-Red River	17,636
Texas Gulf	5,409
Pecos River	25,962
Rio Grande	49,755
Upper Colorado River	9,530
Lower Colorado River	13,338
Rio Yaqui	36
State Total	121,666



BASIN	AREA IN SQ. MILES
ARKANSAS RIVER BASIN	
1-1. CANADIAN RIVER	12,885
1-2. PURGATOIRE RIVER	132
1-3. DRY CIMARRON RIVER	1,000
1-4. NORTH CANADIAN RIVER	736
1-5. CARRIZO CREEK	2,205
TOTAL	16,958
SOUTHERN HIGH PLAINS	
2-1. RED RIVER	678
2-2. BRAZOS RIVER	2,727
2-3. LEA PLATEAU	2,682
TOTAL	6,087
PECOS RIVER BASIN	
3-1. PECOS RIVER	
TOTAL	25,962
CENTRAL CLOSED BASINS	
4-1. ESTANCIA BASIN	2,239
4-2. JORNADO DEL MUERTO	3,344
4-3. TULAROSA BASIN	6,749
4-4. SALT BASIN	2,375
TOTAL	14,707
RIO GRANDE BASIN	
5-1. RIO GRANDE	25,731
5-2. COSTILLA CREEK	277
5-3. RIO SAN ANTONIO	287
TOTAL	26,295
WESTERN CLOSED BASINS	
6-1. NORTH PLAINS	697
6-2. SAN AGUSTIN PLAINS	1,989
TOTAL	2,686
SAN JUAN RIVER BASIN	
7-1. SAN JUAN RIVER	9,276
7-2. NAVAJO RIVER	254
TOTAL	9,530
LOWER COLORADO RIVER BASIN	
8-1. LITTLE COLORADO RIVER	5,325
8-2. SAN FRANCISCO RIVER	1,836
8-3. GILA RIVER	3,549
8-4. SAN SIMON CREEK	240
TOTAL	10,950
SOUTHWESTERN CLOSED BASINS	
9-1. ANIMAS BASIN	2,388
9-2. MIMBRES BASIN	4,387
9-3. PLAYAS BASIN	1,390
9-4. WAMEL BASIN	290
TOTAL	8,455
RIO YAQUI BASIN	
10-1. RIO YAQUI TOTAL	36
STATE TOTAL	121,666

Figure 2. Surface Water Drainage Basins in New Mexico



BASIN	AREA IN SQUARE MI.
1. MIMBRES VALLEY	4,279
2. ROSWELL	10,779
3. LEA COUNTY	2,180
4. HOT SPRINGS	284
5. VIRDEN VALLEY	19
6. CARLSBAD	2,347
7. ANIMAS	426
8. ESTANCIA	2,005
9. PORTALES	628
10. HONDO	1,101
11. PENASCO	903
12. PLAYAS VALLEY	515
13. BLUEWATER	1,318
14. RIO GRANDE	26,209
15. GILA—SAN FRANCISCO	5,659
16. SAN SIMON	263
17. LORDSBURG VALLEY	329
18. NUTT-HOCKETT	133
19. JAL	15
20. FORT SUMNER	4,924
21. CAPITAN	1,550
22. SANDIA	73
23. LAS ANIMAS CREEK	131
24. UPPER PECOS	3,842
25. CANADIAN RIVER	5,825
26. SAN JUAN	9,727
27. GALLUP	5,424
28. LOWER RIO GRANDE	3,858
29. HUECO	255
30. TULAROSA	6,070
31. TUCUMCARI	177
32. CURRY COUNTY	1,350
	102,597

Figure 3. Groundwater Basins in New Mexico Declared by the State Engineer as of June 30, 1994

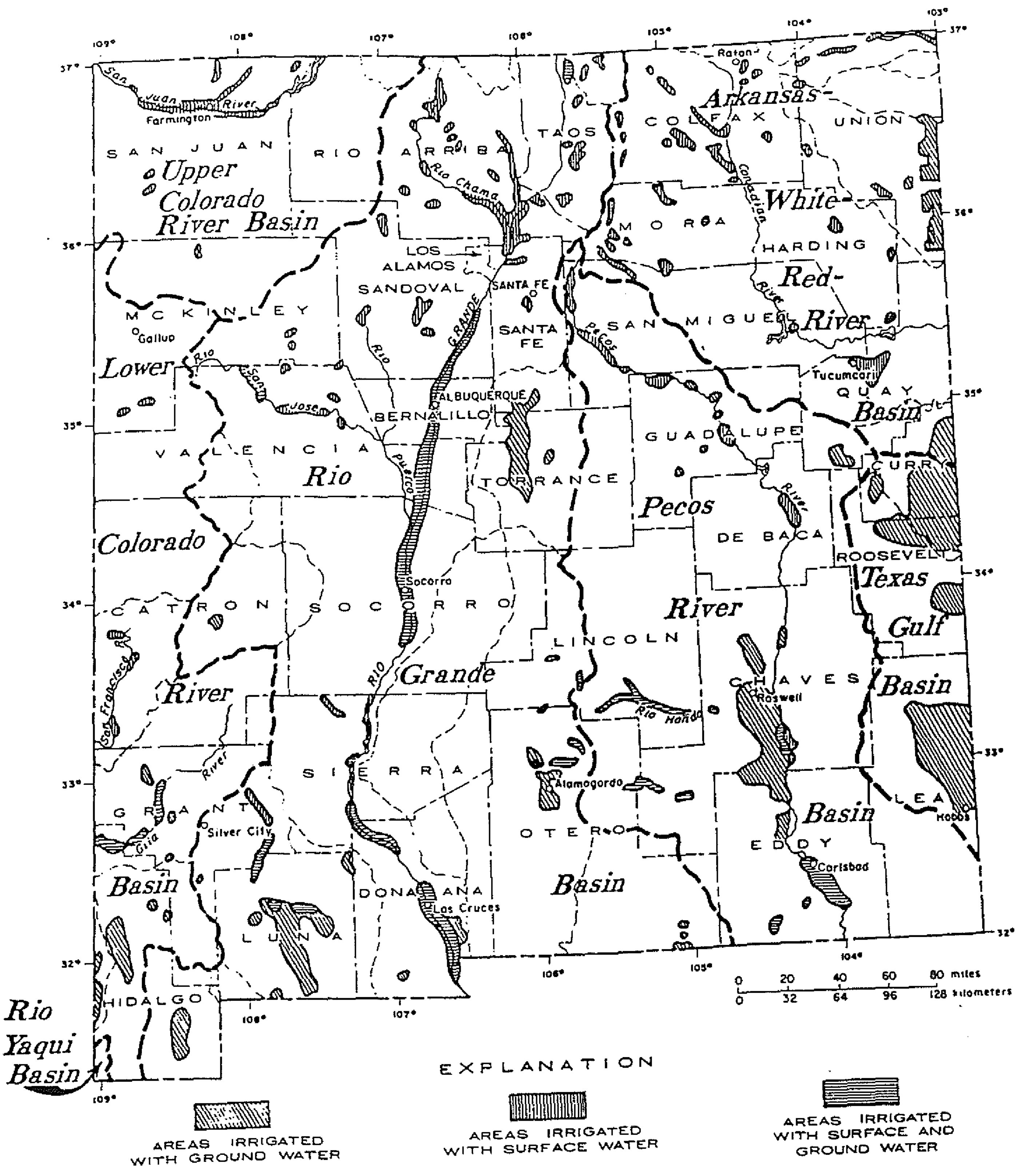


Figure 4. Lands in New Mexico Irrigated with Ground Water, Surface Water, and Ground and Surface Water Combined.