Water Use by Categories in New Mexico Counties and River Basins, and Irrigated Acreage in 2000

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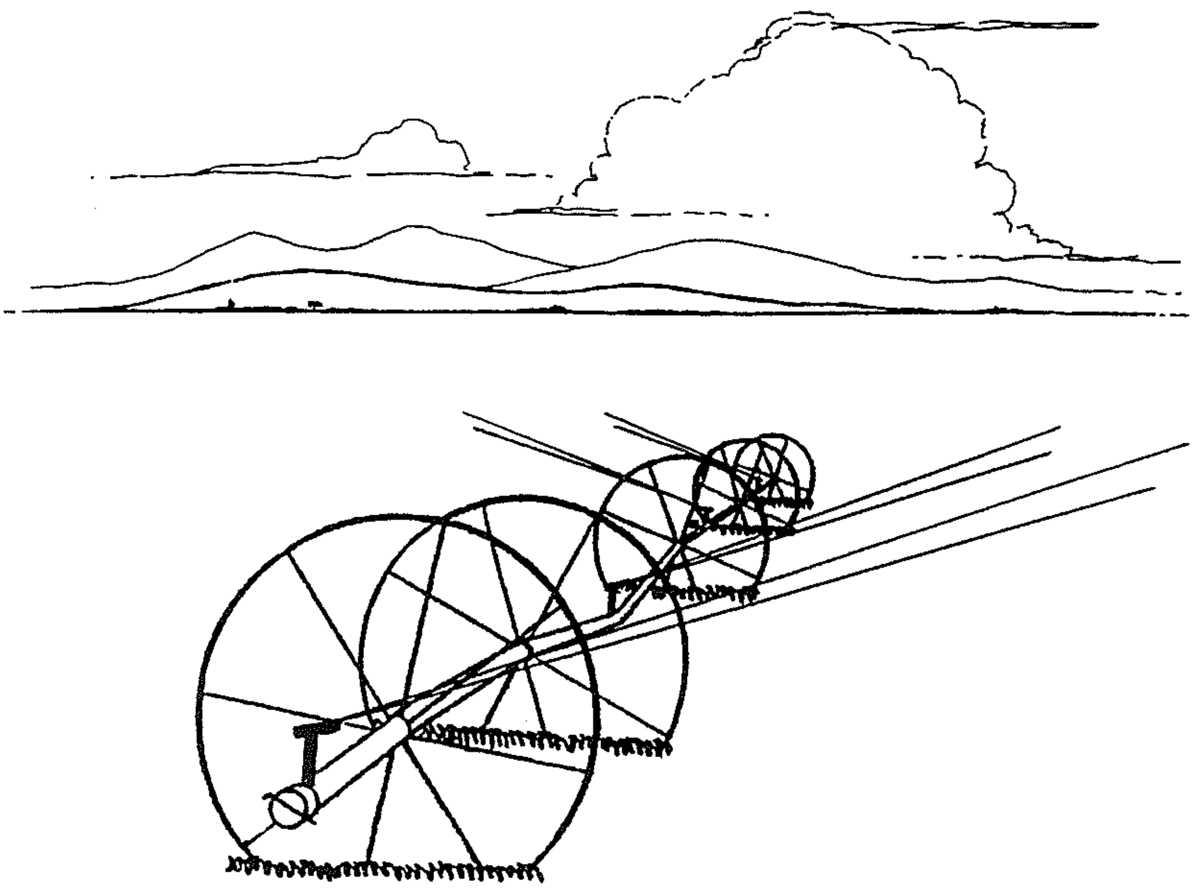

New Mexico Office of the State Engineer
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Chapter 1

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, 1990, and 1995 were compiled and published by the New Mexico State Engineer Office (Sorensen, 1977 and 1982; Wilson, 1986, 1992, 1997).

1.3. THE 2000 WATER USE INVENTORY

The results of New Mexico's 2000 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 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 2000 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 (1999) 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.

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Chapter 2

Executive Summary

2.1. THE STATE

Water withdrawals and depletions in New Mexico counties and river basins in 2000 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 2000, withdrawals for all categories totaled 4,233,890.66 acre-feet. Surface water accounted for 2,358,990.18 acre-feet or 55.72% of the total withdrawal, and ground water for 1,856,224.48 acre-feet or 43.84%. Depletions totaled 2,596,574.84 acre-feet or 62% of the withdrawals. Surface water accounted for 1,254,403.40 acre-feet or 48.31% of the total depletion, and ground water for 1,342,171.44 acre-feet or 51.69%.

Irrigated Agriculture accounted for 3,223,954 acre-feet or 76.15% of the total withdrawals. Surface water accounted for 1,847,357 acre-feet or 57.30% of the irrigation withdrawals, and ground water for 1,376,597 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 734,050 acre-feet or 39.74% of the surface water diverted for irrigation. Irrigation accounted for 1,772,951 acre-feet or 68.28% of the total depletions. Surface water accounted for 751,475 acre-feet or 42.39% of the irrigation depletions, and ground water for 1,021,476 acre-feet or 57.61%.

The total acreage irrigated on farms in 2000 was 998,793 acres. Approximately 388,157 acres or 38.86% was irrigated with surface water, and 610,636 acres or 61.14% was irrigated with ground water. Drip irrigation accounted for 7,436 acres or 0.74%, flood for 530,754 acres or 53.14%, and sprinkler for 460,603 acres or 46.12%.

Public Water Supply and Self-Supplied Domestic accounted for 366,942.68 acre-feet or 8.67% of the total withdrawals. Surface water accounted for 37,875.85 acre-feet or 10.32% of the withdrawals, and ground water for 329,066.83 acre-feet or 89.68%. These two categories accounted for 215,908.68 acre-feet or 8.32% of the total depletions. Surface water accounted for 19,237.78 acre-feet or 8.91% of the total depletions, and ground water for 196,670.90 acre-feet or 91.09%.

The population of New Mexico increased from 1,686,477 in 1995 to 1,819,046 in 2000, an increase of 132,569 or 7.29%. Approximately 1,292,072 or 71.03% of the state's population live in urban communities.

Together, Public Water Supply, Self-Supplied Domestic, and Irrigated Agriculture accounted for 84.81% of the total withdrawals and 76.60% of the total depletions.

Mining and Power accounted for 131,026.55 acre-feet or 3.09% of the total withdrawals. Surface water accounted for 53,465.37 acre-feet or 40.81% of the withdrawals, and ground water for 77,561.18 acre-feet or 59.20%. These two categories accounted for 104,234.80 acre-feet or 4.01% of the total depletions. Surface water accounted for 45,185.13 acre-feet or 43.35% of the depletions, and ground water for 59,049.67 acre-feet or 56.65%.

Livestock, Commercial, and Industrial accounted for 80,530.03 acre-feet or 1.90% of the total withdrawals. Surface water accounted for 7,530.56 acre-feet or 9.35% of the withdrawals, and ground water for 72,999.47 acre-feet or 90.65%. These two categories accounted for 72,042.96 acre-feet or 2.77% of the total depletions. Surface water accounted for 7,068.09 acre-feet or 9.81% of the depletions, and ground water for 64,976.87 acre-feet or 90.19%.

Evaporation from reservoirs with a storage capacity of 5,000 acre-feet or more amounted to 431,437.40 acre-feet or 10.19% of the total withdrawals, and 16.62% of the total depletions.

2.2. ARKANSAS-WHITE-RED RIVER BASIN

Withdrawals in the basin totaled 394,829.83 acre-feet or 9.33% of the state total. Surface water accounted for 291,444.72 acre-feet or 73.82% of the basin withdrawals, and ground water for 103,385.11 acre-feet or 26.18%. Depletions in the basin totaled 247,315.92 acre-feet or 9.52% of depletions in the state. Surface water accounted for 160,982.92 acre-feet or 65.10% of the basin depletions, and ground water for 86,333 acre-feet or 34.91%.

Irrigated Agriculture accounted for 301,360 acre-feet or 76.33% of the basin withdrawals. Surface water accounted for 206,589 acre-feet or 68.55% of the irrigated withdrawals in the basin, and ground water for 94,771 acre-feet or 31.45%. Off-farm conveyance losses in canals and laterals amounted to 95,105 acre-feet or 46.04% of the surface water diverted for irrigation in the basin. Irrigation accounted for 156,973 acre-feet or 63.47% of the basin depletions. Surface water accounted for 77,435 acre-feet or 49.33% of the irrigation depletions, and ground water for 79,538 acre-feet or 50.67%.

Acreage irrigated in the basin totaled 140,575 acres or 14.07% of the state total. Drip irrigation accounted for 82 acres or 0.06%, flood for 71,591 acres or 5.09%, and sprinkler for 68,902 acres or 49.01%. Approximately 73,480 acres or 52.27% were irrigated with surface water, and 67,095 acres or 47.73% were irrigated with ground water.

Public Water Supply and Self-Supplied Domestic accounted for 7,398.55 acre-feet or 1.87% of the basin withdrawals. Surface water accounted for 2,664.48 acre-feet or 36.01% of the withdrawals, and ground water for 4,734.07 acre-feet or 63.99%. These two categories accounted for 4,601.40 acre-feet or 1.86% of the basin depletions. Surface water accounted for 1,659.98 acre-feet or 36.08% of the total depletions, and ground water for 2,941.42 acre-feet or 63.92%.

The population in the basin was 36,357 or 2.0% of the state total. Approximately 14,137 or 38.88% of the basin population live in urban communities. The largest city in the basin is Raton (7,282).

Mining accounted for 570.36 acre-feet or 0.14% of the basin withdrawals, and 308.19 acre-feet or 0.12% of the basin depletions. Surface water accounted for 307.77 acre-feet or 99.86% of the depletions.

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

Livestock and Commercial accounted for 5,110.92 acre-feet or 1.29% of the basin withdrawals. No industrial water uses were reported. Surface water accounted for 1,231.30 acre-feet or 24.09% of these withdrawals, and ground water for 3,879.62 acre-feet or 75.91%. These categories accounted for 5,042.93 acre-feet or 2.04% of the basin depletions. Surface water accounted for 1,189.77 acre-feet or 23.59% of the depletions, and ground water for 3,853.16 acre-feet or 76.41%.

Evaporation from reservoirs with a storage capacity of 5,000 acre-feet or more amounted to 80,390 acre-feet or 20.36% of the basin withdrawals, and 32.51% of the basin depletions.

2.3. TEXAS GULF RIVER BASIN

Withdrawals in the basin totaled 523,180.91 acre-feet or 12.36% of the state total. Surface water accounted for 196.99 acre-feet or 0.04% of the basin withdrawals, and ground water for 522,983.92 acre-feet or 99.96%. Depletions in the basin totaled 427,541.84 acre-feet or 16.47% of depletions in the state. Surface water accounted for 196.99 acre-feet or 0.05% of the basin depletions, and ground water for 427,344.85 acre-feet or 99.95%.

Irrigated Agriculture accounted for 460,554 acre-feet or 88.03% of the basin withdrawals and 380,907 acre-feet or 89.09% of the basin depletions. All of the withdrawals came from ground water. Acreage irrigated in the basin totaled 280,840 acres or 28.12% of the state total. Drip irrigation accounted for 918 acres or 0.33%, flood for 27,141 acres or 9.66%, and sprinkler for 252,781 acres or 90.01%. All of the acreage was irrigated with ground water.

Public Water Supply and Self-Supplied Domestic accounted for 29,920.05 acre-feet or 5.15% of the basin withdrawals, and 15,191.05 acre-feet or 3.55% of the basin depletions. All of the withdrawals came from ground water.

The population in the basin was 111,606 or 6.14% of the state total. Approximately 93,459 or 83.74% of the basin population live in urban communities. The largest cities in the basin are Clovis (32,667), Hobbs (28,657), Portales (11,131) and Lovington (9,471).

Mining and Power accounted for 21,709.62 acre-feet or 4.15% of the basin withdrawals, and 17,684.15 acre-feet or 4.14% of the basin depletions. All of the withdrawals for these two categories came from ground water.

Livestock, Commercial, and Industrial accounted for 13,997.24 acre-feet or 2.68% of the basin withdrawals. Surface water accounted for 196.99 acre-feet or 1.41% of these withdrawals, and ground water for 13,800.25 acre-feet or 98.59%. These categories accounted for 13,759.64 acre-feet or 3.22% of the basin depletions. Surface water accounted for 196.99 acre-feet or 1.43% of the depletions, and ground water for 13,562.65 acre-feet or 98.57%.

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 837,165.09 acre-feet or 19.77% of the state total. Surface water accounted for 296,741.09 acre-feet or 35.45% of the basin withdrawals, and ground water for 540,424 acre-feet or 64.55%. Depletions in the basin totaled 535,602.12 acre-feet or 20.63% of depletions in the state. Surface water accounted for 154,303.08 acre-feet or 28.81% of the basin depletions, and ground water for 381,299.04 acre-feet or 71.19%.

Irrigated Agriculture accounted for 696,900 acre-feet or 83.25% of the basin withdrawals. Surface water accounted for 236,807 acre-feet or 33.98% of the irrigation withdrawals in the basin, and ground water for 460,093 acre-feet or 66.02%. Off-farm conveyance losses in canals and laterals amounted to 71,919 acre-feet or 30.37% of the surface water diverted for irrigation in the basin. Irrigation accounted for 419,792 acre-feet or 78.38% of the basin depletions. Surface water accounted for 98,639 acre-feet or 23.50% of the irrigation depletions, and ground water for 321,153 acre-feet or 76.50%.

Acreage irrigated in the basin totaled 190,061 acres or 19.03% of the state total. Drip irrigation accounted for 265 acres or 0.14%, flood for 139,880 acres or 73.60%, and sprinkler for 49,916 acres or 26.26%. Approximately 41,963 acres or 22.08% were irrigated with surface water, and 148,098 acres or 77.92% were irrigated with ground water.

Public Water Supply and Self-Supplied Domestic accounted for 48,639.41 acre-feet or 5.81% of the basin withdrawals. Surface water accounted for 4,424.56 acre-feet or 9.10% of the withdrawals, and ground water for 44,214.85 acre-feet or 90.90%. These two categories accounted for 33,233.53 acre-feet or 6.20% of the basin depletions. Surface water accounted for 1,506 acre-feet or 4.53%, and ground water for 31,727.53 acre-feet or 95.47%.

The population in the basin was 177,173 or 9.74% of the state total. Approximately 116,966 or 66.02% of the basin population live in urban communities. The largest cities in the basin are Roswell (45,293), Carlsbad (25,625), Las Vegas (14,565) and Artesia (10,692).

Mining accounted for 18,091.91 acre-feet or 2.16% of the basin withdrawals, and 10,802.54 acre-feet or 2.02% of the basin depletions. Over 94% 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 21,353.77 acre-feet or 2.55% of the basin withdrawals. Surface water accounted for 1,477.88 acre-feet or 6.92% of these withdrawals, and ground water for 19,875.89 acre-feet or 93.08%. These categories accounted for 19,594.05 acre-feet or 3.66% of the basin depletions. Surface water accounted for 1,422.48 acre-feet or 7.26% of the depletions, and ground water for 18,171.57 acre-feet or 92.74%.

Evaporation from reservoirs with a storage capacity of 5,000 acre-feet or more amounted to 52,180 acre-feet or 6.23% of the basin withdrawals, and 9.74% of the basin depletions.

2.5. RIO GRANDE BASIN

Withdrawals in the basin totaled 2,042,176.66 acre-feet or 48.23% of the state total. Surface water accounted for 1,405,188.94 acre-feet or 68.81% of the basin withdrawals, and ground water for 636,987.72 acre-feet or 31.19%. Depletions in the basin totaled 1,074,599.14 acre-feet or 41.39% of depletions in the state. Surface water accounted for 665,006.95 acre-feet or 61.88% of the basin depletions, and ground water for 409,592.19 acre-feet or 38.12%.

Irrigated Agriculture accounted for 1,453,891 acre-feet or 71.19% of the basin withdrawals. Surface water accounted for 1,126,975 acre-feet or 77.51% of the irrigation withdrawals in the basin, and ground water for 326,916 acre-feet or 22.49%. Off-farm conveyance losses in canals and laterals amounted to 494,812 acre-feet or 43.91% of the surface water diverted for irrigation in the basin. Irrigation accounted for 611,410 acre-feet or 56.90% of the basin depletions. Surface water accounted for 392,878 acre-feet or 64.26% of the irrigation depletions, and ground water for 218,532 acre-feet or 35.74%.

Acreage irrigated in the basin totaled 293,768 acres or 29.41% of the state total. Drip irrigation accounted for 6,121 acres or 2.08%, flood for 257,078 acres or 87.51%, and sprinkler for 30,569 acres or 10.41%. Approximately 189,469 acres or 64.50% were irrigated with surface water, and 104,299 acres or 35.50% were irrigated with ground water.

Public Water Supply and Self-Supplied Domestic accounted for 252,337.11 acre-feet or 12.36% of the basin withdrawals. Surface water accounted for 11,998.08 acre-feet or 4.75% of the withdrawals, and ground water for 241,206.03 acre-feet or 95.59%. These two categories accounted for 141,908.84 acre-feet or 13.21% of the basin depletions. Surface water accounted for 5,829.41 acre-feet or 4.11%, and ground water for 136,079.43 acre-feet or 95.89%.

The population in the basin was 1,290,353 or 70.94% of the state total. Approximately 947,910 or 73.46% of the basin population live in urban communities. The largest cities in the basin are Albuquerque (448,607), Las Cruces (74,267), and Santa Fe (62,203).

Mining and Power accounted for 37,248.77 acre-feet or 1.82% of the basin withdrawals. Surface water accounted for 515 acre-feet or 1.38% of the withdrawals, and ground water for 36,733.77 acre-feet or 98.62%. These two categories accounted for 28,848.35 acre-feet or 2.68% of the depletions, and ground water for 28,760.80 acre-feet or 99.70%.

Livestock, Commercial and Industrial accounted for 34,214.72 acre-feet or 1.68% of the basin withdrawals. Surface water accounted for 2,028.86 acre-feet or 6.09% of these withdrawals, and ground water for 32,131.91 acre-feet or 93.91%. These categories accounted for 27,946.95 acre-feet or 2.60% of the basin depletions. Surface water accounted for 1,726.99 acre-feet or 6.18% of the depletions, and ground water for 26,219.96 acre-feet or 93.82%.

Evaporation from reservoirs with a storage capacity of 5,000 acre-feet or more amounted to 264,485 acre-feet or 12.95% of the basin withdrawals, and 24.61% of the basin depletions.

2.6. UPPER COLORADO RIVER BASIN

Withdrawals in the basin totaled 333,026.05 acre-feet or 7.87% of the state total. Surface water accounted for 329,344.24 acre-feet or 98.89% of the basin withdrawals, and ground water for 3,681.81 acre-feet or 1.11%. Depletions in the basin totaled 266,200 acre-feet or 10.25% of depletions in the state. Surface water accounted for 262,721.05 acre-feet or 98.69% of the basin depletions, and ground water for 3,479.06 acre-feet or 1.31%.

Irrigated Agriculture accounted for 222,694 acre-feet or 66.87% of the basin withdrawals, and 171,722 acre-feet or 64.51% of the basin depletions. All of the withdrawals came from surface water. Off-farm conveyance losses in canals and laterals amounted to 37,641 acre-feet or 16.90% of the surface water diverted for irrigation in the basin.

Acreage irrigated in the basin totaled 74,771 acres or 7.49% of the state total. Flood irrigation accounted for 18,821 acres or 25.17%, and sprinkler for 55,950 acres or 74.83%.

Public Water Supply and Self-Supplied Domestic accounted for 22,484.03 acre-feet or 6.75% of the basin withdrawals. Surface water accounted for 19,523.13 acre-feet or 86.83% of the withdrawals, and ground water for 2,960.90 acre-feet or 13.17%. These two categories accounted for 12,956.41 acre-feet or 4.87% of the basin depletions. Surface water accounted for 10,176.09 acre-feet or 78.54% of the depletions, and ground water for 2,780.32 acre-feet or 21.46%.

The population in the basin was 133,287 or 7.33% of the state total. Approximately 87,680 or 65.78% of the basin population live in urban communities. The largest cities in the basin are Farmington (37,844), Shiprock (8,156), Bloomfield (6,417) and Aztec (6,378).

Mining and Power accounted for 50,528.78 acre-feet or 15.17% of the basin withdrawals. Surface water accounted for 100% of these withdrawals. These two categories accounted for 44,234.31 acre-feet or 16.62% of the basin depletions. Surface water accounted for 100% of the depletions.

Livestock, Commercial, and Industrial accounted for 2,937.24 acre-feet or 0.88% of the basin withdrawals. Surface water accounted for 2,216.33 acre-feet or 75.46% of these withdrawals, and ground water for 720.91 acre-feet or 24.54%. These categories accounted for 2,905.39 acre-feet or 1.09% of the basin depletions. Surface water accounted for 2,206.65 acre-feet or 75.95% of the depletions, and ground water for 698.74 acre-feet or 24.05%.

Evaporation from reservoirs with a storage capacity of 5,000 acre-feet or more amounted to 34,382 acre-feet or 10.32% of the basin withdrawals, and 12.92% of the basin depletions.

2.7. LOWER COLORADO RIVER BASIN

Withdrawals in the basin totaled 103,511.73 acre-feet or 2.44% of the state total. Surface water accounted for 54,749.79 acre-feet or 52.89% of the basin withdrawals, and ground water for 48,761.94 acre-feet or 47.11%. Depletions in the basin totaled 45,315.75 acre-feet or 1.75% of depletions in the state. Surface water accounted for 11,192.49 acre-feet or 24.70% of the basin depletions, and ground water for 34,123.26 acre-feet or 75.30%.

Irrigated Agriculture accounted for 88,555 acre-feet or 85.55% of the basin withdrawals. Surface water accounted for 54,292 acre-feet or 61.31% of the irrigation withdrawals in the basin, and ground water for 34,263 acre-feet or 38.69%. Off-farm conveyance losses in canals and laterals amounted to 34,573 acre-feet or 63.68% of the surface water diverted for irrigation in the basin. Irrigation accounted for 32,147 acre-feet or 70.94% of the depletions in the basin. Surface water accounted for 10,801 acre-feet or 33.60% of the irrigation depletions, and ground water for 21,346 acre-feet or 66.39%.

Acreage irrigated in the basin totaled 18,778 acres or 1.88% of the state total. Flood irrigation accounted for 16,243 acres or 86.50%, and sprinkler for 2,485 acres or 13.23%. Approximately 8,474 acres or 45.13% were irrigated with surface water, and 10,304 acres or 54.87% were irrigated with ground water.

Public Water Supply and Self-Supplied Domestic accounted for 9,163.54 acre-feet or 8.85% of the basin withdrawals. Surface water accounted for 132.60 acre-feet or 1.45%, and ground water accounted for 9,030.94 acre-feet or 98.55%. These two categories accounted for 8,017.44 acre-feet or 17.69% of the basin depletions. Surface water accounted for 66.30 acre-feet or 0.83% of the depletions, and ground water accounted for 7,951.14 acre-feet or 99.17%.

The population in the basin was 70,270 or 3.86% of the state total. Approximately 31,920 or 45.42% of the basin population live in urban communities. The largest cities in the basin are Silver City (10,545), and Lordsburg (3,379).

Mining accounted for 2,877.10 acre-feet or 2.78% of the basin withdrawals, and 2,357.36 acre-feet or 5.20% of the basin depletions. All of the withdrawals came from ground water.

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

Livestock, Commercial, and Industrial accounted for 2,916.09 acre-feet or 2.82% of the basin withdrawals. Surface water accounted for 325.19 acre-feet or 11.15% of these withdrawals, and ground water for 2,590.90 acre-feet or 88.85%. These categories accounted for 2,793.95 acre-feet or 6.17% of the basin depletions. Surface water accounted for 325.19 acre-feet or 11.64% of the depletions, and ground water for 2,468.76 acre-feet or 88.36%.

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

Chapter 3

Public Water Supply and Self-Supplied Domestic

3.1. INTRODUCTION

The procedures presented in this report for the quantification of withdrawals and depletions for Public Water Supply and Self-Supplied Domestic reflect many refinements that were born out of lessons learned from inventories conducted in the 1970s and 1980s. These procedures emphasize the need to capture information about individual water systems which will provide a more accurate picture of the sources of water—particularly transfers of water between utilities, population served, self-supplied municipal facilities that must be accounted for, and depletion rates. Population estimates for 2000 are discussed, and overview of factors that affect water use in communities is presented, and the results of six benchmark studies of residential water use are summarized. Notes on individual water systems in New Mexico are also provided.

3.2. COMPOSITION OF CATEGORIES

3.2.1. Public Water Supply (PS). Includes community water systems which rely upon surface and/or groundwater diversions other than wells permitted by the Office of the State Engineer under Section 72-12-1 NMSA 1978, and which consist of common collection, treatment, storage, and distribution facilities operated for the delivery of water to multiple service connections. Examples of such systems include municipalities that serve residential, commercial, and industrial water users; prisons; residential and mixed use subdivisions; and mobile home parks. Water used for the irrigation of self-supplied golf courses, athletic fields, and parks or to maintain the water level in ponds and lakes owned and operated by municipality or water utility is also included in this category. The purpose of this criteria is to capture all water uses which are debited against the water rights of public water suppliers where such rights have been defined. This category is identified as **Major Group 49**, **Industry Group 494**, and **Industry 4941** in the Standard Industrial Classification Manual (1987).

3.2.2. Domestic (DO). Includes self-supplied residences which may be single family dwellings or multi-family dwellings with wells permitted by the Office of the State Engineer under Section 72-12-1 NMSA, where water is used for normal household purposes such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, evaporative cooling, water softener regeneration, and watering lawns and gardens; and livestock watering provided that this is not the sole purpose of use. This category is identified as **Major Group 88, Industry Group 881**, and **Industry 8811** in the Standard Industrial Classification Manual (1987).

3.3. PROCEDURE FOR QUANTIFYING PUBLIC WATER SUPPLY WITHDRAWALS AND DEPLETIONS

Step 1: Preparation for this category begins with the identification of all the public water suppliers in the state. Regulatory agencies responsible for monitoring the quality of drinking water generally maintain a directory of community water supply systems. Municipal leagues or associations may also publish a directory of municipal offices that list the name and phone number of the city manager, clerk, and water and sewer superintendent.

Step 2: While many water suppliers are required to report their annual withdrawals to State Engineer District Offices, there are many which are under no obligation to do so either because they are not within a declared groundwater basin or because they have prebasin rights. Furthermore, withdrawals are not the only data required for the purpose of the water use inventory. We also need to know: Is the community water system located within the established boundaries of a larger municipality? How many people are served by the water system? How many connections are there? Is the water system metered? If the system is metered do the records reflect water sold or withdrawals measured at the ultimate source of supply? Were there any system malfunctions such as meter breakdowns that would affect the total measured deliveries or withdrawals during the calendar year? Is all or part of the water distributed imported from another municipality? If water is imported, how much and from whom? Is water exported to other communities? If water is exported, how much and to whom? Has the community implemented any water conservation measures?

After compiling a name and address listing of all public water suppliers, a questionnaire is mailed to each one. This is generally the cheapest way to collect data. Questionnaires must be carefully designed to avoid misinterpretation by the recipient.

Water purveyors that don't respond to questionnaires may have to be contacted by phone. Telephone surveys are more expensive, however, response time is typically one to five days, and they often yield additional information that is very helpful. One of the disadvantages of telephone surveys is that they often turn into a game of tag and there are some people who won't return a call or are reluctant to leave messages.

Step 3: Some water suppliers may report the quantity of water sold rather than the total withdrawal from the source. The difference between a water utility's production and its water sales to consumers is referred to as unaccounted-for water. Unaccounted-for water includes measuring errors caused by inaccurate meters or incorrect meter reading, transmission losses in the distribution system, water used for fire fighting, system flushing, sewer cleaning, construction, and other miscellaneous uses that are not metered. Unaccounted-for water is generally 10% to 20% of the total entering the distribution system in metered systems and is typically 30% in unmetered systems (Tchobanoglous, 1979; Moyer, 1985). A water system is generally considered to be performing well if unaccounted-for water is only 10% of the total withdrawals.

For the purpose of this inventory, if the withdrawals reported by a water purveyor are for water sold, they are divided by 0.90 to arrive at an estimate of the total withdrawal.

Step 4: In census years, population figures for many of the communities served by water utilities may be extracted from statistics published by the U.S. Bureau of the Census. It is important that these figures be compared with the data reported by water suppliers. If a water supplier reports a population served which is greater than the census population, this may indicate that the water supplier exports water to other communities or it may suggest an error in the census data. If the population reported by a water supplier is less than the census figure, this may indicate that there are other small community water systems located within the defined boundaries of the municipality. It is important that the number of inhabitants in self-supplied residences and subdivisions that are located within a community served by a public water supplier be subtracted from the population of the larger community of which they are a part.

Populations of communities not identified in the census must be obtained from the water system manager, the city clerk, or a regulatory agency, or they may be estimated by some other means. Many water utilities estimate the population they serve with reasonable accuracy on the basis of the total number of connections and the average number of residents served per connection. The number of residents served per connection typically range from 2.5 to 3.5. Nationally, U.S. Census Bureau data indicate that the average occupancy rate is 2.7 capita per dwelling unit.

In non-census years the population must be estimated. Methodologies may range from a simple linear interpolation to complex correlations based on the demographic characteristics of individual communities.

Step 5: Per capita water use in gallons per day (gpcd) is computed using the following equation:

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

where W is the sum of the annual surface water and groundwater withdrawals in acre-feet and POP is the population. The gpcd may be used to check the water use figures reported by the water supplier. If the gpcd appears to be unusually high or low, this indicates a possible error in either the population data or the water use. When data appears to be erroneous, the water supplier is generally contacted by phone to discuss any discrepancies or suspect data.

Nestled in some of the states most popular resort areas are a number of communities which have a very small permanent residential population. In the summertime these communities experience a large influx of vacationers who come to enjoy New Mexico's rarefied air and enchanting landscapes for three or four months while the weather is favorable to leisurely outdoor living. There are also some communities that experience the mirror image of this phenomenon, i.e., there is a large influx of seasonal visitors in the winter months. These are the snowbirds who come to New Mexico to escape harsh winters that are typical of other parts of the nation.

A similar phenomenon occurs on military installations but on a daily basis. While the population of enlisted personnel and their families may be relatively small, each day there is a large influx of civilians who work on the base during the day. In addition, many military installations also have a golf course that increases water requirements.

The withdrawals reported in this inventory for communities that experience a seasonal influx of temporary residents, and military installations that experience a daily influx of civilian workers, reflect the total water use. However, because the population and per capita water requirements reported are based on the number of New Mexico residents who live in the community year-round, these communities will generally exhibit a high rate of per capita water use. Such communities have been flagged in Table 6, which is included in the latter part of this report.

Step 6: Where data is available, depletions for public water supply are estimated by taking the difference between total withdrawals and the effluent discharged from the sewage treatment plant. This approximation assumes that there is no seepage (including deep percolation from landscape irrigation) or storm-water runoff entering the sewer system; there is no seepage (leakage) out of the sewer system; there are no self-supplied water users discharging water into the sewer system; and water users supplied by public water utilities do not discharge household effluent into septic tanks.

If wastewater is discharged directly into a water body without treatment, or the annual inflow into a wastewater treatment plant is unknown, or the difference between measured diversions from the source of water and inflow into the wastewater treatment plant is an unreliable indicator of depletions due to infiltration, exfiltration, etc., depletions may be estimated by multiplying withdrawals by a depletion factor of 0.50. In communities where treated sewage effluent is used to irrigate golf courses, parks, athletic fields, and forage crops; or for industrial purposes such as cooling tower makeup water, the depletion rate may be 70% to 100%. The irrigation of forage crops with treated sewage effluent is a common method of wastewater disposal in communities where there are no watercourses or discharges to existing watercourses are prohibited.

3.4. PROCEDURE FOR QUANTIFYING SELF-SUPPLIED DOMESTIC WITHDRAWALS AND DEPLETIONS

Step 1: The self-supplied domestic population in each county is obtained by subtracting the population served by public water suppliers from the total population in a county. When a county is divided into two or more river basins the total county population must be separated into its basin components. The population served by public water suppliers in each basin is then subtracted from the total population of the respective basins to yield the residual population.

Step 2: The total withdrawal in acre-feet is computed using the following equation:

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

Where W is the annual withdrawal in acre-feet; POP is the population; and GPCD is gallons per capita per day.

Step 3: Depletions are estimated by multiplying withdrawals by a depletion factor, which is assumed to be 1.00 for the purpose of this inventory. In previous inventories a depletion factor of 0.45 has been used, however, because there is increasing evidence that septic tank discharges rarely reach the aquifers that are the source of supply, a more conservative approach has been adopted for this inventory.

3.5. STATE POPULATION

3.5.1. Source of Data

The U.S. Census Bureau reported that the population of the state in 2000 was 1,819,046. This represents an increase of 20% over the 1990 population of 1,515,069, or an annual increase of approximately 1.8%. The distribution of the population in each county by river basin is based upon ratios derived from 1990 census block and tract data that was overlaid with hydrologic cataloging units (U.S. Geological Survey, 1991). 2000 census block data was not used because assistance to overlay this data with hydrologic units was unavailable.

3.5.2. Counties with Highest Rate of Growth

Ranked from high to low, the fastest growing counties in New Mexico from 1990 to 2000 are Torrance (64.4%), Valencia (46.2%), Sandoval (41.9%), Santa Fe (30.7%), and Dona Ana (28.9%).

3.5.3. Impact of Growth

As a result of this growth, communities are struggling to keep up with the demand for affordable housing, education facilities, water and sewer services, solid waste disposal, transportation services, and police and fire protection; air pollution and traffic congestion is getting worse, groundwater pollution from septic systems is increasing, water tables are declining and there are signs of land subsidence in some metropolitan areas such as Albuquerque, and new subdivisions are being built on prime farmland. The impact of growth on community water supplies has become critical. While some municipalities have adopted end-use water conservation measures to reduce the demand for water, without a growth management plan, the number of connections and population served may continue to rise, increasing the aggregate demand on the water supply and the rate at which nonrenewable sources are depleted.

3.6. FACTORS WHICH AFFECT WATER USE IN COMMUNITIES

Water use in communities is affected by many factors which include demographic and economic characteristics; climate; availability of electric, water, and sewer services; condition of the water system and operating characteristics; and conservation measures. Water conservation is defined as any action or technology that reduces the amount of water withdrawn from water supply sources, reduces consumptive use, reduces the loss or waste of water, improves the efficiency of water use, increases recycling and reuse of water, or prevents the pollution of water. Conservation measures may contribute towards a reduction in average daily water use in a community. In addition, reducing the demand may add years to the life of aquifers that are being mined, reduce the cost of wastewater treatment, save energy, postpone or eliminate the expansion of water treatment and distribution systems, and decrease the volume of wastewater discharged into rivers and streams.

3.6.1. Rural Electrification. While not so much a factor today, historically, rural electrification has had a significant impact on water use. Up until the development of rural electrification, most rural homes lacked not only electrical appliances, but also modern plumbing due to the absence of pressurized water supply. Thus, the rural electrification program initiated the development of modern rural plumbing and greatly increased the demand for water as well as the need for septic tank waste disposal systems.

3.6.2. Type of Community. Residential communities will use less water per person than highly commercialized or industrialized communities. The type of housing that is most common will also affect use. Low density residential areas, i.e., those with few housing units per acre, with large gardens and lawns will have a higher water use per person than higher density areas with multiple family dwellings such as townhouses, condominiums, and apartment complexes.

3.6.3. Personal Income. The economic level of householder and the market value of homes influences water use because the individual in a higher-valued area is likely to have more water using appliances, ornamental shrubbery and larger lawn areas that are irrigated.

3.6.4. Climate and Season. Water use is normally highest during the warm summer months. More water is used for lawn and garden irrigation, car washing, filling swimming pools; bathing is more frequent; and evaporative coolers (swamp coolers) are more widely used. The amount of rainfall that normally falls in a specific area will affect the amount of water required for lawn and garden irrigation. During winter months in cold climates, water use may be surprisingly high. In some areas residents run water faucets continuously to prevent water from freezing and bursting the pipes. Some water systems follow the same practice to protect water mains above the frost line.

3.6.5. Sewers. Linaweaver (1967) observed that population density is not an important factor in areas with public sewers because of the dominant influence on domestic use of the economic level as reflected by the average market value of the homes. However, in septic tank areas, i.e., in areas where there are no sewers, economic level has effect on domestic use. Householders apparently use smaller amounts of water for domestic purposes because of concern that their septic tank will require more frequent cleaning, or, if they have their own well, that the pump for their well will break down and require expensive repair service.

3.6.6. Public Education. Education programs designed to increase the public's awareness about the status of a community's water supply resources and system, and measures that can be taken to conserve water may be effective in improving water use efficiency and reducing demand.

3.6.7. Metering and Rate Structuring (Water Pricing). Whether householders are billed according to metered water use or on an unmetered flat-rate basis appears to have little influence on indoor domestic use, but it has considerable influence on landscape irrigation and other outdoor water uses. When a householder can use all the water he wants and does not have to pay any more than other water users, the duration of time on, frequency on, frequency of use, and rate of use when on all tend to increase. Converting a flat-rate, non-metered system to a metered system has been shown to reduce water use by as much as 25% (AWWA, 1986). In Denver, Colorado, Galveston, Texas, the replacement or repair of residential and commercial meters that had been reading low by 11% and 39% respectively, reduced the water demand by more than 10% after customers began paying for the actual amount of water used (Anonymous, 1980). Increasing block-rate structures tend to make consumers more water conscious and discourage wasteful water use practices.

3.6.8. Recordkeeping and Water Audits. It is imperative that a recordkeeping system be established to monitor operation and maintenance costs, revenues, and the use of water. A water audit is a detailed examination of where and how much water enters the system, and where and how much leaves it. Water system audits facilitate the assessment of current water uses and provide data needed to reduce water and revenue losses, and forecast future demand. With this information, the water utility is better equipped to target conservation efforts and system 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), water used in flushing water mains or sewers, and meters out of calibration (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 leakage 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 that 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 that 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, athletic 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 that have been conducted to quantify domestic water use in American homes are summarized in the text that 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 with moderate flow restrictors; and dishwashers and washing machines with moderate water requirements—68 gpcd. Group III, homes with high efficiency low-flush toilets, low-flow showers, dishwashers and washing machines—60 gpcd. An important discovery in this study was that leakage from conventional as well as low-flush toilets was typically 4 gpcd and as high as 24 gallons per day per toilet.

3.7.1.3. Cohen (1974). General Dynamics, under the sponsorship of the U.S. Environmental Protection Agency, monitored water use in eight single-family homes with three or more occupants in two New England states and California for a period of one year. Indoor water use for these households without any water saving devices installed ranged from 43 to 94 gpcd and averaged 56 gpcd. The average water use for sewered homes was 67 gpcd as compared with 44 gpcd for those with septic tanks. While the type of waste disposal system showed a definite affect upon per capita use, variations in per capita use between households with the same type of waste disposal system were attributed to differences in family habits and life styles.

3.7.1.4. Cotter (1974). During the period 1971-73, researchers at New Mexico State University conducted a study of domestic water use at selected subdivisions in Albuquerque and Las Cruces, New Mexico. The residents monitored in this study were predominantly middle income family homes served by municipal water and sewage systems. Indoor water use for all of the homes included in the study averaged 79 gpcd.

3.7.1.5. Linaweaver (1967). From 1961 to 1966 the John Hopkins University, under the sponsorship of the Federal Housing Administration and in cooperation with 16 water utilities, conducted a study of 41 subdivisions representing the climatic diversity of regions throughout the United States to determine the water use patterns and demand rates imposed on water systems in residential areas. Indoor water use for all 41 study areas, including single-family homes and apartments, averaged 59 gpcd. Indoor per capita use for individual areas ranged from 39 gpcd in a lowered-valued area to 127 gpcd in a high-valued area. Indoor water use for specific categories was as follows: for homes with septic tanks—47 gpcd; for metered areas in the eastern United States with municipal water and sewers—51gpcd; for apartments—62 gpcd; for flat-rate areas—66 gpcd; and for metered areas in the western United States with municipal water and sewers—67 gpcd. With the exception of the septic tank areas, variations in per capita use were primarily attributed to differences in the market values of homes and population density.

3.7.1.6. Siegrist (1976). Indoor water use in 11 rural Wisconsin homes occupied by families of various sizes and economic backgrounds was monitored continuously for 434 days yielding a range of wastewater flow from 25 to 57 gpcd and an average of 43 gpcd. Comparison of winter and summer water use showed no significant seasonal differences. Siegrist observed that water use within the home has changed over the years due to the increasing number of modern appliances, e.g., automatic dishwashers, garbage disposals, and clothes washers which use more water for permanent press fabrics. Changes in the habits of householders have also affected the volume of water and how it is used. On a lighter note, Siegrist also observed that use of in-sink garbage disposals is generally less frequent in homes with big dogs because the dog is given the majority of meal scraps.

3.7.2. Outdoor Water Use

Outdoor water use varies widely depending upon the climate and irrigation requirements of lawns, gardens, trees and ornamental shrubbery; the quantity of water used for washing vehicles, driveways, sidewalks, and the exterior of homes; and filling and maintaining swimming pools, landscape ponds etc. Where outdoor water uses are a factor, they generally account for 50% to 70% of the total residential water use (indoor plus outdoor). In a study of 20 residents in Las Cruces, New Mexico (Cotter, 1974), annual water use for landscape irrigation ranged from 108,000 gallons to irrigate 3,328 square feet, to 204,000 gallons to irrigate 5,219 square feet. Where desert landscaping has been adopted, outdoor water use may account for only 3% or less of the total residential water use.

Table 3.1. Indoor water use in single and multi-family dwelling units without water conserving plumbing fixtures and appliances, in gallons per capita per day (gpcd). (Source: Brown and Caldwell, 1984).	
Items and Assumptions	GPCD
Toilets (5.5 gal/flush x 4 flush/capita day)	22.0
Toilet leakage (0.17 x 24 capita/gal day)	4.1
Showers (3.4 gpm x 4.8 minute)	16.3
Baths (50 gal/bath x .14 bath/capita day)	7.0
Faucets (Estimated)	9.0
Dishwasher (14 gal/load x .17 load/capita day)	2.4
Washing machine (55 gal/load x .30 load/capita day)	16.5
Total	77.3
Note that evaporative cooling and water softener regeneration may increase the water requirements by up to 25 gpcd.	

Table 3.2. Indoor water use in single and multi-family dwelling units with water conserving plumbing fixtures and appliances, in gallons per capita per day (gpcd). The prototype for this table is based on Brown and Caldwell's report (1984) prepared for the U.S. Department of Housing and Urban Development, Washington, DC.	
Item and Assumptions	GPCD
Toilets (1.6 gal/flush x 6 flush capita day)	9.6
Toilet leakage (0.17 x 24 gal/capita day)	4.1
Showers (2.5 gpm x 4.8 minute)	12.0
Baths (50 gal/bath x .14 bath/capita day)	7.0
Faucets (Estimated)	9.0
Dishwasher (7 gal/load x .17 load/capita day0	1.2
Washing machine (43 gal/load x .30 load/capita day)	12.9
Total	55.8
Note that evaporative cooling and water softener regeneration may increase the water requirement by up to 25 gpcd.	

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 that 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 448,607 inside the city limits, and 11,393 outside, for a total of 460,000. This total does not include the residential population at Kirtland Air Force Base which has its own water system. 2000 withdrawals for Ladera and Los Altos 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 4,355 in Bernalillo County, and 2,345 in Santa Fe County. **(c)** Irrigation withdrawals 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) 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. **(b)** 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 208 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 courses, 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): 2000 irrigation withdrawals for Clovis Golf Course, which is a self-supplied municipal facility, are included in the withdrawals 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 and Rodey 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. **(c)** Picacho Hills owns and operates one self-supplied golf course and delivers water to various satellite 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. 2000 irrigation withdrawals for the golf courses are included in the withdrawal reported for Santa Teresa.

Eddy County (15): (a) Artesia supplies all of the water distributed by the Morningside Water Co-Op. **(b)** 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. 2000 irrigation withdrawals for the Lake Carlsbad Golf Course, which is a self-supplied municipal facility, are included in the withdrawal reported for Carlsbad. **(d)** Carlsbad delivered 78.35 acre-feet to Otis and is reflected in the withdrawal reported for Otis. **(e)** In addition to the water purchased from Carlsbad, Otis produced 1219.82 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 report 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) Nogal imported 3.90 acre-feet of surface water from the Bonita pipeline. **(b)** Irrigation withdrawals 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 athletic fields, and for cooling tower makeup 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 Nogel which are in Lincoln County. **(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 194), RAD and Tuc-Cam (combined population of 672) which are outside the city limits. 2000 irrigation withdrawals 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 8,070) and Santa Fe County (population 1,616).

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. Residents are self-supplied. The population of Corrales is split between Bernalillo County (population 676) and Sandoval County (population 6,658). **(b)** 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 77.81 acre-feet of surface water from Farmington, and produced 308.0 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. 2000 irrigation withdrawals for the Pinon Hills Golf

Course, which is self-supplied municipal facility, are included in the withdrawals reported for Farmington. **(e)** In addition to 3.85 acre-feet of surface water purchased from Farmington, the Lower Valley WUA also diverted 1083.97 acre-feet of surface water from its own diversion works.

Santa Fe County (49): (a) The Sangre de Cristo Water Company serves a population of about 61,003 inside the city limits and 9,997 outside, for a total of 71,000. Las Campanas, which is reported as a separate entity in the tables, accounts for approximately 750 of the 9,997 living outside the city limits. **(b)** Santa Fe's treated sewage effluent is reused to irrigate the Santa Fe Country Club Golf Course.

Sierra County (51): The population served by the Truth or Consequences water system includes residents in Williamsburg (527), which is outside the city limits. 2000 irrigation withdrawals 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 that 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, Agriculture 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 as described above. However, there are a few farmers in the state who are experimenting with the use of subsurface drip systems to irrigate crops such as alfalfa.

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 water, 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 that 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 Natural Resources 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 that 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 that 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 2000 water use inventory, CIRs were computed for 184 different cropping patterns using 1999 weather data, 1999 irrigated acreages compiled by OSE staff with the assistance of the U.S. Department of Agriculture Farm Service Agency and New Mexico State University Agricultural Extension Agents and computer software developed by the author (Wilson, 1990). Note that 1999 crop acreages and weather data were used rather than 2000 data because drought conditions prevailed throughout the better part of the state for the first six months of 2000. Because the water use data published in this report is often used for long-term planning, the drought year data would not represent normal conditions appropriate for planning.

<u>**Step 10:**</u> 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 farm water management practices. An efficient irrigation system may result in higher plant transpiration rates that 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).

<u>**Step 11:**</u> 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.

<u>**Step 12:**</u> 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.

<u>**Step 13:**</u> Any event or condition imposed by man or nature that affects the health 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 that 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 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 on-farm are generally 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 high-pressure 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 in 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.

Step 15: 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),

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

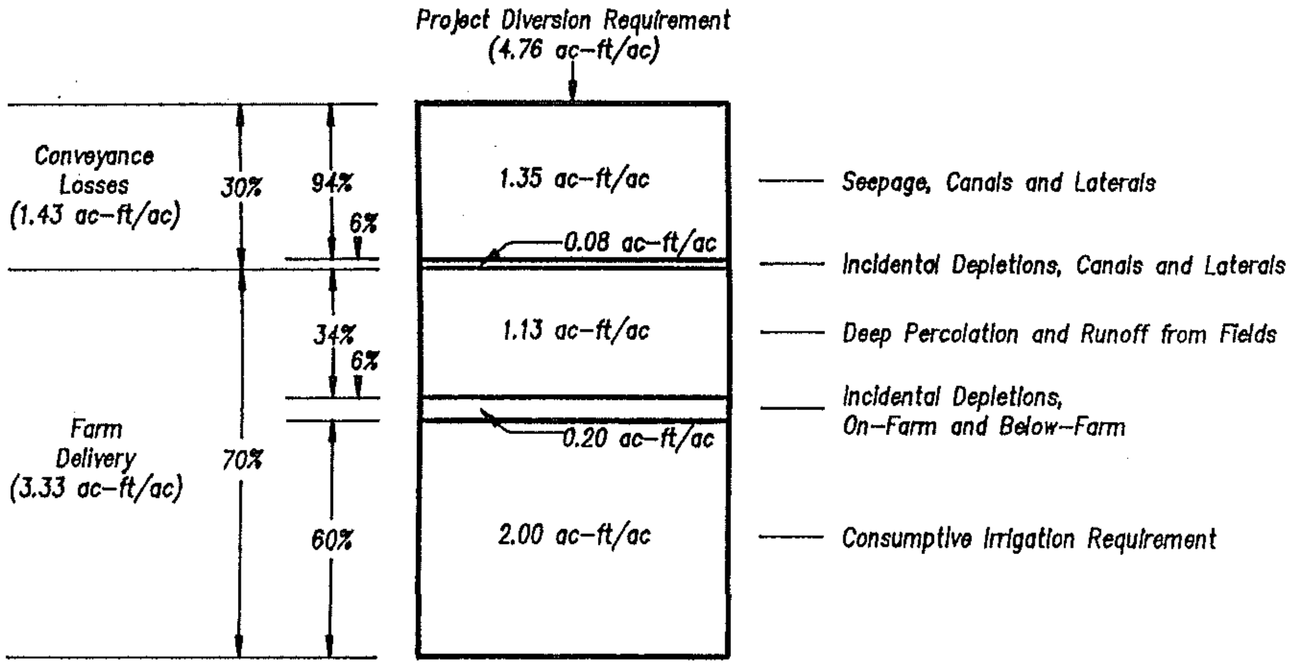

Figure 4.1 Components of the Water Demand on an Irrigation Project

THE ORINGINAL 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 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 that is outside the frost-free period, another consumptive use coefficient is generally applied that 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 (Re)

The amount of rainfall that becomes available to crops is influenced by the following factors: (1) duration and intensity of rainfall; (2) antecedent moisture condition of 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 that 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)
$1 \leq R$	Re=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; $\leq$ 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 that 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 1999 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, Curry, De Baca, Dona Ana, Grant, Harding, Hidalgo, Lea, Luna, Roosevelt, Sandoval, San Juan, San Miguel, Santa Fe, Sierra, Socorro, Torrance, Union, and Valencia.

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 requirement for pecan orchards using the original Blaney-Criddle method and 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 1999 cropping patterns.

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
(3) TPWSW=TFWSW/Ec where Ec > 0
(4) TPWGW=TFWGW (assuming the source of water is on-farm)
(5) 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 that apply to withdrawals of ground water only. Note that if the source of water is on-farm (spring or wells), IDFGWO=IDFOF. However, if the source of water is off-farm, IDFGWO=IDFCL+IDFOF.
(m) IDFGWC = sum of incidental depletion factors that 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 that apply to surface water withdrawals, i.e., IDFSW=IDFCL+IDFOF+IDFBF
(p) TFDGW = total farm depletions, ground water.
(q) TFDSW = total farm depletions, 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. ACREAGE IRRIGATED

For the purpose of this inventory, irrigated crop acreages and weather data for the 1999 calendar year was used in most areas to reflect normal conditions rather than a drought year condition. In Sierra, Dona Ana, and San Juan County, irrigated crop acreages used in this report are based on inventories conducted in calendar year 2000 using Geographic Information Systems (GIS) technology.

The total acreage irrigated on farms in 1999 was 998,793 acres. Approximately 388,157 acres or 38.86% were irrigated with surface water, and 610,636 acres or 61.14% were irrigated with ground water. Irrigated acreage and sources of irrigation water in New Mexico counties in 1999 are presented in Table 11 in the series of tables included in the latter portion of this report.

Drip irrigation accounted for 7,436 acres or 0.74%, flood for 530,754 acres or 53.14%, and sprinkler for 460,603 acres or 46.12%. Acreage irrigated by drip, flood, and sprinkler application methods and sources of water in New Mexico counties in 1999 are presented in Table 12 in the series of tables included in the latter portion of this report.

Table 4.2. Acreage irrigated in New Mexico, 1980-1999.	
Year	Acres
1980	1,087,120
1985	941,245
1990	984,285
1995	963,050
1999	998,793

4.8. SURFACE WATER SHORTAGES

In Cibola County irrigators were short 75%; in McKinley County irrigators were short 90%; and in San Juan County irrigators along the La Plata River were short 14% and the Hammond Irrigation District was short 26%.

In Colfax County shortages were about 39% on the Cimarron River and the Vermejo Conservancy District was short 46%; in Mora County irrigators along the Mora River were short 18%; in San Miguel County irrigators along the Gallinas River were short 65%; and in Quay County the Arch Hurley Conservancy District was short 56%.

In Taos County, irrigators dependent upon surface water from the Rio Costilla were short 40%; in Santa Fe County the Santa Cruz Irrigation District (part in Rio Arriba County) was short 66% and the Pojoaque Valley Irrigation District was short 28%.

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 that 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 1999, off-farm conveyance losses in canals and laterals in New Mexico were estimated at 734,050 acre-feet or about 40% 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, 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 that 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 that 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 that 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; consolidation 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 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.

Pipe conveyance systems provide a means of completely enclosing a system to avoid many of the water losses that 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 that in the past were performed by crude and inefficient machinery. This resulted in the existence of many long and winding systems that 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 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 that 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 method 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 that 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 efficiency 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 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 that 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 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 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 activity 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%, decrease 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 management 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 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 that affect livestock water use is presented. The results of a recent study of drinking water requirements for beef cattle are reviewed. The 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 not 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 2000 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, mules, and milk cows are assumed to come from ground water 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, and 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 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 that 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, 2000, the number of beef cattle (exclusive of heifers) in New Mexico was estimated as 564,000. The number of milk cows in New Mexico in 2000 was estimated as 236,000; sheep and lambs as 290,000 (New Mexico Agricultural Statistics Service, 2000). The Agricultural Statistics Service no longer reports the number of hogs, pigs, and chickens. The number of these animals used in this report are based on 1995 data. Hogs and pigs were estimated at 5,000 and chickens at 1,400,000. 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 that 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.

The average weight of a steer in New Mexico is 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 2000. 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, 1976-2000. (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
1996	69000	35000	25000
1997	70000	39000	27000
1998	67000	38000	32000
1999	76000	35000	33000
2000	80000	36000	35000

New diaries 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=20gpcd/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 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. 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 that 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 the occasional flushing of manure sump, for the cow hospital or treatment area, and for the occasional line breaks. Though most of these requirements are rather small, they are cumulatively significant I 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 may be evaporated. However, after primary treatment in holding ponds, irrigation systems are often used to dispose of the wastewater. Because of 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 2000 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 taken as 100% of the withdrawal. 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	Withrawal (GPCD)	Scenerio 1 Depletion Factor	Scenerio 1 Depletion (GPCD)	Scenerio 2 Depletion Factor	Scenerio 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	Withrawal (GPCD)	Scenerio 1 Depletion Factor	Scenerio 1 Depletion (GPCD)	Scenerio 2 Depletion Factor	Scenerio 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. However, because the probability that the potential return flow will reach an aquifer is minimal, for the purpose of this inventory, the depletion is taken as 100% of the withdrawal. Numbers in parenthesis indicate water that is recycled. Water requirements for employee residences that 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 that may be taken to conserve water are discussed in detail. The nature of water use in the industrial sector is summarized, and the factors that 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 that 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, tailing ponds. Mining also includes water used to irrigate new vegetative covers at former mine sites that 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 that 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 that follows.

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

<u>Step 2:</u> While most self-supplied commercial, industrial, mining, and power generating facilities are required to report their annual water use to the Office of the State Engineer, 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.

<u>Step 3:</u> 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 Office of the State Engineer. 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.

<u>Step 4:</u> 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 differences 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 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 2000 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	50
Day with cafeteria, but no gymnasiums or showers	20	50
Day without cafeteria, gymnasiums or showers	15	50

6.4.2. Campgrounds, Picnic Areas, and Visitor Centers

In the absence of metered data, water use at campgrounds, picnic areas, and visitor 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 2000 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	100
Campground with flush toilets	15	100
Campground with drinking water only	5	100
Picnic area with flush toilets	5	100
Visitor center	5	100

6.4.3. Golf Courses

In many communities, self-supplied golf courses represent the largest water users in the Commercial category. There are approximately 78 golf courses in New Mexico (Sun Country Amateur Golf Association, 2000) 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 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 that 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 that 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 Office of the State Engineer. For those self-supplied golf courses that 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 climate 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 that 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 coefficient (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. However, because the irrigation applications are light and frequent, the probability that the potential return flow will reach an aquifer is minimal. Therefore, for the purpose of this inventory, the depletion is taken as 100% of the withdrawal.

In 2000, self-supplied golf courses exclusive of those owned and operated by municipalities that 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 that 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 turf grass cannot be overemphasized. In southern New Mexico, there are several golf courses planted in cool season grasses that 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 that 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 that 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 windspeed 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 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 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 2000, self-supplied gas processing plants and oil refineries accounted for approximately 58% of the withdrawals and 79% 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 2000 water withdrawals from high to low, copper is first (31.6%), potash second (28.0%), secondary recovery of oil third (20.8%), uranium fourth (2.9%), coal fifth (1.7%), oil and gas well drilling sixth (1.3%), and sand and gravel washing seventh (1.1%). 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 70% of U.S. potash production in 2000. Perlite, which is used primarily in construction materials, is produced from four mines and mills which are located in Cibola, Socorro, and Taos counties. Pumice, which is used primarily in building blocks (60%), is produced from four mines that 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, McKinely, 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 fresh water 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.

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 2000. 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 50% of the electricity generated in New is consumed in the state, and 50% is exported to other states, primarily Arizona, California, and Texas. (New Mexico Energy, Minerals and Natural Resources Department, 1996). In 2000, 88.3% 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 range 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 that 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 that affect reservoir evaporation.

7.2. COMPOSITION OF CATEGORY

Reservoir Evaporation (RE). Net evaporation from man-made reservoirs that 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 that 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 that was born out of the Lake Hefner 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 meteorological 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-guage 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 that 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 that 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 (Subcommittee on Evaporation, 1934). A coefficient of 0.78 is used in the Pecos River Basin in New Mexico.

While the pan approach has a 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 that 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 that 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 that is based on the observations of someone who is familiar with the reservoir. If observations are unavailable, choose a fullness factor that in your best judgement 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 that 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 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 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 rainfall, 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 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 rainfall in a specific period of time. The term includes effective rainfall. Consumptive use may be expressed either in volume per unit area such as area-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 that 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 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 that 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 phreatophytes 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. Insteam 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 that 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, canal, 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 to obtain the net acreage irrigated.

Off-farm conveyance efficiency (E_c). 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 (E_f). 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 the 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 that is used in the determination of the farm delivery equipment.

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, that 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 (E_j). 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 that are frequently used in discussion 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.

2000 Water Use Tables

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 acronymns.

		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				X		
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. River basin (RVB) acronymns.

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, 2000.

CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
Commercial (self-supplied)	1820.28	23348.83	25169.11	1357.81	19266.02	20623.83	462.47	4082.81	4545.28
Domestic (self-supplied)	0.00	35149.51	35149.51	0.00	35149.51	35149.51	0.00	0.00	0.00
Industrial (self-supplied)	1871.46	9837.91	11709.37	1871.46	5896.12	7767.58	0.00	3941.79	3941.79
Irrigated Agriculture	1847357.00	1376597.00	3223954.00	751475.00	1021476.00	1772951.00	1095882.00	355121.00	1451003.00
Livestock (self-supplied)	3838.82	39812.73	43651.55	3838.82	39812.73	43651.55	0.00	0.00	0.00
Mining (self-supplied)	3015.49	64853.13	67868.62	1000.92	46639.24	47640.16	2014.57	18213.89	20228.46
Power (self-supplied)	50449.88	12708.05	63157.93	44184.21	12410.43	56594.64	6265.67	297.62	6563.29
Public Water Supply	37875.85	293917.32	331793.17	19237.78	161521.39	180759.17	18638.07	132395.93	151034.00
Reservoir Evaporation	431437.40	0.00	431437.40	431437.40	0.00	431437.40	0.00	0.00	0.00
State Totals	2377666.18	1856224.48	4233890.66	1254403.40	1342171.44	2596574.84	1123262.78	514053.04	1637315.82

Table 2. Water use by category expressed as a percent of state totals in New Mexico, 2000.

	TW	TD
CATEGORY	% of Total	% of Total
Commercial (self-supplied)	0.60	0.79
Domestic (self-supplied)	0.83	1.35
Industrial (self-supplied)	0.28	0.30
Irrigated Agriculture	76.14	68.28
Livestock (self-supplied)	1.03	1.68
Mining (self-supplied)	1.60	1.84
Power (self-supplied)	1.49	2.18
Public Water Supply	7.84	6.96
Reservoir Evaporation	10.19	16.62
State Totals	100.00	100.00

Table 3. Percent of withdrawals measured in each water use category in New Mexico, 2000.

CATEGORY	MSW	MGW	MTW
Commercial (self-supplied)	44.67	69.78	67.96
Domestic (self-supplied)	0.00	0.00	0.00
Industrial (self-supplied)	98.99	99.42	99.94
Irrigated Agriculture	69.80	29.37	52.54
Livestock (self-supplied)	0.00	23.18	21.14
Mining (self-supplied)	100.00	99.98	99.98
Power (self-supplied)	99.97	100.00	99.98
Public Water Supply	68.56	99.54	96.00
Reservoir Evaporation	95.77	0.00	95.77

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; MSW=percent of surface water withdrawals measured; MGW=percent of groundwater withdrawals measured; MTW=percent of total withdrawals that were measured.

Table 4. Summary of water use in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
1	Bernalillo	Commercial (self-supplied)	0.00	5503.14	5503.14	0.00	4575.47	4575.47	0.00	927.67	927.67
1	Bernalillo	Domestic (self-supplied)	0.00	5572.84	5572.84	0.00	5572.84	5572.84	0.00	0.00	0.00
1	Bernalillo	Industrial (self-supplied)	0.00	382.06	382.06	0.00	91.41	91.41	0.00	290.65	290.65
1	Bernalillo	Irrigated Agriculture	61932.00	3304.00	65236.00	16353.00	1876.00	18229.00	45579.00	1428.00	47007.00
1	Bernalillo	Livestock (self-supplied)	20.90	802.81	823.71	20.90	802.81	823.71	0.00	0.00	0.00
1	Bernalillo	Mining (self-supplied)	0.00	458.70	458.70	0.00	367.40	367.40	0.00	91.30	91.30
1	Bernalillo	Power (self-supplied)	0.00	839.53	839.53	0.00	541.91	541.91	0.00	297.62	297.62
1	Bernalillo	Public Water Supply	66.63	118309.90	118376.50	33.32	52472.00	52505.32	33.31	65837.88	65871.20
1	Bernalillo	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	62019.53	135172.96	197192.50	16407.22	66299.84	82707.06	45612.31	68873.12	114485.44
3	Catron	Commercial (self-supplied)	8.00	32.52	40.52	8.00	32.52	40.52	0.00	0.00	0.00
3	Catron	Domestic (self-supplied)	0.00	224.25	224.25	0.00	224.25	224.25	0.00	0.00	0.00
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	Irrigated Agriculture	19624.00	339.00	19963.00	2738.00	196.00	2934.00	16886.00	143.00	17029.00
3	Catron	Livestock (self-supplied)	156.82	175.36	332.18	156.82	175.36	332.18	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	Public Water Supply	0.00	169.40	169.40	0.00	71.86	71.86	0.00	97.54	97.54
3	Catron	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	19788.82	940.53	20729.35	2902.82	699.99	3602.81	16886.00	240.54	17126.54

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 in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
5	Chaves	Commercial (self-supplied)	0.00	1596.41	1596.41	0.00	629.97	629.97	0.00	966.44	966.44
5	Chaves	Domestic (self-supplied)	0.00	1039.95	1039.95	0.00	1039.95	1039.95	0.00	0.00	0.00
5	Chaves	Industrial (self-supplied)	0.00	545.74	545.74	0.00	396.94	396.94	0.00	148.80	148.80
5	Chaves	Irrigated Agriculture	24162.00	313305.00	337467.00	11877.00	211459.00	223336.00	12285.00	101846.00	114131.00
5	Chaves	Livestock (self-supplied)	237.61	10195.50	10433.11	237.61	10195.50	10433.11	0.00	0.00	0.00
5	Chaves	Mining (self-supplied)	0.00	168.75	168.75	0.00	117.39	117.39	0.00	51.36	51.36
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	Public Water Supply	0.00	18204.59	18204.59	0.00	14645.54	14645.54	0.00	3559.05	3559.05
5	Chaves	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	24399.61	345055.94	369455.55	12114.61	238484.29	250598.90	12285.00	106571.65	118856.65
6	Cibola	Commercial (self-supplied)	0.00	59.52	59.52	0.00	43.54	43.54	0.00	15.98	15.98
6	Cibola	Domestic (self-supplied)	0.00	1036.90	1036.90	0.00	1036.90	1036.90	0.00	0.00	0.00
6	Cibola	Industrial (self-supplied)	0.00	6.08	6.08	0.00	6.08	6.08	0.00	0.00	0.00
6	Cibola	Irrigated Agriculture	4357.00	492.00	4849.00	1942.00	316.00	2258.00	2415.00	176.00	2591.00
6	Cibola	Livestock (self-supplied)	54.66	222.47	277.13	54.66	222.47	277.13	0.00	0.00	0.00
6	Cibola	Mining (self-supplied)	0.00	0.14	0.14	0.00	0.08	0.08	0.00	0.06	0.06
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	Public Water Supply	0.00	3140.68	3140.68	0.00	2150.96	2150.96	0.00	989.72	989.72
6	Cibola	Reservoir Evaporation	1080.00	0.00	1080.00	1080.00	0.00	1080.00	0.00	0.00	0.00
		County Totals	5491.66	4957.79	10449.45	3076.66	3776.03	6852.69	2415.00	1181.76	3596.76

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 in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
7	Colfax	Commercial (self-supplied)	75.50	93.27	168.77	33.97	73.62	107.59	41.53	19.65	61.18
7	Colfax	Domestic (self-supplied)	0.00	88.81	88.81	0.00	88.81	88.81	0.00	0.00	0.00
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	Irrigated Agriculture	48400.00	915.00	49315.00	19912.00	595.00	20507.00	28488.00	320.00	28808.00
7	Colfax	Livestock (self-supplied)	309.03	316.02	625.05	309.03	316.02	625.05	0.00	0.00	0.00
7	Colfax	Mining (self-supplied)	569.94	0.00	569.94	307.77	0.00	307.77	262.17	0.00	262.17
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	Public Water Supply	2452.94	788.37	3241.31	1554.21	374.03	1928.24	898.73	414.34	1313.07
7	Colfax	Reservoir Evaporation	7204.20	0.00	7204.20	7204.20	0.00	7204.20	0.00	0.00	0.00
		County Totals	59011.61	2201.47	61213.08	29321.18	1447.48	30768.66	29690.43	753.99	30444.42
9	Curry	Commercial (self-supplied)	0.00	232.10	232.10	0.00	228.60	228.60	0.00	3.50	3.50
9	Curry	Domestic (self-supplied)	0.00	306.25	306.25	0.00	306.25	306.25	0.00	0.00	0.00
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	Irrigated Agriculture	0.00	195886.00	195886.00	0.00	157883.00	157883.00	0.00	38003.00	38003.00
9	Curry	Livestock (self-supplied)	140.22	4626.40	4766.62	140.22	4626.40	4766.62	0.00	0.00	0.00
9	Curry	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	Public Water Supply	0.00	8416.64	8416.64	0.00	4362.56	4362.56	0.00	4054.08	4054.08
9	Curry	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	140.22	209467.39	209607.61	140.22	167406.81	167547.03	0.00	42060.58	42060.58

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 in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
11	De Baca	Commercial (self-supplied)	0.00	3.56	3.56	0.00	3.56	3.56	0.00	0.00	0.00
11	De Baca	Domestic (self-supplied)	0.00	47.14	47.14	0.00	47.14	47.14	0.00	0.00	0.00
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	Irrigated Agriculture	39641.00	9839.00	49480.00	11240.00	8071.00	19311.00	28401.00	1768.00	30169.00
11	De Baca	Livestock (self-supplied)	85.85	350.06	435.91	85.85	350.06	435.91	0.00	0.00	0.00
11	De Baca	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	Public Water Supply	0.00	397.11	397.11	0.00	234.43	234.43	0.00	162.68	162.68
11	De Baca	Reservoir Evaporation	13387.00	0.00	13387.00	13387.00	0.00	13387.00	0.00	0.00	0.00
		County Totals	53113.85	10636.87	63750.72	24712.85	8706.19	33419.04	28401.00	1930.68	30331.68
13	Dona Ana	Commercial (self-supplied)	153.91	4596.45	4750.36	153.91	3692.99	3846.90	0.00	903.46	903.46
13	Dona Ana	Domestic (self-supplied)	0.00	987.19	987.19	0.00	987.19	987.19	0.00	0.00	0.00
13	Dona Ana	Industrial (self-supplied)	0.00	73.57	73.57	0.00	38.76	38.76	0.00	34.81	34.81
13	Dona Ana	Irrigated Agriculture	413811.00	97105.00	510916.00	160677.00	65897.00	226574.00	253134.00	31208.00	284342.00
13	Dona Ana	Livestock (self-supplied)	92.34	4497.90	4590.24	92.34	4497.90	4590.24	0.00	0.00	0.00
13	Dona Ana	Mining (self-supplied)	0.00	26.78	26.78	0.00	5.36	5.36	0.00	21.42	21.42
13	Dona Ana	Power (self-supplied)	0.00	2775.25	2775.25	0.00	2775.25	2775.25	0.00	0.00	0.00
13	Dona Ana	Public Water Supply	0.00	38156.63	38156.63	0.00	21452.68	21452.68	0.00	16703.95	16703.95
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	414057.25	148218.77	562276.02	160923.25	99347.13	260270.38	253134.00	48871.64	302005.64

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 in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
15	Eddy	Commercial (self-supplied)	68.78	1197.10	1265.88	68.78	1182.72	1251.50	0.00	14.38	14.38
15	Eddy	Domestic (self-supplied)	0.00	243.52	243.52	0.00	243.52	243.52	0.00	0.00	0.00
15	Eddy	Industrial (self-supplied)	0.00	881.10	881.10	0.00	875.12	875.12	0.00	5.98	5.98
15	Eddy	Irrigated Agriculture	104715.00	122959.00	227674.00	49795.00	92016.00	141811.00	54920.00	30943.00	85863.00
15	Eddy	Livestock (self-supplied)	96.73	2083.43	2180.16	96.73	2083.43	2180.16	0.00	0.00	0.00
15	Eddy	Mining (self-supplied)	1851.65	4376.96	6228.61	555.50	3467.40	4022.90	1296.15	909.56	2205.71
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	Public Water Supply	126.51	15991.00	16117.51	126.51	10970.42	11096.93	0.00	5020.58	5020.58
15	Eddy	Reservoir Evaporation	23306.00	0.00	23306.00	23306.00	0.00	23306.00	0.00	0.00	0.00
		County Totals	130164.67	147732.11	277896.78	73948.52	110838.61	184787.13	56216.15	36893.50	93109.65
17	Grant	Commercial (self-supplied)	0.00	242.10	242.10	0.00	144.34	144.34	0.00	97.76	97.76
17	Grant	Domestic (self-supplied)	0.00	778.01	778.01	0.00	778.01	778.01	0.00	0.00	0.00
17	Grant	Industrial (self-supplied)	0.00	10.58	10.58	0.00	10.58	10.58	0.00	0.00	0.00
17	Grant	Irrigated Agriculture	25771.00	4100.00	29871.00	4008.00	2402.00	6410.00	21763.00	1698.00	23461.00
17	Grant	Livestock (self-supplied)	201.63	217.20	418.83	201.63	217.20	418.83	0.00	0.00	0.00
17	Grant	Mining (self-supplied)	0.00	21458.18	21458.18	0.00	17187.54	17187.54	0.00	4270.64	4270.64
17	Grant	Power (self-supplied)	0.00	280.00	280.00	0.00	280.00	280.00	0.00	0.00	0.00
17	Grant	Public Water Supply	176.41	4084.08	4260.49	88.21	2583.82	2672.03	88.20	1500.26	1588.46
17	Grant	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	26149.04	31170.15	57319.19	4297.84	23603.49	27901.33	21851.20	7566.66	29417.86

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 in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
19	Guadalupe	Commercial (self-supplied)	0.00	29.28	29.28	0.00	25.43	25.43	0.00	3.85	3.85
19	Guadalupe	Domestic (self-supplied)	0.00	18.37	18.37	0.00	18.37	18.37	0.00	0.00	0.00
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	Irrigated Agriculture	12685.00	1186.00	13871.00	5016.00	692.00	5708.00	7669.00	494.00	8163.00
19	Guadalupe	Livestock (self-supplied)	75.36	317.53	392.89	75.36	317.53	392.89	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	Public Water Supply	0.00	898.88	898.88	0.00	449.44	449.44	0.00	449.44	449.44
19	Guadalupe	Reservoir Evaporation	12888.00	0.00	12888.00	12888.00	0.00	12888.00	0.00	0.00	0.00
		County Totals	25648.36	2450.06	28098.42	17979.36	1502.77	19482.13	7669.00	947.29	8616.29
21	Harding	Commercial (self-supplied)	0.00	0.06	0.06	0.00	0.06	0.06	0.00	0.00	0.00
21	Harding	Domestic (self-supplied)	0.00	34.59	34.59	0.00	34.59	34.59	0.00	0.00	0.00
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	Irrigated Agriculture	0.00	3654.00	3654.00	0.00	3167.00	3167.00	0.00	487.00	487.00
21	Harding	Livestock (self-supplied)	89.71	363.24	452.95	89.71	363.24	452.95	0.00	0.00	0.00
21	Harding	Mining (self-supplied)	0.00	0.30	0.30	0.00	0.30	0.30	0.00	0.00	0.00
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	Public Water Supply	0.00	83.59	83.59	0.00	41.80	41.80	0.00	41.79	41.79
21	Harding	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	89.71	4135.78	4225.49	89.71	3606.99	3696.70	0.00	528.79	528.79

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Table 4. Summary of water use in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
23	Hidalgo	Commercial (self-supplied)	0.00	512.40	512.40	0.00	508.53	508.53	0.00	3.87	3.87
23	Hidalgo	Domestic (self-supplied)	0.00	193.20	193.20	0.00	193.20	193.20	0.00	0.00	0.00
23	Hidalgo	Industrial (self-supplied)	0.00	6.19	6.19	0.00	3.12	3.12	0.00	3.07	3.07
23	Hidalgo	Irrigated Agriculture	8741.00	33143.00	41884.00	3931.00	20741.00	24672.00	4810.00	12402.00	17212.00
23	Hidalgo	Livestock (self-supplied)	60.49	259.02	319.51	60.49	259.02	319.51	0.00	0.00	0.00
23	Hidalgo	Mining (self-supplied)	0.00	4332.01	4332.01	0.00	4115.41	4115.41	0.00	216.60	216.60
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	Public Water Supply	0.00	906.77	906.77	0.00	453.38	453.38	0.00	453.39	453.39
23	Hidalgo	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	8801.49	39352.59	48154.08	3991.49	26273.66	30265.15	4810.00	13078.93	17888.93
25	Lea	Commercial (self-supplied)	0.00	1652.97	1652.97	0.00	1562.47	1562.47	0.00	90.50	90.50
25	Lea	Domestic (self-supplied)	0.00	1302.95	1302.95	0.00	1302.95	1302.95	0.00	0.00	0.00
25	Lea	Industrial (self-supplied)	0.00	3009.96	3009.96	0.00	2446.71	2446.71	0.00	563.25	563.25
25	Lea	Irrigated Agriculture	0.00	129792.00	129792.00	0.00	105861.00	105861.00	0.00	23931.00	23931.00
25	Lea	Livestock (self-supplied)	65.62	2732.10	2797.72	65.62	2732.10	2797.72	0.00	0.00	0.00
25	Lea	Mining (self-supplied)	0.00	28294.21	28294.21	0.00	19236.34	19236.34	0.00	9057.87	9057.87
25	Lea	Power (self-supplied)	0.00	5093.00	5093.00	0.00	5093.00	5093.00	0.00	0.00	0.00
25	Lea	Public Water Supply	0.00	14725.89	14725.89	0.00	7362.95	7362.95	0.00	7362.94	7362.94
25	Lea	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	65.62	186603.08	186668.70	65.62	145597.52	145663.14	0.00	41005.56	41005.56

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Table 4. Summary of water use in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
27	Lincoln	Commercial (self-supplied)	0.00	1039.82	1039.82	0.00	906.10	906.10	0.00	133.72	133.72
27	Lincoln	Domestic (self-supplied)	0.00	310.95	310.95	0.00	310.95	310.95	0.00	0.00	0.00
27	Lincoln	Industrial (self-supplied)	0.00	1.67	1.67	0.00	1.67	1.67	0.00	0.00	0.00
27	Lincoln	Irrigated Agriculture	17151.00	6099.00	23250.00	6001.00	3147.00	9148.00	11150.00	2952.00	14102.00
27	Lincoln	Livestock (self-supplied)	294.82	309.76	604.58	294.82	309.76	604.58	0.00	0.00	0.00
27	Lincoln	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	Public Water Supply	1922.76	2977.26	4900.02	573.71	1048.29	1622.00	1349.05	1928.97	3278.02
27	Lincoln	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	19368.58	10738.46	30107.04	6869.53	5723.77	12593.30	12499.05	5014.69	17513.74
28	Los Alamos	Commercial (self-supplied)	0.00	1.22	1.22	0.00	1.22	1.22	0.00	0.00	0.00
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	Industrial (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	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)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
28	Los Alamos	Public Water Supply	0.00	4607.77	4607.77	0.00	4423.46	4423.46	0.00	184.31	184.31
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	0.00	4608.99	4608.99	0.00	4424.68	4424.68	0.00	184.31	184.31

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Table 4. Summary of water use in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
29	Luna	Commercial (self-supplied)	0.00	185.89	185.89	0.00	175.55	175.55	0.00	10.34	10.34
29	Luna	Domestic (self-supplied)	0.00	717.45	717.45	0.00	717.45	717.45	0.00	0.00	0.00
29	Luna	Industrial (self-supplied)	0.00	54.97	54.97	0.00	42.29	42.29	0.00	12.68	12.68
29	Luna	Irrigated Agriculture	22509.00	91674.00	114183.00	10425.00	57786.00	68211.00	12084.00	33888.00	45972.00
29	Luna	Livestock (self-supplied)	82.89	341.57	424.46	82.89	341.57	424.46	0.00	0.00	0.00
29	Luna	Mining (self-supplied)	0.00	41.37	41.37	0.00	26.63	26.63	0.00	14.74	14.74
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	Public Water Supply	0.00	4387.65	4387.65	0.00	2193.83	2193.83	0.00	2193.82	2193.82
29	Luna	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	22591.89	97402.90	119994.79	10507.89	61283.32	71791.21	12084.00	36119.58	48203.58
31	McKinley	Commercial (self-supplied)	0.00	83.90	83.90	0.00	55.90	55.90	0.00	28.00	28.00
31	McKinley	Domestic (self-supplied)	0.00	3326.32	3326.32	0.00	3326.32	3326.32	0.00	0.00	0.00
31	McKinley	Industrial (self-supplied)	0.00	1005.24	1005.24	0.00	1005.24	1005.24	0.00	0.00	0.00
31	McKinley	Irrigated Agriculture	2534.00	0.00	2534.00	1142.00	0.00	1142.00	1392.00	0.00	1392.00
31	McKinley	Livestock (self-supplied)	105.61	426.99	532.60	105.61	426.99	532.60	0.00	0.00	0.00
31	McKinley	Mining (self-supplied)	0.00	2555.22	2555.22	0.00	1307.43	1307.43	0.00	1247.79	1247.79
31	McKinley	Power (self-supplied)	0.00	3703.31	3703.31	0.00	3703.31	3703.31	0.00	0.00	0.00
31	McKinley	Public Water Supply	0.00	5332.07	5332.07	0.00	4755.04	4755.04	0.00	577.03	577.03
31	McKinley	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	2639.61	16433.05	19072.66	1247.61	14580.23	15827.84	1392.00	1852.82	3244.82

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Table 4. Summary of water use in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
33	Mora	Commercial (self-supplied)	0.00	6.41	6.41	0.00	6.41	6.41	0.00	0.00	0.00
33	Mora	Domestic (self-supplied)	0.00	343.12	343.12	0.00	343.12	343.12	0.00	0.00	0.00
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	Irrigated Agriculture	32626.00	45.00	32671.00	15196.00	38.00	15234.00	17430.00	7.00	17437.00
33	Mora	Livestock (self-supplied)	134.91	145.50	280.41	134.91	145.50	280.41	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	Public Water Supply	0.00	305.27	305.27	0.00	176.58	176.58	0.00	128.69	128.69
33	Mora	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	32760.91	845.30	33606.21	15330.91	709.61	16040.52	17430.00	135.69	17565.69
35	Otero	Commercial (self-supplied)	746.35	168.56	914.91	680.17	166.23	846.40	66.18	2.33	68.51
35	Otero	Domestic (self-supplied)	0.00	1127.09	1127.09	0.00	1127.09	1127.09	0.00	0.00	0.00
35	Otero	Industrial (self-supplied)	0.00	10.61	10.61	0.00	10.61	10.61	0.00	0.00	0.00
35	Otero	Irrigated Agriculture	9793.00	23980.00	33773.00	4695.00	19343.00	24038.00	5098.00	4637.00	9735.00
35	Otero	Livestock (self-supplied)	93.69	204.85	298.54	93.69	204.85	298.54	0.00	0.00	0.00
35	Otero	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	Public Water Supply	6843.88	5486.14	12330.02	3423.37	2877.92	6301.29	3420.51	2608.22	6028.73
35	Otero	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	17476.92	30977.25	48454.17	8892.23	23729.70	32621.93	8584.69	7247.55	15832.24

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Table 4. Summary of water use in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
37	Quay	Commercial (self-supplied)	0.00	10.54	10.54	0.00	10.54	10.54	0.00	0.00	0.00
37	Quay	Domestic (self-supplied)	0.00	138.27	138.27	0.00	138.27	138.27	0.00	0.00	0.00
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	Irrigated Agriculture	107954.00	6546.00	114500.00	34912.00	5523.00	40435.00	73042.00	1023.00	74065.00
37	Quay	Livestock (self-supplied)	86.50	791.90	878.40	86.50	791.90	878.40	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	Public Water Supply	0.00	2172.44	2172.44	0.00	1255.65	1255.65	0.00	916.79	916.79
37	Quay	Reservoir Evaporation	32938.00	0.00	32938.00	32938.00	0.00	32938.00	0.00	0.00	0.00
		County Totals	140978.50	9659.15	150637.65	67936.50	7719.36	75655.86	73042.00	1939.79	74981.79
39	Rio Arriba	Commercial (self-supplied)	215.89	279.67	495.56	68.10	190.01	258.11	147.79	89.66	237.45
39	Rio Arriba	Domestic (self-supplied)	0.00	1950.57	1950.57	0.00	1950.57	1950.57	0.00	0.00	0.00
39	Rio Arriba	Industrial (self-supplied)	0.00	136.94	136.94	0.00	131.27	131.27	0.00	5.67	5.67
39	Rio Arriba	Irrigated Agriculture	110595.00	1258.00	111853.00	40615.00	679.00	41294.00	69980.00	579.00	70559.00
39	Rio Arriba	Livestock (self-supplied)	167.10	177.50	344.60	167.10	177.50	344.60	0.00	0.00	0.00
39	Rio Arriba	Mining (self-supplied)	0.00	96.61	96.61	0.00	12.44	12.44	0.00	84.17	84.17
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	Public Water Supply	721.96	1718.67	2440.63	315.54	545.62	861.16	406.42	1173.05	1579.47
39	Rio Arriba	Reservoir Evaporation	25535.50	0.00	25535.50	25535.50	0.00	25535.50	0.00	0.00	0.00
		County Totals	137235.45	5617.96	142853.41	66701.24	3686.41	70387.65	70534.21	1931.55	72465.76

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 in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
41	Roosevelt	Commercial (self-supplied)	0.00	140.83	140.83	0.00	140.83	140.83	0.00	0.00	0.00
41	Roosevelt	Domestic (self-supplied)	0.00	239.71	239.71	0.00	239.71	239.71	0.00	0.00	0.00
41	Roosevelt	Industrial (self-supplied)	0.00	0.11	0.11	0.00	0.11	0.11	0.00	0.00	0.00
41	Roosevelt	Irrigated Agriculture	0.00	148714.00	148714.00	0.00	127396.00	127396.00	0.00	21318.00	21318.00
41	Roosevelt	Livestock (self-supplied)	69.77	4559.51	4629.28	69.77	4559.51	4629.28	0.00	0.00	0.00
41	Roosevelt	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
41	Roosevelt	Power (self-supplied)	0.00	16.96	16.96	0.00	16.96	16.96	0.00	0.00	0.00
41	Roosevelt	Public Water Supply	0.00	4524.90	4524.90	0.00	3021.41	3021.41	0.00	1503.49	1503.49
41	Roosevelt	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	69.77	158196.02	158265.79	69.77	135374.53	135444.30	0.00	22821.49	22821.49
43	Sandoval	Commercial (self-supplied)	10.00	2079.14	2089.14	10.00	2000.03	2010.03	0.00	79.11	79.11
43	Sandoval	Domestic (self-supplied)	0.00	2829.84	2829.84	0.00	2829.84	2829.84	0.00	0.00	0.00
43	Sandoval	Industrial (self-supplied)	0.00	3611.81	3611.81	0.00	738.43	738.43	0.00	2873.38	2873.38
43	Sandoval	Irrigated Agriculture	61513.00	824.00	62337.00	17971.00	450.00	18421.00	43542.00	374.00	43916.00
43	Sandoval	Livestock (self-supplied)	124.02	134.57	258.59	124.02	134.57	258.59	0.00	0.00	0.00
43	Sandoval	Mining (self-supplied)	0.00	438.20	438.20	0.00	350.37	350.37	0.00	87.83	87.83
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	Public Water Supply	159.16	12219.79	12378.95	59.48	9897.42	9956.90	99.68	2322.37	2422.05
43	Sandoval	Reservoir Evaporation	10370.00	0.00	10370.00	10370.00	0.00	10370.00	0.00	0.00	0.00
		County Totals	72176.18	22137.35	94313.53	28534.50	16400.66	44935.16	43641.68	5736.69	49378.37

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 in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
45	San Juan	Commercial (self-supplied)	152.86	61.68	214.54	143.18	45.18	188.36	9.68	16.50	26.18
45	San Juan	Domestic (self-supplied)	0.00	1318.39	1318.39	0.00	1318.39	1318.39	0.00	0.00	0.00
45	San Juan	Industrial (self-supplied)	1871.46	10.14	1881.60	1871.46	10.14	1881.60	0.00	0.00	0.00
45	San Juan	Irrigated Agriculture	221100.00	0.00	221100.00	171044.00	0.00	171044.00	50056.00	0.00	50056.00
45	San Juan	Livestock (self-supplied)	102.20	425.28	527.48	102.20	425.28	527.48	0.00	0.00	0.00
45	San Juan	Mining (self-supplied)	78.90	0.00	78.90	50.10	0.00	50.10	28.80	0.00	28.80
45	San Juan	Power (self-supplied)	50449.88	0.00	50449.88	44184.21	0.00	44184.21	6265.67	0.00	6265.67
45	San Juan	Public Water Supply	19024.83	331.35	19356.18	9926.94	165.68	10092.62	9097.89	165.67	9263.56
45	San Juan	Reservoir Evaporation	34323.50	0.00	34323.50	34323.50	0.00	34323.50	0.00	0.00	0.00
		County Totals	327103.63	2146.84	329250.47	261645.59	1964.67	263610.26	65458.04	182.17	65640.21
47	San Miguel	Commercial (self-supplied)	164.14	186.08	350.22	164.14	167.76	331.90	0.00	18.32	18.32
47	San Miguel	Domestic (self-supplied)	0.00	989.49	989.49	0.00	989.49	989.49	0.00	0.00	0.00
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	Irrigated Agriculture	47838.00	0.00	47838.00	18370.00	0.00	18370.00	29468.00	0.00	29468.00
47	San Miguel	Livestock (self-supplied)	296.84	342.75	639.59	296.84	342.75	639.59	0.00	0.00	0.00
47	San Miguel	Mining (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
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	Public Water Supply	2607.31	351.46	2958.77	921.79	197.21	1119.00	1685.52	154.25	1839.77
47	San Miguel	Reservoir Evaporation	47653.40	0.00	47653.40	47653.40	0.00	47653.40	0.00	0.00	0.00
		County Totals	98559.69	1869.78	100429.47	67406.17	1697.21	69103.38	31153.52	172.57	31326.09

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Table 4. Summary of water use in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
49	Santa Fe	Commercial (self-supplied)	19.34	539.88	559.22	2.51	424.26	426.77	16.83	115.62	132.45
49	Santa Fe	Domestic (self-supplied)	0.00	3199.32	3199.32	0.00	3199.32	3199.32	0.00	0.00	0.00
49	Santa Fe	Industrial (self-supplied)	0.00	22.02	22.02	0.00	22.02	22.02	0.00	0.00	0.00
49	Santa Fe	Irrigated Agriculture	16791.00	16573.00	33364.00	7580.00	12208.00	19788.00	9211.00	4365.00	13576.00
49	Santa Fe	Livestock (self-supplied)	146.11	153.26	299.37	146.11	153.26	299.37	0.00	0.00	0.00
49	Santa Fe	Mining (self-supplied)	0.00	18.82	18.82	0.00	2.40	2.40	0.00	16.42	16.42
49	Santa Fe	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
49	Santa Fe	Public Water Supply	3681.99	11474.75	15156.74	2198.58	6788.78	8987.36	1483.41	4685.97	6169.38
49	Santa Fe	Reservoir Evaporation	139.00	0.00	139.00	139.00	0.00	139.00	0.00	0.00	0.00
		County Totals	20777.44	31981.05	52758.49	10066.20	22798.04	32864.24	10711.24	9183.01	19894.25
51	Sierra	Commercial (self-supplied)	0.00	436.28	436.28	0.00	388.39	388.39	0.00	47.89	47.89
51	Sierra	Domestic (self-supplied)	0.00	101.62	101.62	0.00	101.62	101.62	0.00	0.00	0.00
51	Sierra	Industrial (self-supplied)	0.00	0.10	0.10	0.00	0.10	0.10	0.00	0.00	0.00
51	Sierra	Irrigated Agriculture	23869.00	11342.00	35211.00	11069.00	7149.00	18218.00	12800.00	4193.00	16993.00
51	Sierra	Livestock (self-supplied)	71.94	631.03	702.97	71.94	631.03	702.97	0.00	0.00	0.00
51	Sierra	Mining (self-supplied)	0.00	4.86	4.86	0.00	0.97	0.97	0.00	3.89	3.89
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	Public Water Supply	0.00	1913.60	1913.60	0.00	1062.32	1062.32	0.00	851.28	851.28
51	Sierra	Reservoir Evaporation	245964.00	0.00	245964.00	245964.00	0.00	245964.00	0.00	0.00	0.00
		County Totals	269904.94	14429.49	284334.43	257104.94	9333.43	266438.37	12800.00	5096.06	17896.06

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 in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
53	Socorro	Commercial (self-supplied)	0.00	1274.26	1274.26	0.00	896.47	896.47	0.00	377.79	377.79
53	Socorro	Domestic (self-supplied)	0.00	456.93	456.93	0.00	456.93	456.93	0.00	0.00	0.00
53	Socorro	Industrial (self-supplied)	0.00	1.86	1.86	0.00	1.86	1.86	0.00	0.00	0.00
53	Socorro	Irrigated Agriculture	143516.00	33530.00	177046.00	40411.00	18969.00	59380.00	103105.00	14561.00	117666.00
53	Socorro	Livestock (self-supplied)	59.36	1013.65	1073.01	59.36	1013.65	1073.01	0.00	0.00	0.00
53	Socorro	Mining (self-supplied)	0.00	1.86	1.86	0.00	1.86	1.86	0.00	0.00	0.00
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	Public Water Supply	0.00	2575.87	2575.87	0.00	958.40	958.40	0.00	1617.47	1617.47
53	Socorro	Reservoir Evaporation	7570.00	0.00	7570.00	7570.00	0.00	7570.00	0.00	0.00	0.00
		County Totals	151145.36	38854.43	189999.79	48040.36	22298.17	70338.53	103105.00	16556.26	119661.26
55	Taos	Commercial (self-supplied)	205.51	204.35	409.86	25.05	176.31	201.36	180.46	28.04	208.50
55	Taos	Domestic (self-supplied)	0.00	1376.26	1376.26	0.00	1376.26	1376.26	0.00	0.00	0.00
55	Taos	Industrial (self-supplied)	0.00	2.54	2.54	0.00	2.54	2.54	0.00	0.00	0.00
55	Taos	Irrigated Agriculture	97461.00	2096.00	99557.00	37614.00	1654.00	39268.00	59847.00	442.00	60289.00
55	Taos	Livestock (self-supplied)	40.31	59.52	99.83	40.31	59.52	99.83	0.00	0.00	0.00
55	Taos	Mining (self-supplied)	515.00	2578.64	3093.64	87.55	438.40	525.95	427.45	2140.24	2567.69
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	Public Water Supply	91.47	2133.66	2225.13	16.14	901.25	917.39	75.33	1232.41	1307.74
55	Taos	Reservoir Evaporation	578.00	0.00	578.00	578.00	0.00	578.00	0.00	0.00	0.00
		County Totals	98891.29	8450.97	107342.26	38361.05	4608.28	42969.33	60530.24	3842.69	64372.93

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 in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
57	Torrance	Commercial (self-supplied)	0.00	80.83	80.83	0.00	70.03	70.03	0.00	10.80	10.80
57	Torrance	Domestic (self-supplied)	0.00	1003.65	1003.65	0.00	1003.65	1003.65	0.00	0.00	0.00
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	Irrigated Agriculture	0.00	33609.00	33609.00	0.00	25890.00	25890.00	0.00	7719.00	7719.00
57	Torrance	Livestock (self-supplied)	51.63	475.96	527.59	51.63	475.96	527.59	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	Public Water Supply	0.00	939.07	939.07	0.00	469.54	469.54	0.00	469.53	469.53
57	Torrance	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	51.63	36125.08	36176.71	51.63	27925.75	27977.38	0.00	8199.33	8199.33
59	Union	Commercial (self-supplied)	0.00	8.19	8.19	0.00	8.19	8.19	0.00	0.00	0.00
59	Union	Domestic (self-supplied)	0.00	130.12	130.12	0.00	130.12	130.12	0.00	0.00	0.00
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	Irrigated Agriculture	6385.00	77185.00	83570.00	2919.00	66226.00	69145.00	3466.00	10959.00	14425.00
59	Union	Livestock (self-supplied)	176.06	1591.01	1767.07	176.06	1591.01	1767.07	0.00	0.00	0.00
59	Union	Mining (self-supplied)	0.00	0.12	0.12	0.00	0.12	0.12	0.00	0.00	0.00
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	Public Water Supply	0.00	584.60	584.60	0.00	292.30	292.30	0.00	292.30	292.30
59	Union	Reservoir Evaporation	478.80	0.00	478.80	478.80	0.00	478.80	0.00	0.00	0.00
		County Totals	7039.86	79499.04	86538.90	3573.86	68247.74	71821.60	3466.00	11251.30	14717.30

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 in acre-feet, in New Mexico counties, 2000.

CN	COUNTY	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
61	Valencia	Commercial (self-supplied)	0.00	810.42	810.42	0.00	732.79	732.79	0.00	77.63	77.63
61	Valencia	Domestic (self-supplied)	0.00	3716.42	3716.42	0.00	3716.42	3716.42	0.00	0.00	0.00
61	Valencia	Industrial (self-supplied)	0.00	48.05	48.05	0.00	44.55	44.55	0.00	3.50	3.50
61	Valencia	Irrigated Agriculture	161883.00	7103.00	168986.00	44022.00	3846.00	47868.00	117861.00	3257.00	121118.00
61	Valencia	Livestock (self-supplied)	48.08	869.06	917.14	48.08	869.06	917.14	0.00	0.00	0.00
61	Valencia	Mining (self-supplied)	0.00	1.40	1.40	0.00	1.40	1.40	0.00	0.00	0.00
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	Public Water Supply	0.00	5607.49	5607.49	0.00	2864.83	2864.83	0.00	2742.66	2742.66
61	Valencia	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
		County Totals	161931.08	18155.84	180086.92	44070.08	12075.05	56145.13	117861.00	6080.79	123941.79
		State Totals	2409644.17	1856224.44	4265868.61	1286381.41	1342171.41	2628552.82	1123262.76	514053.03	1637315.79

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 in acre-feet, in New Mexico river basins, 2000.

RVB	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
AWR	Commercial (self-supplied)	239.64	192.90	432.54	198.11	166.44	364.55	41.53	26.46	67.99
AWR	Domestic (self-supplied)	0.00	802.34	802.34	0.00	802.34	802.34	0.00	0.00	0.00
AWR	Industrial (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AWR	Irrigated Agriculture	206589.00	94771.00	301360.00	77435.00	79538.00	156973.00	129154.00	15233.00	144387.00
AWR	Livestock (self-supplied)	991.66	3686.72	4678.38	991.66	3686.72	4678.38	0.00	0.00	0.00
AWR	Mining (self-supplied)	569.94	0.42	570.36	307.77	0.42	308.19	262.17	0.00	262.17
AWR	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AWR	Public Water Supply	2664.48	3931.73	6596.21	1659.98	2139.08	3799.06	1004.50	1792.65	2797.15
AWR	Reservoir Evaporation	80390.00	0.00	80390.00	80390.40	0.00	80390.40	-0.40	0.00	-0.40
	River Basin Totals	291444.72	103385.11	394829.83	160982.92	86333.00	247315.92	130461.80	17052.11	147513.91
LC	Commercial (self-supplied)	8.00	833.60	841.60	8.00	714.54	722.54	0.00	119.06	119.06
LC	Domestic (self-supplied)	0.00	2719.03	2719.03	0.00	2719.03	2719.03	0.00	0.00	0.00
LC	Industrial (self-supplied)	0.00	1020.32	1020.32	0.00	1017.25	1017.25	0.00	3.07	3.07
LC	Irrigated Agriculture	54292.00	34263.00	88555.00	10801.00	21346.00	32147.00	43491.00	12917.00	56408.00
LC	Livestock (self-supplied)	317.19	736.98	1054.17	317.19	736.97	1054.16	0.00	0.01	0.01
LC	Mining (self-supplied)	0.00	2877.10	2877.10	0.00	2357.36	2357.36	0.00	519.74	519.74
LC	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LC	Public Water Supply	132.60	6311.91	6444.51	66.30	5232.11	5298.41	66.30	1079.80	1146.10
LC	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	River Basin Totals	54749.79	48761.94	103511.73	11192.49	34123.26	45315.75	43557.30	14638.68	58195.98

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 in acre-feet, in New Mexico river basins, 2000.

RVB	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
P	Commercial (self-supplied)	552.78	3978.36	4531.14	497.38	2848.46	3345.84	55.40	1129.90	1185.30
P	Domestic (self-supplied)	0.00	2969.82	2969.82	0.00	2969.82	2969.82	0.00	0.00	0.00
P	Industrial (self-supplied)	0.00	3643.36	3643.36	0.00	3068.94	3068.94	0.00	574.42	574.42
P	Irrigated Agriculture	236807.00	460093.00	696900.00	98639.00	321153.00	419792.00	138168.00	138940.00	277108.00
P	Livestock (self-supplied)	925.10	12254.17	13179.27	925.10	12254.17	13179.27	0.00	0.00	0.00
P	Mining (self-supplied)	1851.65	16240.26	18091.91	555.60	10246.94	10802.54	1296.05	5993.32	7289.37
P	Power (self-supplied)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
P	Public Water Supply	4424.56	41245.03	45669.59	1506.00	28757.71	30263.71	2918.56	12487.32	15405.88
P	Reservoir Evaporation	52180.00	0.00	52180.00	52180.00	0.00	52180.00	0.00	0.00	0.00
	River Basin Totals	296741.09	540424.00	837165.09	154303.08	381299.04	535602.12	142438.01	159124.96	301562.97
RG	Commercial (self-supplied)	867.00	16483.60	17350.60	511.13	13786.68	14297.81	355.87	2696.92	3052.79
RG	Domestic (self-supplied)	0.00	24422.93	24422.93	0.00	24422.93	24422.93	0.00	0.00	0.00
RG	Industrial (self-supplied)	0.00	4335.97	4335.97	0.00	1120.94	1120.94	0.00	3215.03	3215.03
RG	Irrigated Agriculture	1126975.00	326916.00	1453891.00	392878.00	218532.00	611410.00	734097.00	108384.00	842481.00
RG	Livestock (self-supplied)	1215.86	11312.34	12528.20	1215.86	11312.34	12528.20	0.00	0.00	0.00
RG	Mining (self-supplied)	515.00	29135.68	29650.68	87.55	21460.33	21547.88	427.45	7675.35	8102.80
RG	Power (self-supplied)	0.00	7598.09	7598.09	0.00	7300.47	7300.47	0.00	297.62	297.62
RG	Public Water Supply	11131.08	216783.10	227914.20	5829.41	111656.50	117485.90	5301.67	105126.60	110428.30
RG	Reservoir Evaporation	264485.00	0.00	264485.00	264485.00	0.00	264485.00	0.00	0.00	0.00
	River Basin Totals	1405188.94	636987.72	2042176.66	665006.95	409592.19	1074599.14	740181.99	227395.53	967577.52

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 in acre-feet, in New Mexico river basins, 2000.

RVB	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
TG	Commercial (self-supplied)	0.00	1796.70	1796.70	0.00	1702.70	1702.70	0.00	94.00	94.00
TG	Domestic (self-supplied)	0.00	1635.64	1635.64	0.00	1635.64	1635.64	0.00	0.00	0.00
TG	Industrial (self-supplied)	0.00	795.21	795.21	0.00	651.61	651.61	0.00	143.60	143.60
TG	Irrigated Agriculture	0.00	460554.00	460554.00	0.00	380907.00	380907.00	0.00	79647.00	79647.00
TG	Livestock (self-supplied)	196.99	11208.34	11405.33	196.99	11208.34	11405.33	0.00	0.00	0.00
TG	Mining (self-supplied)	0.00	16599.66	16599.66	0.00	12574.19	12574.19	0.00	4025.47	4025.47
TG	Power (self-supplied)	0.00	5109.96	5109.96	0.00	5109.96	5109.96	0.00	0.00	0.00
TG	Public Water Supply	0.00	25284.41	25284.41	0.00	13555.41	13555.41	0.00	11729.00	11729.00
TG	Reservoir Evaporation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	River Basin Totals	196.99	522983.92	523180.91	196.99	427344.85	427541.84	0.00	95639.07	95639.07
UC	Commercial (self-supplied)	152.86	63.68	216.54	143.18	47.18	190.36	9.68	16.50	26.18
UC	Domestic (self-supplied)	0.00	2599.74	2599.74	0.00	2599.74	2599.74	0.00	0.00	0.00
UC	Industrial (self-supplied)	1871.46	43.04	1914.50	1871.46	37.37	1908.83	0.00	5.67	5.67
UC	Irrigated Agriculture	222694.00	0.00	222694.00	171722.00	0.00	171722.00	50972.00	0.00	50972.00
UC	Livestock (self-supplied)	192.01	614.19	806.20	192.01	614.19	806.20	0.00	0.00	0.00
UC	Mining (self-supplied)	78.90	0.00	78.90	50.10	0.00	50.10	28.80	0.00	28.80
UC	Power (self-supplied)	50449.88	0.00	50449.88	44184.21	0.00	44184.21	6265.67	0.00	6265.67
UC	Public Water Supply	19523.13	361.16	19884.29	10176.09	180.58	10356.67	9347.04	180.58	9527.62
UC	Reservoir Evaporation	34382.00	0.00	34382.00	34382.00	0.00	34382.00	0.00	0.00	0.00
	River Basin Totals	329344.24	3681.81	333026.05	262721.05	3479.06	266200.11	66623.19	202.75	66825.94

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 in acre-feet, in New Mexico river basins, 2000.

RVB	CATEGORY	WSW	WGW	TW	DSW	DGW	TD	RFSW	RFGW	TRF
	State Totals	2377665.77	1856224.50	4233890.27	1254403.48	1342171.40	2596574.88	1123262.29	514053.10	1637315.39

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 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
1	RG	Alamo Acres MHP	R	10	107	0		Y	0.00	1.20	0.00	0.50	0.00	0.60
1	RG	Albuquerque Water System	U	460000	204	4		Y	0.00	105352.30	0.00	0.42	0.00	44247.95
1	RG	Baker's/ Hamilton MHP	R	290	121	0		Y	0.00	39.24	0.00	0.50	0.00	19.62
1	RG	Barcelona MHP	R	205	120	0		Y	0.00	27.44	0.00	0.50	0.00	13.72
1	RG	Bearcat Homeowners Assn.(1995)	R	64	75	0		Y	0.00	5.36	0.00	0.50	0.00	2.68
1	RG	Carnual/Monticello/Juan Rd Water	R	35	99	0		Y	0.00	3.88	0.00	0.50	0.00	1.94
1	RG	Chilili WUA (1995)	R	90	70	0		Y	0.00	7.05	0.00	0.50	0.00	3.53
1	RG	Coronado Village MHP	U	800	88	0		Y	0.00	78.61	0.00	0.50	0.00	39.31
1	RG	Corrales--self-supplied homes (prt)	U	676	150	0	-	N	0.00	113.58	0.00	1.00	0.00	113.58
1	RG	Desert Palms MHP	R	153	51	0		Y	0.00	8.70	0.00	0.50	0.00	4.35
1	RG	Entranosa Wtr Co-Op (part)-Edgewood	U	4355	80	1		Y	0.00	389.46	0.00	0.50	0.00	194.73
1	RG	Forest Park Property Owners Co-Op	R	200	87	0		Y	0.00	19.46	0.00	0.50	0.00	9.73
1	RG	Fox Hills WUA	R	76	51	0		Y	0.00	4.30	0.00	0.50	0.00	2.15
1	RG	Green Acres MHP	R	120	121	0		Y	0.00	16.32	0.00	0.50	0.00	8.16
1	RG	Homestead Mobile Home Community	R	200	97	0		Y	0.00	21.63	0.00	0.50	0.00	10.81
1	RG	Independent Utility Co.	R	1500	45	0		Y	0.00	75.30	0.00	0.50	0.00	37.65
1	RG	Kirtland Air Force Base	U	5700	646	10,7		Y	0.00	4127.17	0.00	0.60	0.00	2476.30
1	RG	La Mesa MHP	R	10	107	0		N	0.00	1.20	0.00	0.50	0.00	0.60

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.

Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
1	RG	Mountain View MHP	R	90	116	0		Y	0.00	11.68	0.00	0.50	0.00	5.84
1	RG	Oakland Heights Homeowners Assn.	U	29	160	0		Y	0.00	5.19	0.00	0.50	0.00	2.60
1	RG	Paradise Hills--NM Utilities	U	21800	273	0		Y	0.00	6662.62	0.00	0.70	0.00	4663.83
1	RG	Rural self-supplied homes	R	48737	100	0	-	N	0.00	5459.26	0.00	1.00	0.00	5459.26
1	RG	Sandia Peak Utility Company	U	7160	126	0		Y	0.00	1013.70	0.00	0.50	0.00	506.85
1	RG	Sierra Vista South Water Co-Op	R	150	90	0		Y	0.00	15.15	0.00	0.50	0.00	7.57
1	RG	Sierra Vista Utilidades Co-op	R	369	104	0		Y	0.00	42.97	0.00	0.50	0.00	21.49
1	RG	Sunburst Ranch--South Hills Wtr Co.	R	500	104	0		Y	0.00	58.44	0.00	0.50	0.00	29.22
1	RG	Sunset Hills Estates Homeowners Ass	R	90	255	0		Y	0.00	25.67	0.00	0.50	0.00	12.84
1	RG	Tierra Monte WUA	U	80	137	0		Y	0.00	12.27	0.00	0.50	0.00	6.14
1	RG	Tierra West Estates--MHP	R	1650	126	0		Y	0.00	233.38	0.00	0.50	0.00	116.69
1	RG	Tijeras Land Estates Water System	R	100	146	0		Y	0.00	16.40	0.00	0.50	0.00	8.20
1	RG	Tijeras Village	U	340	54	0		Y	20.64	0.00	0.50	0.00	10.32	0.00
1	RG	Tom's Mobile Home Park	R	49	56	0		Y	0.00	3.07	0.00	0.50	0.00	1.53
1	RG	Tranquillo Pines Water System	R	800	51	0		Y	45.99	0.00	0.50	0.00	23.00	0.00
1	RG	Valle Grande MHP	R	60	39	0		Y	0.00	2.61	0.00	0.50	0.00	1.30
1	RG	Van Gelder Water System	R	20	41	0		Y	0.00	0.92	0.00	0.50	0.00	0.46
1	RG	Vista Bonita Water Co-op	R	50	55	0		Y	0.00	3.09	0.00	0.50	0.00	1.54

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.

Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
1	RG	Western Heights MHP	U	120	180	0		Y	0.00	24.13	0.00	0.50	0.00	12.06
		River Basin Subtotals		556678					66.63	123882.73			33.32	58044.84
		County Totals		556678					66.63	123882.73			33.32	58044.84
3	LC	Aragon	R	32	172	0		Y	0.00	6.16	0.00	0.50	0.00	3.08
3	LC	Homestead Land Owners Assoc	R	37	71	0		Y	0.00	2.94	0.00	0.50	0.00	1.47
3	LC	Quemado Water Works	R	125	72	0		Y	0.00	10.13	0.00	0.50	0.00	5.07
3	LC	Rancho Grande Water Assn.	R	172	267	0		Y	0.00	51.40	0.00	0.50	0.00	25.70
3	LC	Reserve Water Works	R	317	278	0		Y	0.00	98.77	0.00	0.37	0.00	36.54
3	LC	Rural self-supplied homes	R	2375	70	0	-	N	0.00	186.22	0.00	1.00	0.00	186.22
		River Basin Subtotals		3058					0.00	355.62			0.00	258.08
3	RG	Rural self-supplied homes	R	485	70	0	-	N	0.00	38.03	0.00	1.00	0.00	38.03
		River Basin Subtotals		485					0.00	38.03			0.00	38.03
		County Totals		3543					0.00	393.65			0.00	296.11
5	P	Berrendo WUA	U	4000	358	0		Y	0.00	1604.40	0.00	0.50	0.00	802.20
5	P	Cumberland WUA	R	650	237	0		Y	0.00	172.80	0.00	0.50	0.00	86.40
5	P	Dexter Municipal Water System	R	1500	699	0		Y	0.00	1174.90	0.00	0.40	0.00	469.96
5	P	Fambrough Water Co-Op	R	250	279	0		Y	0.00	78.00	0.00	0.50	0.00	39.00
5	P	Greenfield MDWCA	R	300	218	6		Y	0.00	73.20	0.00	0.50	0.00	36.60
5	P	Hagerman Water System	R	1168	343	3		Y	0.00	449.10	0.00	0.50	0.00	224.55

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.

Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
5	P	Lake Arthur Water Co-Op	R	330	281	0		Y	0.00	103.79	0.00	0.50	0.00	51.90
5	P	Roswell Municipal Water System	U	45293	283	0		Y	0.00	14360.70	0.00	0.89	0.00	12781.02
5	P	Roswell--domestic irrigation wells	U	0	0	0	-	N	0.00	165.00	0.00	1.00	0.00	165.00
5	P	Rural self-supplied homes	R	7811	100	0	-	N	0.00	874.95	0.00	1.00	0.00	874.95
5	P	South Springs Acres	R	80	2095	0		Y	0.00	187.70	0.00	0.82	0.00	153.91
		River Basin Subtotals		61382					0.00	19244.54			0.00	15685.49
		County Totals		61382					0.00	19244.54			0.00	15685.49
6	LC	Rural self-supplied homes	R	3407	70	0	-	N	0.00	267.14	0.00	1.00	0.00	267.14
		River Basin Subtotals		3407					0.00	267.14			0.00	267.14
6	RG	Bluewater Acres Domestic WUA	R	290	69	0		Y	0.00	22.50	0.00	0.50	0.00	11.25
6	RG	Grants Domestic Water System	U	8806	235	0		Y	0.00	2322.49	0.00	0.75	0.00	1741.87
6	RG	Milan Community Water System	U	2385	252	4		Y	0.00	672.00	0.00	0.50	0.00	336.00
6	RG	Rural self-supplied homes	R	9817	70	0	-	N	0.00	769.75	0.00	1.00	0.00	769.75
6	RG	San Mateo MDWCA	R	190	82	0		Y	0.00	17.44	0.00	0.50	0.00	8.72
6	RG	San Rafael Water & Sanitation Dist.	R	700	136	0		Y	0.00	106.25	0.00	0.50	0.00	53.13
		River Basin Subtotals		22188					0.00	3910.43			0.00	2920.71
		County Totals		25595					0.00	4177.57			0.00	3187.86
7	AWR	Angel Fire MHE	R	45	52	0		Y	0.00	2.62	0.00	0.50	0.00	1.31
7	AWR	Angel Fire Services Corp.	R	2200	273	9		Y	0.00	671.72	0.00	0.47	0.00	315.71

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.

Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
7	AWR	Cimarron Water System	R	920	158	0		Y	162.36	0.00	0.50	0.00	81.18	0.00
7	AWR	Eagle Nest Water & Sanitation Dist.	R	310	164	0		Y	0.00	56.93	0.00	0.50	0.00	28.47
7	AWR	Maxwell Cooperative Water	R	265	185	0		Y	0.00	55.06	0.00	0.50	0.00	27.53
7	AWR	Maxwell Water System	R	274	91	0		Y	27.92	0.00	0.50	0.00	13.96	0.00
7	AWR	Miami WUA	R	150	123	0		Y	20.73	0.00	0.50	0.00	10.36	0.00
7	AWR	Raton Domestic Water System	U	7282	236	4		Y	1927.88	0.00	0.67	0.00	1291.68	0.00
7	AWR	Rural self-supplied homes	R	991	80	0	-	N	0.00	88.81	0.00	1.00	0.00	88.81
7	AWR	Springer Water System	R	1675	167	4		Y	314.05	0.00	0.50	0.00	157.02	0.00
7	AWR	Valverde Water Assoc.	R	77	24	0		Y	0.00	2.03	0.00	0.50	0.00	1.01
		River Basin Subtotals		14189					2452.94	877.17			1554.21	462.84
		County Totals		14189					2452.94	877.17			1554.21	462.84
9	AWR	Grady Water System	R	100	101	0		Y	0.00	11.30	0.00	0.50	0.00	5.65
9	AWR	Rural self-supplied homes	R	414	100	0	-	N	0.00	46.37	0.00	1.00	0.00	46.37
		River Basin Subtotals		514					0.00	57.67			0.00	52.02
9	TG	Cannon Air Force Base	U	6200	222	10		Y	0.00	1542.44	0.00	0.60	0.00	925.46
9	TG	Desert Ranch Water System	R	60	168	0		Y	0.00	11.29	0.00	0.50	0.00	5.64
9	TG	Melrose Water System	R	725	211	0		Y	0.00	171.60	0.00	0.50	0.00	85.80
9	TG	NM American Water Co.--Clovis	U	34000	169	0		Y	0.00	6422.75	0.00	0.50	0.00	3211.38
9	TG	Rural self-supplied homes	R	2320	100	0	-	N	0.00	259.87	0.00	1.00	0.00	259.87

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.

Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
9	TG	Texico Water System	R	1065	199	0		Y	0.00	237.54	0.00	0.50	0.00	118.77
9	TG	Turquoise Estates Wtr Co-Op--Clovis	R	160	110	0		Y	0.00	19.72	0.00	0.50	0.00	9.86
		River Basin Subtotals		44530					0.00	8665.21			0.00	4616.79
		County Totals		45044					0.00	8722.89			0.00	4668.81
11	P	Fort Sumner Municipal Water System	R	1249	214	3		Y	0.00	298.98	0.00	0.62	0.00	185.37
11	P	Rural self-supplied homes	R	526	80	0	-	N	0.00	47.14	0.00	1.00	0.00	47.14
11	P	Valley WUA	R	465	188	6		Y	0.00	98.13	0.00	0.50	0.00	49.06
		River Basin Subtotals		2240					0.00	444.24			0.00	281.57
		County Totals		2240					0.00	444.24			0.00	281.57
13	RG	Alameda MHP	R	150	122	0		Y	0.00	20.47	0.00	0.50	0.00	10.23
13	RG	Alto de Las Flores MDWCA	R	780	106	0		Y	0.00	92.71	0.00	0.50	0.00	46.35
13	RG	Anthony Water Works	U	7904	113	0		Y	0.00	1003.00	0.00	0.49	0.00	491.47
13	RG	Berino WUA	R	1500	132	0		Y	0.00	222.20	0.00	0.50	0.00	111.10
13	RG	Brazito MDWCA	R	380	93	0		Y	0.00	39.70	0.00	0.50	0.00	19.85
13	RG	Butterfield Park MDWCA	R	1050	94	0		Y	0.00	111.09	0.00	0.50	0.00	55.54
13	RG	Chaparral Water System	U	8000	172	0		Y	0.00	1544.00	0.00	0.50	0.00	772.00
13	RG	Country Mobile Manor	R	168	125	0		Y	0.00	23.56	0.00	0.50	0.00	11.78
13	RG	Covered Wagon MHP(1995)	R	120	121	0		N	0.00	16.20	0.00	0.50	0.00	8.10
13	RG	Delara Estates MDWCA	R	1200	116	0		Y	0.00	155.66	0.00	0.50	0.00	77.83

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
13	RG	Desert Aire	R	462	75	0		Y	0.00	39.00	0.00	0.50	0.00	19.50
13	RG	Desert Sands MDWCA	R	1350	129	0		Y	0.00	194.89	0.00	0.50	0.00	97.44
13	RG	Dona Ana MDWCA	U	9800	139	0		Y	0.00	1529.09	0.00	0.50	0.00	764.54
13	RG	Fairview Estates Water System	U	125	148	0		N	0.00	20.69	0.00	0.50	0.00	10.35
13	RG	Ft Seldon Subdivision	R	1000	129	0		Y	0.00	145.00	0.00	0.50	0.00	72.50
13	RG	Garfield MDWCA	R	1900	111	0		Y	0.00	236.62	0.00	0.50	0.00	118.31
13	RG	Hacienda Acres Water System	U	2373	191	0		Y	0.00	507.47	0.00	0.50	0.00	253.74
13	RG	Hatch Water Supply System	U	2583	148	4		Y	0.00	428.00	0.00	0.41	0.00	175.48
13	RG	Hauger Lake Water System	R	125	67	0		Y	0.00	9.40	0.00	0.50	0.00	4.70
13	RG	Holly Gardens MHP	U	210	150	0		Y	0.00	35.24	0.00	0.50	0.00	17.62
13	RG	Johnson, Floyd--MHP	R	250	113	0		Y	0.00	31.68	0.00	0.50	0.00	15.84
13	RG	Jornada Water Co	U	1040	170	0		Y	0.00	198.30	0.00	0.50	0.00	99.15
13	RG	La Mesa MDWCA	R	450	79	0		Y	0.00	39.97	0.00	0.50	0.00	19.99
13	RG	La Quinta Water Company	R	235	126	0		Y	0.00	33.22	0.00	0.50	0.00	16.61
13	RG	Las Alturas Estates	R	777	247	0		Y	0.00	215.35	0.00	0.50	0.00	107.68
13	RG	Las Cruces Municipal Water System	U	71958	251	3		Y	0.00	20194.00	0.00	0.58	0.00	11712.52
13	RG	Leasburg MDWCA	R	800	115	0		Y	0.00	103.05	0.00	0.50	0.00	51.53
13	RG	Mesa Development Center	U	819	103	0		Y	0.00	94.30	0.00	0.50	0.00	47.15

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
13	RG	Mesilla Park Manor Water System	R	118	184	0		Y	0.00	24.26	0.00	0.50	0.00	12.13
13	RG	Mesilla Water System	U	2000	109	6		Y	0.00	244.69	0.00	0.50	0.00	122.35
13	RG	Mesquite MDWCA	U	3400	212	0		Y	0.00	809.01	0.00	0.50	0.00	404.51
13	RG	Miller's Mobile Manor	R	105	340	0		Y	0.00	39.98	0.00	0.50	0.00	19.99
13	RG	Moongate Water System	U	9480	105	0		Y	0.00	1118.08	0.00	0.50	0.00	559.04
13	RG	Mountain View MDWCA	R	600	184	0		Y	0.00	123.35	0.00	0.50	0.00	61.67
13	RG	Organ Water & Sewer Assn.	R	650	100	0		Y	0.00	72.88	0.00	0.50	0.00	36.44
13	RG	Picacho Hills Water System	R	980	244	4		Y	0.00	267.70	0.00	0.82	0.00	219.51
13	RG	Picacho MDWCA	R	755	144	0		Y	0.00	121.88	0.00	0.50	0.00	60.94
13	RG	Raasaf Hills Water System	R	154	155	0		Y	0.00	26.71	0.00	0.50	0.00	13.35
13	RG	Rancho Vista MHP	U	100	107	0		Y	0.00	12.00	0.00	0.50	0.00	6.00
13	RG	Rincon Water Consumers Co-Op	R	525	94	4		Y	0.00	55.50	0.00	0.50	0.00	27.75
13	RG	Rural self-supplied homes	R	8813	100	0	-	N	0.00	987.19	0.00	1.00	0.00	987.19
13	RG	San Andres Estates Water System	R	882	161	0		Y	0.00	159.02	0.00	0.50	0.00	79.51
13	RG	Santa Teresa Water System	U	5100	455	6		Y	0.00	2596.95	0.00	0.79	0.00	2051.59
13	RG	Silver Spur MHP	R	150	235	0		Y	0.00	39.44	0.00	0.50	0.00	19.72
13	RG	Skoshi Mobile Home Park	R	125	101	0		Y	0.00	14.21	0.00	0.50	0.00	7.11
13	RG	St John's MHP	R	400	157	0		Y	0.00	70.16	0.00	0.50	0.00	35.08

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
13	RG	Sunland Park Water System	U	13300	84	6		Y	0.00	1250.29	0.00	0.30	0.00	375.09
13	RG	Talavera Water Co-Op	R	280	77	0		Y	0.00	24.06	0.00	0.50	0.00	12.03
13	RG	University Estates/San Pablo MDWCA	U	3906	210	0		Y	0.00	918.72	0.00	0.50	0.00	459.36
13	RG	Vado MDWCA	R	380	87	7		Y	0.00	36.82	0.00	0.50	0.00	18.41
13	RG	Val Verde MHP	R	170	193	0		Y	0.00	36.80	0.00	0.50	0.00	18.40
13	RG	Valle de Rio Water System	R	230	260	0		Y	0.00	67.00	0.00	0.50	0.00	33.50
13	RG	Vista Real MHP	R	120	145	0		Y	0.00	19.48	0.00	0.50	0.00	9.74
13	RG	West Mesa System	U	2000	240	0		Y	0.00	537.00	0.00	0.50	0.00	268.50
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		174682					0.00	39143.81			0.00	22439.87
		County Totals		174682					0.00	39143.81			0.00	22439.87
15	P	Artesia Domestic Water System	U	10692	390	3		Y	0.00	4672.00	0.00	1.00	0.00	4672.00
15	P	Artesia Rural Water Co-Op	R	1700	224	0		Y	0.00	426.74	0.00	0.50	0.00	213.37
15	P	Carlsbad Municipal Water System	U	27156	277	4		Y	126.51	8290.41	1.00	0.58	126.51	4784.13
15	P	Cottonwood Water Cooperative	R	1030	210	0		Y	0.00	242.50	0.00	0.50	0.00	121.25
15	P	Happy Valley Water Co-Op	R	810	141	0		Y	0.00	128.33	0.00	0.50	0.00	64.17
15	P	Hope Water System	R	150	309	0		Y	0.00	51.87	0.00	0.50	0.00	25.93
15	P	Jewel St. Water Co-op	R	22	222	0		Y	0.00	5.47	0.00	0.50	0.00	2.73

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
15	P	Loving Water System	R	1243	347	3		Y	0.00	483.59	0.00	0.50	0.00	241.79
15	P	Malaga Water Users Co-Op	R	570	210	6		Y	0.00	134.04	0.00	0.50	0.00	67.02
15	P	Morningside Water Cooperative	R	370	189	6		Y	0.00	78.35	0.00	0.50	0.00	39.17
15	P	Otis Water Co-Op	U	5000	232	7		Y	0.00	1298.17	0.00	0.50	0.00	649.09
15	P	Riverside WUA	R	161	191	0		Y	0.00	34.50	0.00	0.50	0.00	17.25
15	P	Rural self-supplied homes	R	2174	100	0	-	N	0.00	243.52	0.00	1.00	0.00	243.52
15	P	Westwind Mobile Home Park	R	100	259	0		Y	0.00	29.03	0.00	0.50	0.00	14.52
15	P	White's City	R	480	216	0		Y	0.00	116.00	0.00	0.50	0.00	58.00
		River Basin Subtotals		51658					126.51	16234.52			126.51	11213.94
		County Totals		51658					126.51	16234.52			126.51	11213.94
17	LC	Pinos Altos MDWCA	R	300	86	6		Y	0.00	28.82	0.00	0.50	0.00	14.41
17	LC	Rural self-supplied homes	R	2165	80	0	-	N	0.00	194.01	0.00	1.00	0.00	194.01
17	LC	Tyrone Water System	R	787	150	6		Y	132.60	0.00	0.50	0.00	66.30	0.00
		River Basin Subtotals		3252					132.60	222.83			66.30	208.42
17	RG	Arenas Valley MDWCA	R	1152	84	6		Y	0.00	107.90	0.00	0.50	0.00	53.95
17	RG	Bayard Municipal Water System	U	2581	123	0		Y	0.00	356.72	0.00	0.50	0.00	178.36
17	RG	Casas Adobes Water Company	R	224	75	0		Y	0.00	18.91	0.00	0.50	0.00	9.45
17	RG	Central Water System	R	2074	117	0		Y	0.00	271.49	0.00	0.86	0.00	233.48
17	RG	Ft Bayard Medical Center	R	310	50	0		Y	17.48	0.00	0.50	0.00	8.74	0.00

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
17	RG	Hachita Water System	R	90	89	0		Y	0.00	8.94	0.00	0.50	0.00	4.47
17	RG	Hanover MDWCA	R	300	65	0		Y	0.00	21.68	0.00	0.50	0.00	10.84
17	RG	Heights Water Usera Assoc.	R	27	119	0		Y	0.00	3.60	0.00	0.50	0.00	1.80
17	RG	Hurley Water Supply System	R	1100	145	6		Y	0.00	178.40	0.00	0.50	0.00	89.20
17	RG	Lake Roberts Subdivision	R	60	26	0		Y	0.00	1.76	0.00	0.50	0.00	0.88
17	RG	North Hurley MDWCA	R	320	93	6		Y	0.00	33.36	0.00	0.50	0.00	16.68
17	RG	Rosedale WUA	R	350	48	6		Y	0.00	18.80	0.00	0.50	0.00	9.40
17	RG	Rural self-supplied homes	R	6517	80	0	-	N	0.00	584.00	0.00	1.00	0.00	584.00
17	RG	Santa Clara Village	R	2000	121	0		Y	26.33	245.00	0.50	0.50	13.16	122.50
17	RG	Silver City Water System	U	10545	235	3		Y	0.00	2775.30	0.00	0.66	0.00	1831.70
17	RG	Whiskey Creek Mobile Ranch	R	100	120	0		Y	0.00	13.40	0.00	0.50	0.00	6.70
		River Basin Subtotals		27750					43.81	4639.26			21.90	3153.41
		County Totals		31002					176.41	4862.09			88.21	3361.83
19	AWR	Rural self-supplied homes	R	109	80	0	-	N	0.00	9.77	0.00	1.00	0.00	9.77
		River Basin Subtotals		109					0.00	9.77			0.00	9.77
19	P	Anton Chico MDWCA	R	300	58	0		Y	0.00	19.40	0.00	0.50	0.00	9.70
19	P	Los Sisneros MDWCA	R	35	50	0		Y	0.00	1.96	0.00	0.50	0.00	0.98
19	P	Puerto de Luna MDWCA	R	210	138	0		Y	0.00	32.42	0.00	0.50	0.00	16.21
19	P	Rio Pecos Villa WUA	R	30	91	6		Y	0.00	3.07	0.00	0.50	0.00	1.53

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
19	P	Rural self-supplied homes	R	96	80	0	-	N	0.00	8.60	0.00	1.00	0.00	8.60
19	P	Sangre de Cristo MDWCA	R	100	99	0		Y	0.00	11.08	0.00	0.50	0.00	5.54
19	P	Santa Rosa Water Supply	R	2500	222	3		Y	0.00	621.13	0.00	0.50	0.00	310.57
19	P	Vaughn Water System	R	1300	144	2,3		Y	0.00	209.82	0.00	0.50	0.00	104.91
		River Basin Subtotals		4571					0.00	907.48			0.00	458.04
		County Totals		4680					0.00	917.25			0.00	467.81
21	AWR	Mosquero Water System	R	120	164	0		Y	0.00	22.03	0.00	0.50	0.00	11.02
21	AWR	Roy Water Works	R	304	181	0		Y	0.00	61.56	0.00	0.50	0.00	30.78
21	AWR	Rural self-supplied homes	R	386	80	0	-	N	0.00	34.59	0.00	1.00	0.00	34.59
		River Basin Subtotals		810					0.00	118.18			0.00	76.39
		County Totals		810					0.00	118.18			0.00	76.39
23	LC	Glen Acres Community Water System	R	170	255	0		Y	0.00	48.51	0.00	0.50	0.00	24.25
23	LC	Lordsburg Water Supply System	U	3379	216	0		Y	0.00	818.00	0.00	0.50	0.00	409.00
23	LC	Rodeo WUA	R	122	115	0		Y	0.00	15.66	0.00	0.50	0.00	7.83
23	LC	Rural self-supplied homes	R	1097	80	0	-	N	0.00	98.30	0.00	1.00	0.00	98.30
23	LC	Virden Water System	R	105	209	0		Y	0.00	24.60	0.00	0.50	0.00	12.30
		River Basin Subtotals		4873					0.00	1005.07			0.00	551.69
23	RG	Rural self-supplied homes	R	1059	80	0	-	N	0.00	94.90	0.00	1.00	0.00	94.90
		River Basin Subtotals		1059					0.00	94.90			0.00	94.90

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
		County Totals		5932					0.00	1099.97			0.00	646.59
25	P	Eunice Water Supply System	U	2562	538	5		Y	0.00	1544.99	0.00	0.50	0.00	772.49
25	P	Jal Water Supply System	R	2165	293	0		Y	0.00	711.37	0.00	0.50	0.00	355.68
25	P	Maljamar Water	R	61	101	0		Y	0.00	6.87	0.00	0.50	0.00	3.43
25	P	Monument WUA	R	175	553	0		Y	0.00	108.49	0.00	0.50	0.00	54.24
25	P	Rural self-supplied homes	R	1182	100	0	-	N	0.00	132.40	0.00	1.00	0.00	132.40
		River Basin Subtotals		6145					0.00	2504.12			0.00	1318.26
25	TG	Hobbs Municipal Water Supply	U	28657	284	0		Y	0.00	9120.69	0.00	0.50	0.00	4560.35
25	TG	Lovington Municipal Water Supply	U	9471	289	0		Y	0.00	3069.20	0.00	0.50	0.00	1534.60
25	TG	Rural self-supplied homes	R	10450	100	0	-	N	0.00	1170.55	0.00	1.00	0.00	1170.55
25	TG	Tatum Water System	R	683	198	0		Y	0.00	151.28	0.00	0.50	0.00	75.64
25	TG	Triple J Trailer Park--Hobbs	R	105	111	0		Y	0.00	13.00	0.00	0.50	0.00	6.50
		River Basin Subtotals		49366					0.00	13524.72			0.00	7347.64
		County Totals		55511					0.00	16028.85			0.00	8665.90
27	P	Agua Fria Water Company	R	200	105	0		Y	23.50	0.00	0.50	0.00	11.75	0.00
27	P	Alpine Village Sanitation District	R	100	116	9		Y	0.00	13.00	0.00	0.50	0.00	6.50
27	P	Alto Lakes Water Co-op	R	2300	178	0		Y	0.00	457.91	0.00	0.50	0.00	228.96
27	P	Alto North Water Co-Op	R	65	111	0		Y	0.00	8.08	0.00	0.50	0.00	4.04
27	P	Apple Blossom & White Angel Mesa	R	25	135	0		Y	0.00	3.78	0.00	0.50	0.00	1.89

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
27	P	Capitan Water System	R	1443	122	7		Y	0.00	197.00	0.50	0.50	0.00	98.50
27	P	Corona Water System	R	210	116	0		Y	0.00	27.18	0.00	0.50	0.00	13.59
27	P	Fawn Ridge Homeowners Asso.	R	100	67	0		Y	0.00	7.53	0.00	0.50	0.00	3.77
27	P	Ft Stanton Medical Center	R	250	273	6		Y	0.00	76.39	0.00	0.50	0.00	38.19
27	P	High Sierra Estates	R	55	70	0		Y	0.00	4.34	0.00	0.50	0.00	2.17
27	P	Lincoln MDWCA	R	75	181	0		Y	0.00	15.24	0.00	0.50	0.00	7.62
27	P	Rancho Ruidoso Village	R	200	247	0		Y	0.00	55.36	0.00	0.50	0.00	27.68
27	P	Rocky Mountain Mobile Home & RV Pk	R	90	30	0		Y	0.00	3.00	0.00	0.50	0.00	1.50
27	P	Ruidoso Downs Water System	R	1824	271	9		Y	0.00	554.32	0.18	0.18	0.00	99.78
27	P	Ruidoso Water System	U	7698	359	9		Y	1841.46	1252.19	0.29	0.29	533.06	363.14
27	P	Rural self-supplied homes	R	2099	80	0	-	N	0.00	188.10	0.00	1.00	0.00	188.10
27	P	Sun Valley Sanitation Dist.	R	200	79	9		Y	0.00	17.64	0.00	0.50	0.00	8.82
		River Basin Subtotals		16934					1864.96	2881.05			544.81	1094.23
27	RG	Carrizozo Water System	R	1036	291	7	Y	Y	53.90	284.30	0.50	0.50	26.95	142.15
27	RG	Nogal WUA	R	70	50	6		Y	3.90	0.00	0.50	0.00	1.95	0.00
27	RG	Rural self-supplied homes	R	1371	80	0	-	N	0.00	122.86	0.00	1.00	0.00	122.86
		River Basin Subtotals		2477					57.80	407.16			28.90	265.01
		County Totals		19411					1922.76	3288.21			573.71	1359.24
28	RG	Los Alamos & White Rock Mun Wtr Sys	U	18343	224	4		Y	0.00	4607.77	0.00	0.96	0.00	4423.46

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
		River Basin Subtotals		18343					0.00	4607.77			0.00	4423.46
		County Totals		18343					0.00	4607.77			0.00	4423.46
29	RG	Columbus Water System	R	2100	106	0		Y	0.00	249.38	0.00	0.50	0.00	124.69
29	RG	Deming Municipal Water System	U	16401	223	0		Y	0.00	4101.97	0.00	0.50	0.00	2050.99
29	RG	Gunter's Mobile Home Rentals	R	32	41	0		Y	0.00	1.47	0.00	0.50	0.00	0.74
29	RG	Pecan Park MDWCA	R	78	399	0		Y	0.00	34.83	0.00	0.50	0.00	17.42
29	RG	Rural self-supplied homes	R	6405	100	0	-	N	0.00	717.45	0.00	1.00	0.00	717.45
		River Basin Subtotals		25016					0.00	5105.10			0.00	2911.28
		County Totals		25016					0.00	5105.10			0.00	2911.28
31	LC	Coal Basin Water Assn.	R	100	107	0		Y	0.00	12.02	0.00	0.50	0.00	6.01
31	LC	Ft Wingate Army Depot	R	69	99	7		Y	0.00	7.68	0.00	0.50	0.00	3.84
31	LC	Gallup Water System	U	20209	179	3,5		Y	0.00	4059.30	0.00	1.00	0.00	4059.30
31	LC	Gamerco Water & Sanitation District	R	1370	77	6		Y	0.00	118.70	0.00	1.00	0.00	118.70
31	LC	Ramah Water & Sanitation Dist.	R	133	319	0		N	0.00	47.57	0.00	0.50	0.00	23.78
31	LC	Rural self-supplied homes	R	25167	70	0	-	N	0.00	1973.35	0.00	1.00	0.00	1973.35
31	LC	Whispering Cedars Water Assoc.	R	300	84	0		Y	0.00	28.35	0.00	0.50	0.00	14.18
31	LC	Zuni Pueblo Water Works(1995)	U	8332	100	0		N	0.00	933.30	0.00	0.50	0.00	466.65
		River Basin Subtotals		55680					0.00	7180.27			0.00	6665.81
31	RG	Rural self-supplied homes	R	3799	70	0	-	N	0.00	297.88	0.00	1.00	0.00	297.88

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
31	RG	Thoreau Water & Sanitation District	R	1863	60	0		Y	0.00	125.15	0.00	0.50	0.00	62.58
		River Basin Subtotals		5662					0.00	423.03			0.00	360.46
31	UC	Rural self-supplied homes	R	13456	70	0	-	N	0.00	1055.09	0.00	1.00	0.00	1055.09
		River Basin Subtotals		13456					0.00	1055.09			0.00	1055.09
		County Totals		74798					0.00	8658.39			0.00	8081.36
33	AWR	El Alto MDWCA	R	85	233	0		Y	0.00	22.21	0.00	0.50	0.00	11.10
33	AWR	Holman	R	110	59	0		Y	0.00	7.32	0.00	0.50	0.00	3.66
33	AWR	La Cordillera	R	50	74	0		Y	0.00	4.17	0.00	0.50	0.00	2.09
33	AWR	Mora MDWCA	R	680	286	0		Y	0.00	217.67	0.00	0.61	0.00	132.78
33	AWR	Rural self-supplied homes	R	3829	80	0	-	N	0.00	343.12	0.00	1.00	0.00	343.12
33	AWR	Upper Holman	R	110	34	0		Y	0.00	4.20	0.00	0.50	0.00	2.10
33	AWR	Wagon Mound MDWCA	R	316	140	0		Y	0.00	49.70	0.00	0.50	0.00	24.85
		River Basin Subtotals		5180					0.00	648.39			0.00	519.70
		County Totals		5180					0.00	648.39			0.00	519.70
35	P	Cloud Country Estates WUA	R	150	134	0	Y	Y	15.65	6.85	0.50	0.50	7.82	3.42
35	P	Cloud Country West Water System	R	250	68	0		Y	0.00	19.03	0.00	0.50	0.00	9.51
35	P	Mayhill Water Supply Company	R	135	54	0		Y	0.00	8.12	0.00	0.50	0.00	4.06
35	P	Pinon WUA	R	140	213	0		Y	0.00	33.38	0.00	0.50	0.00	16.69
35	P	Ponderosa Pines	R	102	58	0		Y	0.00	6.63	0.00	0.50	0.00	3.31

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
35	P	Robinhood Park WUA	R	290	67	0		Y	21.67	0.00	0.50	0.00	10.84	0.00
35	P	Rural self-supplied homes	R	2810	80	0	-	N	0.00	251.81	0.00	1.00	0.00	251.81
35	P	Silver Cloud WUA	R	140	89	0		Y	0.00	14.03	0.00	0.50	0.00	7.01
35	P	Weed WUA	R	32	81	0		Y	0.00	2.92	0.00	0.50	0.00	1.46
		River Basin Subtotals		4049					37.32	342.76			18.66	297.29
35	RG	Alamogordo Domestic Water System	U	35582	207	3	Y	Y	5567.37	2689.04	0.50	0.50	2783.69	1344.52
35	RG	Boles Acres Water System	R	1000	131	0		Y	0.00	146.18	0.00	0.50	0.00	73.09
35	RG	Canyon Hills WUA	R	41	238	0		Y	0.00	10.91	0.00	0.50	0.00	5.46
35	RG	Cider Mill Farms WUA	R	40	120	0		Y	0.00	5.36	0.00	0.50	0.00	2.68
35	RG	Cloudcroft Water System	R	749	235	9		Y	0.00	197.19	0.00	0.43	0.00	84.79
35	RG	Dungan MDWCA	R	85	88	0		Y	0.00	8.34	0.00	0.50	0.00	4.17
35	RG	Enchanted Valley Water Users	R	45	221	0		Y	0.00	11.13	0.00	0.50	0.00	5.57
35	RG	Freeman's / Crossroads MHP	R	45	247	0		Y	0.00	12.43	0.00	0.50	0.00	6.21
35	RG	High Rolls	R	375	82	0		Y	0.00	34.59	0.00	0.50	0.00	17.30
35	RG	Holloman Air Force Base	U	5550	377	10	Y	Y	222.47	2123.58	0.57	0.57	126.81	1210.44
35	RG	Karr Canyon Estates	R	98	76	0	Y		8.34	0.00	0.50	0.00	4.17	0.00
35	RG	La Luz MDWCA	R	2050	78	0	Y	Y	76.00	103.00	0.50	0.50	38.00	51.50
35	RG	Lakeside de la Luz	R	52	110	0		Y	0.00	6.40	0.00	0.50	0.00	3.20

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
35	RG	Mountain Orchard WUA	R	79	96	0		Y	0.00	8.53	0.00	0.50	0.00	4.26
35	RG	Orogrande MDWCA	R	52	486	5	Y		28.29	0.00	0.00	0.00	0.00	0.00
35	RG	Piney Woods WUA	R	220	98	0	Y	Y	11.63	12.48	0.50	0.50	5.82	6.24
35	RG	Rural self-supplied homes	R	7814	100	0	-	N	0.00	875.28	0.00	1.00	0.00	875.28
35	RG	Timberon Water & Sanitation Distric	R	1428	137	0	Y		218.35	0.00	0.50	0.00	109.18	0.00
35	RG	Tularosa Water System	U	2864	210	0		Y	674.11	0.00	0.50	0.50	337.05	0.00
35	RG	Waterfall Community Water Users Ass	R	80	290	0		Y	0.00	26.03	0.00	0.50	0.00	13.02
		River Basin Subtotals		58249					6806.56	6270.47			3404.71	3707.72
		County Totals		62298					6843.88	6613.23			3423.37	4005.01
37	AWR	Liberty MDWUA	R	182	115	0		Y	0.00	23.50	0.00	0.50	0.00	11.75
37	AWR	Logan Water System	R	1094	308	8		Y	0.00	377.20	0.00	0.50	0.00	188.60
37	AWR	Nara Visa Water Co-Op(1995)	R	75	97	0		N	0.00	8.15	0.00	0.50	0.00	4.07
37	AWR	Rural self-supplied homes	R	1372	80	0	-	N	0.00	122.95	0.00	1.00	0.00	122.95
37	AWR	San Jon Water Supply	R	306	162	0		Y	0.00	55.49	0.00	0.50	0.00	27.75
37	AWR	Tucumcari Water System	U	6855	221	4		Y	0.00	1694.26	0.00	0.60	0.00	1016.56
		River Basin Subtotals		9884					0.00	2281.55			0.00	1371.67
37	P	House Water System	R	100	124	0		Y	0.00	13.84	0.00	0.50	0.00	6.92
37	P	Rural self-supplied homes	R	171	80	0	-	N	0.00	15.32	0.00	1.00	0.00	15.32
		River Basin Subtotals		271					0.00	29.16			0.00	22.24

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
		County Totals		10155					0.00	2310.71			0.00	1393.92
39	RG	Alcalde MDWCA	R	377	109	0		Y	0.00	46.20	0.00	0.50	0.00	23.10
39	RG	Barranco MDWCA	R	50	49	0		Y	2.76	0.00	0.50	0.00	1.38	0.00
39	RG	Brazos MDWCA	R	146	87	0		Y	0.00	14.30	0.00	0.50	0.00	7.15
39	RG	Canjilon MDWCA	R	380	49	0		Y	0.00	20.80	0.00	0.50	0.00	10.40
39	RG	Cebola MDWCA	R	300	65	0		Y	0.00	21.75	0.00	0.50	0.00	10.88
39	RG	Chama Water System	R	1199	161	0		Y	216.40	0.00	0.29	0.00	62.76	0.00
39	RG	Chamita MDWCA	R	700	88	0		Y	0.00	69.13	0.00	0.50	0.00	34.56
39	RG	Chili	R	51	133	0		Y	0.00	7.62	0.00	0.50	0.00	3.81
39	RG	Cordova MDWCA	R	240	66	0		Y	0.00	17.82	0.00	0.50	0.00	8.91
39	RG	Dixon MDWCA	R	400	83	0		Y	0.00	37.18	0.00	0.50	0.00	18.59
39	RG	El Llano MDWCA	R	115	61	0		Y	0.00	7.82	0.00	0.50	0.00	3.91
39	RG	El Rito MDWCA	R	220	44	0		Y	0.00	10.94	0.00	0.50	0.00	5.47
39	RG	Enchanted Mesa MHP	R	180	75	0		Y	0.00	15.21	0.00	0.50	0.00	7.60
39	RG	Ensenada WUA--Los Ojos	R	151	57	0		Y	0.00	9.59	0.00	0.50	0.00	4.80
39	RG	Espanola Water System (part)	U	8070	116	0		Y	0.00	1045.74	0.00	0.20	0.00	209.15
39	RG	La Puebla MDWCA	R	260	250	0		Y	0.00	72.78	0.00	0.50	0.00	36.39
39	RG	Los Brazos MDWCA	R	30	49	0		Y	0.00	1.65	0.00	0.50	0.00	0.82

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
39	RG	Los Ojos	R	125	66	0		Y	0.00	9.20	0.00	0.50	0.00	4.60
39	RG	Ojo Caliente	R	110	104	0		Y	0.00	12.80	0.00	0.50	0.00	6.40
39	RG	Ojo Sarco MDWCA	R	116	84	0		Y	0.00	10.93	0.00	0.50	0.00	5.47
39	RG	Placitas MDWCA	R	220	54	0		Y	0.00	13.20	0.00	0.50	0.00	6.60
39	RG	Rural self-supplied homes	R	21112	80	0	-	N	0.00	1891.88	0.00	1.00	0.00	1891.88
39	RG	Rutheron	R	230	56	0		Y	4.50	9.98	0.50	0.50	2.25	4.99
39	RG	South Hills Water Company	R	220	100	0		Y	0.00	24.67	0.00	0.50	0.00	12.33
39	RG	South Ojo Caliente MDWCA	R	170	85	0		Y	0.00	16.27	0.00	0.50	0.00	8.13
39	RG	Tierra Amarilla MDWCA	R	400	83	0		Y	0.00	37.11	0.00	0.50	0.00	18.55
39	RG	Truchas MDWCA	R	650	47	0		Y	0.00	33.88	0.00	0.50	0.00	16.94
39	RG	Upper Canoncito MDWCA	R	75	36	0		Y	0.00	3.06	0.00	0.50	0.00	1.53
39	RG	Valley Estates MDWCA	R	148	256	0		Y	0.00	42.50	0.00	0.50	0.00	21.25
39	RG	Velarde MDWCA	R	500	121	0		Y	0.00	67.74	0.00	0.50	0.00	33.87
39	RG	Youngsville MDWCA(est.)	R	85	95	0		N	0.00	9.00	0.00	0.50	0.00	4.50
		River Basin Subtotals		37030					223.66	3580.74			66.39	2422.59
39	UC	Dulce--BIA, Jicarilla Agency	U	3280	136	0	Y		498.30	0.00	0.50	0.00	249.15	0.00
39	UC	Lindrith Community Water Co-Op	R	70	54	0		Y	0.00	4.22	0.00	0.50	0.00	2.11
39	UC	Lybrook WUA	R	155	147	0		Y	0.00	25.59	0.00	0.50	0.00	12.80

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
39	UC	Rural self-supplied homes	R	655	80	0	-	N	0.00	58.69	0.00	1.00	0.00	58.69
		River Basin Subtotals		4160					498.30	88.50			249.15	73.59
		County Totals		41190					721.96	3669.24			315.54	2496.19
41	P	Rural self-supplied homes	R	308	100	0	-	N	0.00	34.50	0.00	1.00	0.00	34.50
		River Basin Subtotals		308					0.00	34.50			0.00	34.50
41	TG	Causey Water Association	R	45	99	0		N	0.00	5.00	0.00	0.50	0.00	2.50
41	TG	Dora Water Assn.	R	200	180	0		Y	0.00	40.34	0.00	0.50	0.00	20.17
41	TG	Elida Water System	R	202	181	0		Y	0.00	41.02	0.00	0.50	0.00	20.51
41	TG	Floyd Water Co-Op	R	300	89	0		Y	0.00	29.88	0.00	0.50	0.00	14.94
41	TG	Portales Water System	U	11131	304	3		Y	0.00	3794.80	0.00	0.70	0.00	2656.36
41	TG	Roosevelt County Water Co-Op	U	4000	137	6		Y	0.00	613.86	0.00	0.50	0.00	306.93
41	TG	Rural self-supplied homes	R	1832	100	0	-	N	0.00	205.21	0.00	1.00	0.00	205.21
		River Basin Subtotals		17710					0.00	4730.11			0.00	3226.62
		County Totals		18018					0.00	4764.61			0.00	3261.12
43	RG	Algodones WUA	R	675	72	0		Y	0.00	54.26	0.00	0.50	0.00	27.13
43	RG	Bernalillo Water System	U	6000	154	0		Y	0.00	1035.01	0.00	0.51	0.00	527.86
43	RG	Canyon MDWUA	R	250	129	0		Y	0.00	36.14	0.00	0.50	0.00	18.07
43	RG	Cochiti Lake Water System	R	450	124	0		Y	0.00	62.70	0.00	0.50	0.00	31.35
43	RG	Corrales Village	U	50	89	0		Y	0.00	4.96	0.00	0.50	0.00	2.48

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
43	RG	Corrales--self-supplied homes (prt)	U	6608	150	0	-	N	0.00	1110.29	0.00	1.00	0.00	1110.29
43	RG	Cuba Water System	R	765	127	0		Y	0.00	108.78	0.00	0.50	0.00	54.39
43	RG	Hidden Valley Water System	R	23	56	0		Y	0.00	1.45	0.00	0.50	0.00	0.73
43	RG	Jemez Springs Water Co-Op	R	375	239	0		Y	100.50	0.00	0.30	0.00	30.15	0.00
43	RG	La Jara	R	350	44	0		Y	17.30	0.00	0.50	0.50	8.65	0.00
43	RG	La Mesa Water Co-Op	R	380	136	0		Y	0.00	57.73	0.00	0.50	0.00	28.86
43	RG	La Puerta	R	30	256	0		Y	8.59	0.00	0.50	0.50	4.30	0.00
43	RG	North Ranchos de Placitas	R	325	185	0		Y	0.00	67.35	0.00	0.50	0.00	33.67
43	RG	Orchard Estates	R	42	194	0		Y	0.00	9.12	0.00	0.50	0.00	4.56
43	RG	Overlook Water Cooperative	R	105	104	0		Y	0.00	12.21	0.00	0.50	0.00	6.11
43	RG	Pena Blanca MDWCA	R	400	120	0		Y	0.00	53.92	0.00	0.50	0.00	26.96
43	RG	Placitas Trails Ltd Partnership	R	350	105	0		Y	0.00	41.35	0.00	0.50	0.00	20.67
43	RG	Placitas West Water Co-Op	R	100	148	0		Y	0.00	16.62	0.00	0.50	0.00	8.31
43	RG	Ponderosa MDWCA	R	350	84	0	Y		32.77	0.00	0.50	0.00	16.39	0.00
43	RG	Pueblo Los Cerros Browood	U	160	177	0		Y	0.00	31.70	0.00	0.50	0.00	15.85
43	RG	Ranchos de Placitas Sanitation Dist	R	260	139	0		Y	0.00	40.50	0.00	0.50	0.00	20.25
43	RG	Regina MDWCA	R	500	44	0		Y	0.00	24.90	0.00	0.50	0.00	12.45
43	RG	Rio Rancho--Albuquerque Utilities	U	51765	181	1,7		Y	0.00	10492.17	0.00	0.86	0.00	9023.26

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
43	RG	Rural self-supplied homes	R	17319	80	0	-	N	0.00	1551.98	0.00	1.00	0.00	1551.98
43	RG	San Ysidro	R	240	149	0		Y	0.00	40.07	0.00	0.50	0.00	20.03
43	RG	Sile MDWCA	R	130	170	0		Y	0.00	24.72	0.00	0.50	0.00	12.36
43	RG	Vista del Oro de Placitas	R	36	103	0		Y	0.00	4.14	0.00	0.50	0.00	2.07
		River Basin Subtotals		88038					159.16	14882.06			59.48	12559.70
43	UC	Rural self-supplied homes	R	1870	80	0	-	N	0.00	167.57	0.00	1.00	0.00	167.57
		River Basin Subtotals		1870					0.00	167.57			0.00	167.57
		County Totals		89908					159.16	15049.64			59.48	12727.27
45	UC	Aztec Domestic Water System	U	5217	226	3	Y		1320.83	0.00	0.47	0.00	620.79	0.00
45	UC	Blanco Water Association	R	952	56	0	Y		59.88	0.00	0.50	0.00	29.94	0.00
45	UC	Bloomfield Water Supply System	U	6417	147	0	Y		1054.25	0.00	0.32	0.00	337.36	0.00
45	UC	Farmington Water System	U	37844	260	3	Y		11004.02	0.00	0.55	0.00	6052.21	0.00
45	UC	Flora Vista WUA	R	2300	159	7	Y	Y	77.81	331.35	0.50	0.50	38.90	165.68
45	UC	Harvest Gold Subdivision	R	350	105	6	Y		41.26	0.00	0.50	0.00	20.63	0.00
45	UC	Kirtland	U	8666	105	0	Y		1021.36	0.00	0.50	0.00	510.68	0.00
45	UC	La Plata	R	1890	69	6	Y		146.15	0.00	0.50	0.00	73.07	0.00
45	UC	Lee Acres WUA	U	3400	124	0	Y		471.82	0.00	0.40	0.00	188.73	0.00
45	UC	Lower Valley WUA	U	8700	112	7	Y		1087.80	0.00	0.50	0.00	543.90	0.00
45	UC	Morningstar WUA	U	4200	88	3	Y		412.95	0.00	0.50	0.00	206.48	0.00

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
45	UC	Navajo Dam MDWCA	R	578	49	0	Y		31.99	0.00	0.00	0.00	0.00	0.00
45	UC	North Star WUA	U	1800	69	0	Y		138.79	0.00	0.50	0.00	69.39	0.00
45	UC	Rosa Joint Venture	R	180	311	0	Y		62.64	0.00	0.50	0.00	31.32	0.00
45	UC	Rural self-supplied homes	R	16814	70	0	-	N	0.00	1318.39	0.00	1.00	0.00	1318.39
45	UC	Shiprock--NTUA	U	8156	170	6	Y		1551.09	0.00	0.62	0.00	961.68	0.00
45	UC	Southside WUA	R	1200	77	6	Y		104.00	0.00	0.50	0.00	52.00	0.00
45	UC	Upper La Plata WUA	R	1710	76	6	Y		145.76	0.00	0.50	0.00	72.88	0.00
45	UC	West Hammond MDWCA	R	3427	76	6	Y		292.43	0.00	0.40	0.00	116.97	0.00
		River Basin Subtotals		113801					19024.83	1649.74			9926.94	1484.07
		County Totals		113801					19024.83	1649.74			9926.94	1484.07
47	AWR	Big Mesa Water Co-Op	R	500	150	9	Y		83.92	0.00	0.50	0.00	41.96	0.00
47	AWR	Conchas Dam	R	400	207	0	Y		92.89	0.00	0.50	0.00	46.44	0.00
47	AWR	Pendaries Water System	R	300	103	0	Y		34.73	0.00	0.50	0.00	17.36	0.00
47	AWR	Rural self-supplied homes	R	297	80	0	-	N	0.00	26.61	0.00	1.00	0.00	26.61
		River Basin Subtotals		1497					211.54	26.61			105.77	26.61
47	P	East Pecos MDWCA (1990)	R	600	69	0		N	0.00	46.40	0.00	0.50	0.00	23.20
47	P	El Coruco Domestic(est)	R	100	80	0		N	0.00	9.00	0.00	0.50	0.00	4.50
47	P	Ilfield MDWCA	R	160	99	0		Y	0.00	17.80	0.00	0.50	0.00	8.90
47	P	La Pasada MDWCA	R	150	51	0		Y	0.00	8.61	0.00	0.50	0.00	4.30

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
47	P	Las Vegas Water Supply System	U	14565	146	0		Y	2386.63	0.00	0.34	0.00	811.45	0.00
47	P	Pecos Water System	R	1441	121	0		Y	0.00	195.28	0.00	0.61	0.00	119.12
47	P	Ribera MDWCA	R	140	75	0		N	0.00	11.79	0.00	0.50	0.00	5.89
47	P	Rowe MDWCA	R	103	76	0		Y	0.00	8.76	0.00	0.50	0.00	4.38
47	P	Rural self-supplied homes	R	10745	80	0	-	N	0.00	962.88	0.00	1.00	0.00	962.88
47	P	San Jose MDWCA	R	160	51	0		Y	9.14	0.00	0.50	0.00	4.57	0.00
47	P	San Miguel	R	40	97	0		Y	0.00	4.35	0.00	0.50	0.00	2.17
47	P	Sena Water System	R	55	193	0		Y	0.00	11.87	0.00	0.50	0.00	5.93
47	P	Tecolote Domestic Water Ussers Asso	R	120	124	0		Y	0.00	16.70	0.00	0.50	0.00	8.35
47	P	Tecolotito MDWCA	R	250	75	0		Y	0.00	20.90	0.00	0.50	0.00	10.45
		River Basin Subtotals		28629					2395.77	1314.34			816.02	1160.09
		County Totals		30126					2607.31	1340.95			921.79	1186.70
49	P	Glorieta Baptist Conference Center	R	300	603	9		Y	0.00	202.70	0.00	0.50	0.00	101.35
49	P	Glorieta Estates Water Co-Op	R	67	91	0		Y	0.00	6.80	0.00	0.50	0.00	3.40
49	P	Rural self-supplied homes	R	254	80	0	-	N	0.00	22.76	0.00	1.00	0.00	22.76
		River Basin Subtotals		621					0.00	232.26			0.00	127.51
49	RG	Agua Fria MHP	U	100	116	0		Y	0.00	13.01	0.00	0.50	0.00	6.51
49	RG	Canoncito MDWCA (1990)	R	120	100	0		Y	0.00	13.43	0.00	0.50	0.00	6.72
49	RG	Casitas de Santa Fe	U	800	73	0		Y	0.00	65.06	0.00	0.50	0.00	32.53

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
49	RG	Cerillos MDWCA	R	300	57	0		Y	0.00	19.30	0.00	0.50	0.00	9.65
49	RG	Chimayo MDWCA	R	150	111	0		Y	0.00	18.69	0.00	0.50	0.00	9.35
49	RG	Cielo Lindo MHP	R	34	52	0		Y	0.00	1.99	0.00	0.50	0.00	1.00
49	RG	Country Club Estates	R	85	162	0		Y	0.00	15.41	0.00	0.50	0.00	7.70
49	RG	Country Club Gardens MHP	U	800	88	0		Y	0.00	78.53	0.00	0.50	0.00	39.26
49	RG	East Glorieta MDWCA	R	50	83	0		Y	0.00	4.63	0.00	0.50	0.00	2.32
49	RG	Edgewood Water Inc.	U	1893	233	2		Y	0.00	494.93	0.00	0.50	0.00	247.46
49	RG	El Rancho MHP	R	60	67	0		Y	0.00	4.48	0.00	0.50	0.00	2.24
49	RG	El Vadito de Los Cerrillos MDWCA	R	200	81	0		Y	0.00	18.18	0.00	0.50	0.00	9.09
49	RG	Eldorado de Santa Fe	R	6000	75	0		Y	0.00	501.86	0.00	0.50	0.00	250.93
49	RG	Entranosa Wtr Co-Op (part)-Edgewood	U	2345	80	2		Y	0.00	209.70	0.00	0.50	0.00	104.85
49	RG	Espanola Water System (part)	U	1616	116	0		Y	0.00	210.40	0.00	0.20	0.00	42.08
49	RG	Galisteo WUA	R	200	143	0		Y	0.00	32.13	0.00	0.50	0.00	16.07
49	RG	Glorieta MDWCA	R	92	120	0		Y	0.00	12.32	0.00	0.50	0.00	6.16
49	RG	Hyde Park Estates	R	150	32	0		Y	0.00	5.30	0.00	0.50	0.00	2.65
49	RG	Juniper Hills MHP	R	50	67	0		N	0.00	3.73	0.00	0.50	0.00	1.87
49	RG	Juniper Hills PT Ranch	R	60	25	0		Y	0.00	1.70	0.00	0.50	0.00	0.85
49	RG	La Cienega Lakeside MHP	R	60	51	0		Y	0.00	3.42	0.00	0.50	0.00	1.71

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
49	RG	La Cienega MDWCA	R	250	76	0		Y	0.00	21.42	0.00	0.50	0.00	10.71
49	RG	La Puebla MDWCA	R	300	56	0		Y	0.00	18.88	0.00	0.50	0.00	9.44
49	RG	La Vista Homeowners Assn.	R	45	137	0		Y	0.00	6.90	0.00	0.50	0.00	3.45
49	RG	Las Campanas	R	750	992	6		Y	0.00	833.54	0.00	0.90	0.00	750.19
49	RG	Madrid Water Co-Op	R	250	52	0		Y	0.00	14.44	0.00	0.50	0.00	7.22
49	RG	Penitentiary of New Mexico	R	960	226	0		Y	0.00	243.02	0.00	0.50	0.00	121.51
49	RG	Pojoaque Terraces MHP	R	160	82	0		Y	0.00	14.73	0.00	0.50	0.00	7.36
49	RG	Ranchitos de Galisteo WUA	R	60	198	0		Y	0.00	13.30	0.00	0.50	0.00	6.65
49	RG	Rio Chiquito MDWCA	R	120	25	0		Y	0.00	3.31	0.00	0.50	0.00	1.66
49	RG	Rio En Medio MDWCA(1995)	R	120	45	0		N	0.00	6.03	0.00	0.50	0.00	3.02
49	RG	Rufina Apartments	U	50	69	0		Y	0.00	3.84	0.00	0.50	0.00	1.92
49	RG	Rural self-supplied homes	R	33498	80	0	-	N	0.00	3001.81	0.00	1.00	0.00	3001.81
49	RG	Sangre de Cristo Water Company	U	70250	145	4		Y	3575.85	7811.11	0.60	0.60	2145.51	4686.67
49	RG	Santa Cruz MDWCA	R	280	47	0		N	0.00	14.84	0.00	0.50	0.00	7.42
49	RG	Santa Fe Country Club Apartments	R	120	114	0		Y	0.00	15.35	0.00	0.50	0.00	7.68
49	RG	Santa Fe County Utilities	R	621	166	6		Y	106.14	9.45	0.50	0.50	53.07	4.72
49	RG	Santa Fe Mobile Home Hacienda	R	330	52	0		Y	0.00	19.34	0.00	0.50	0.00	9.67
49	RG	Santa Fe West MHP	R	200	55	0		Y	0.00	12.22	0.00	0.50	0.00	6.11

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Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
49	RG	Santa Fe--urban self-supplied homes	U	1200	130	0	-	N	0.00	174.74	0.00	1.00	0.00	174.74
49	RG	Shalom MHP	R	50	89	0		Y	0.00	5.00	0.00	0.50	0.00	2.50
49	RG	Solacito Homeownerns Assn.	R	27	153	0		Y	0.00	4.62	0.00	0.50	0.00	2.31
49	RG	Sunlit Hills of Santa Fe	R	900	134	0		Y	0.00	134.90	0.00	0.50	0.00	67.45
49	RG	Sunset Mobile Home Park (1990)	R	135	77	0		Y	0.00	11.68	0.00	0.50	0.00	5.84
49	RG	Tesuque MDWCA (1990)	R	370	60	0		N	0.00	24.86	0.00	0.50	0.00	12.43
49	RG	Thunder Mtn Water Co.--Edgewood	R	1500	92	0		Y	0.00	155.00	0.00	0.50	0.00	77.50
49	RG	Trailer Ranch MHP	U	175	95	0		Y	0.00	18.57	0.00	0.50	0.00	9.28
49	RG	Valle Vista Subdivision	R	410	153	0		Y	0.00	70.38	0.00	0.50	0.00	35.19
49	RG	Valle Vista/Pueblo Garcia	R	55	42	0		Y	0.00	2.61	0.00	0.50	0.00	1.30
49	RG	Valley Cove MHP	R	75	135	0		N	0.00	11.34	0.00	0.50	0.00	5.67
49	RG	Village MHP	R	120	97	0		Y	0.00	13.01	0.00	0.50	0.00	6.51
49	RG	Vista Redonda MDWCA	R	125	167	0		Y	0.00	23.38	0.00	0.50	0.00	11.69
		River Basin Subtotals		128671					3681.99	14441.81			2198.58	9860.59
		County Totals		129292					3681.99	14674.07			2198.58	9988.10
51	RG	Desertaire Water Company	U	35	142	0		Y	0.00	5.57	0.00	0.50	0.00	2.79
51	RG	Hillsboro	R	150	91	0		Y	0.00	15.30	0.00	0.50	0.00	7.65
51	RG	Lakeshore Sanitation District	R	900	157	9		Y	0.00	157.89	0.00	0.50	0.00	78.94

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.

Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
51	RG	National Utilities--Elephant Butte	R	1500	100	9		Y	0.00	167.68	0.00	0.50	0.00	83.84
51	RG	National Utilities--Meadow Lake	R	1735	128	0		Y	0.00	248.16	0.00	0.50	0.00	124.08
51	RG	Rural self-supplied homes	R	1134	80	0	-	N	0.00	101.62	0.00	1.00	0.00	101.62
51	RG	Truth or Consequences	U	7816	151	4		Y	0.00	1319.00	0.00	0.58	0.00	765.02
		River Basin Subtotals		13270					0.00	2015.22			0.00	1163.94
		County Totals		13270					0.00	2015.22			0.00	1163.94
53	RG	La Joya MDWCA	R	132	69	0		Y	0.00	10.17	0.00	0.50	0.00	5.09
53	RG	Magdalena Water Supply System	R	913	169	0		Y	0.00	172.43	0.00	0.50	0.00	86.21
53	RG	New Mexico Boys Ranch	R	82	298	0		N	0.00	27.35	0.00	0.50	0.00	13.68
53	RG	Polvadera MDWCA	R	1350	103	0		N	0.00	156.21	0.00	0.50	0.00	78.11
53	RG	Rural self-supplied homes	R	5099	80	0	-	N	0.00	456.93	0.00	1.00	0.00	456.93
53	RG	San Acacia MDWCA	R	125	117	0		Y	0.00	16.43	0.00	0.50	0.00	8.22
53	RG	San Antonio MDWCA	R	1500	80	0		Y	0.00	133.70	0.00	0.50	0.00	66.85
53	RG	Socorro	U	8877	207	0		Y	0.00	2059.58	0.00	0.34	0.00	700.26
		River Basin Subtotals		18078					0.00	3032.80			0.00	1415.33
		County Totals		18078					0.00	3032.80			0.00	1415.33
55	RG	Canon MDWCA	R	360	131	0		Y	0.00	52.86	0.00	0.50	0.00	26.43
55	RG	El Prado Water & Sanitation Dist.	R	1000	60	0		Y	0.00	67.67	0.00	0.50	0.00	33.83
55	RG	El Salto MDWCA	R	216	73	0		Y	0.00	17.58	0.00	0.50	0.00	8.79

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.

Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
55	RG	Juniper Hills Mobile Home Park	R	60	93	0		Y	0.00	6.26	0.00	0.50	0.00	3.13
55	RG	La Lomita Mobile Home Park	R	100	78	0		Y	0.00	8.70	0.00	0.50	0.00	4.35
55	RG	Llano Quemado MDWCA	R	650	54	0		Y	0.00	39.64	0.00	0.50	0.00	19.82
55	RG	Lower Arroyo Hondo MDWCA	R	210	60	0		Y	0.00	14.22	0.00	0.50	0.00	7.11
55	RG	Ojo Caliente MDWCA	R	277	130	0		Y	0.00	40.47	0.00	0.50	0.00	20.23
55	RG	Penasco MDWCA	R	437	183	0		Y	0.00	89.37	0.00	0.50	0.00	44.69
55	RG	Questa Water System	R	1864	101	0		Y	0.00	210.42	0.00	0.50	0.00	105.21
55	RG	Ranchos de Taos MDWCA	R	720	78	0		Y	0.00	63.01	0.00	0.50	0.00	31.51
55	RG	Red River Water System	R	484	1059	9		Y	87.06	487.00	0.16	0.16	13.93	77.92
55	RG	Rio Lucio MDWCA	R	360	56	0		Y	0.00	22.70	0.00	0.50	0.00	11.35
55	RG	Rural self-supplied homes	R	15358	80	0	-	N	0.00	1376.26	0.00	1.00	0.00	1376.26
55	RG	San Cristobal MDWCA	R	110	36	0		Y	4.41	0.00	0.50	0.00	2.21	0.00
55	RG	Talpa	R	880	78	0		Y	0.00	76.81	0.00	0.50	0.00	38.40
55	RG	Taos Municipal Water System	U	4700	141	0		Y	0.00	743.31	0.00	0.50	0.00	371.65
55	RG	Trampas MDWCA	R	120	43	0		Y	0.00	5.72	0.00	0.50	0.00	2.86
55	RG	Tres Piedras MDWCA	R	117	95	0		Y	0.00	12.50	0.00	0.50	0.00	6.25
55	RG	Twining Water Sys--Taos Ski Valley	R	1000	93	9		Y	0.00	104.35	0.50	0.50	0.00	52.17
55	RG	Upper Arroyo Hondo MDWCA(1995)	R	176	44	0		Y	0.00	8.70	0.00	0.50	0.00	4.35

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.

Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
55	RG	Upper Des Montes MDWCA(1995)	R	240	45	0		Y	0.00	12.13	0.00	0.50	0.00	6.07
55	RG	Upper Ranchitos MDWCA	R	190	87	0		Y	0.00	18.57	0.00	0.50	0.00	9.28
55	RG	Valle Escondido Water System	R	250	81	0		Y	0.00	22.63	0.00	0.50	0.00	11.31
55	RG	Vigils Trailer Park	R	100	81	0		Y	0.00	9.04	0.00	0.50	0.00	4.52
		River Basin Subtotals		29979					91.47	3509.92			16.14	2277.51
		County Totals		29979					91.47	3509.92			16.14	2277.51
57	P	Clines Corners Water System	R	40	381	0		Y	0.00	17.07	0.00	0.50	0.00	8.53
57	P	Duran Water System(1995)	R	70	76	1,6		Y	0.00	5.96	0.00	0.50	0.00	2.98
57	P	Rural self-supplied homes	R	255	80	0	-	N	0.00	22.85	0.00	1.00	0.00	22.85
		River Basin Subtotals		365					0.00	45.88			0.00	34.37
57	RG	Echo Valley Water Co.	R	100	103	0		Y	0.00	11.56	0.00	0.50	0.00	5.78
57	RG	Encino Water System(1995)	R	94	196	1,6		Y	0.00	20.59	0.00	0.50	0.00	10.30
57	RG	Estancia Water System	R	1584	170	0		Y	0.00	301.48	0.00	0.50	0.00	150.74
57	RG	Homestead Estates	R	154	165	0		Y	0.00	28.41	0.00	0.50	0.00	14.20
57	RG	Moriarty Water System	R	1765	207	0		Y	0.00	408.94	0.00	0.50	0.00	204.47
57	RG	Mountainair	R	1116	60	0		Y	0.00	75.11	0.00	0.50	0.00	37.56
57	RG	Rural self-supplied homes	R	10945	80	0	-	N	0.00	980.80	0.00	1.00	0.00	980.80
57	RG	Sunset Acres Subdivision	R	288	97	0		Y	0.00	31.16	0.00	0.50	0.00	15.58
57	RG	Torreon MDWCA	R	300	40	0		Y	0.00	13.39	0.00	0.50	0.00	6.70

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.

Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
57	RG	Willard Water Supply System	R	200	113	0		Y	0.00	25.40	0.00	0.50	0.00	12.70
		River Basin Subtotals		16546					0.00	1896.84			0.00	1438.82
		County Totals		16911					0.00	1942.72			0.00	1473.19
59	AWR	Clayton Municipal Supply	R	2524	196	0		Y	0.00	554.50	0.00	0.50	0.00	277.25
59	AWR	Des Moines Water System(1995)	R	168	150	0		Y	0.00	28.16	0.00	0.50	0.00	14.08
59	AWR	Grenville Water System	R	30	58	0		Y	0.00	1.94	0.00	0.50	0.00	0.97
59	AWR	Rural self-supplied homes	R	1452	80	0	-	N	0.00	130.12	0.00	1.00	0.00	130.12
		River Basin Subtotals		4174					0.00	714.72			0.00	422.42
		County Totals		4174					0.00	714.72			0.00	422.42
61	RG	Belen Water System	U	6901	226	0		Y	0.00	1747.78	0.00	0.42	0.00	734.07
61	RG	Bosque Farms Water Supply System	R	3180	109	0		Y	0.00	389.13	0.00	0.75	0.00	291.85
61	RG	Cyprus Gardens Water System	R	648	141	0		Y	0.00	102.67	0.00	0.50	0.00	51.33
61	RG	El Shaddi Water Co-Op	R	70	153	0		Y	0.00	12.00	0.00	0.50	0.00	6.00
61	RG	Highland Meadows	R	250	112	0		Y	0.00	31.28	0.00	0.50	0.00	15.64
61	RG	Hi-Mesa Estates MHP	R	200	63	0		Y	0.00	14.08	0.00	0.50	0.00	7.04
61	RG	JC Mobile Home Park	R	34	130	0		Y	0.00	4.97	0.00	0.50	0.00	2.48
61	RG	Los Lunas Correctional Center	R	1151	39	0		Y	0.00	50.82	0.00	0.50	0.00	25.41
61	RG	Los Lunas Water System	U	10034	184	0		Y	0.00	2072.54	0.00	0.55	0.00	1139.90
61	RG	Meadow Lake	R	2399	87	0		Y	0.00	234.00	0.00	0.50	0.00	117.00

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.

Table 6. Public Water Suppy and Self-Supplied Domestic. Water systems, population, per capita use, and withdrawals and depletions in acre-feet, in New Mexico counties, 2000.

CN	RVB	Water Supplier	C	POP	GPCD	WTC	MSW	MGW	WSW	WGW	DFSW	DFGW	DSW	DGW
61	RG	Monterey Mobile Home Estates(1995)	R	1050	81	0		Y	0.00	95.22	0.00	0.50	0.00	47.61
61	RG	Rio Grande Utilities	U	7000	108	0		Y	0.00	849.30	0.00	0.50	0.00	424.65
61	RG	Rural self-supplied homes	R	33178	100	0	-	N	0.00	3716.42	0.00	1.00	0.00	3716.42
61	RG	Trinity MHP--Bosque Farms	R	57	58	0		Y	0.00	3.70	0.00	0.50	0.00	1.85
		River Basin Subtotals		66152					0.00	9323.92			0.00	6581.26
		County Totals		66152					0.00	9323.92			0.00	6581.26
		State Totals		1819046					37875.85	329066.82			19237.78	196670.90

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.

Table 7. Populations in New Mexico river basins, 2000.				
RIVER BASIN	CATEGORY	POPULATION	URBAN POPULATION	RURAL POPULATION
Arkansas-White-Red	Public Water Supply	27507	14137	13370
Arkansas-White-Red	Domestic (self-supplied)	8850	0	8850
River Basin Totals		36357	14137	22220
Texas Gulf	Public Water Supply	97004	93459	3545
Texas Gulf	Domestic (self-supplied)	14602	0	14602
River Basin Totals		111606	93459	18147
Pecos	Public Water Supply	148742	116966	31776
Pecos	Domestic (self-supplied)	28431	0	28431
River Basin Totals		177173	116966	60207
Rio Grande	Public Water Supply	1049409	939426	109983
Rio Grande	Domestic (self-supplied)	240944	8484	232460
River Basin Totals		1290353	947910	342443
Upper Colorado	Public Water Supply	100492	87680	12812
Upper Colorado	Domestic (self-supplied)	32795	0	32795
River Basin Totals		133287	87680	45607
Lower Colorado	Public Water Supply	36059	31920	4139
Lower Colorado	Domestic (self-supplied)	34211	0	34211
River Basin Totals		70270	31920	38350
State Totals		1819046	1292072	526974

Table 8. Irrigated Agriculture. Withdrawals in acre-feet, in New Mexico counties, 1999. Data compiled by A. A. Lucero, New Mexico Office of the State Engineer.

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	0.783	0	20	0	0	20	0.6000	0.0000	0.0000	N	N	0			26
1	RG	Inside MRGCD but exclusive of MRG	D	0.000	1.115	0	130	0	0	130	0.8500	0.0000	0.0000	-	N	0			171
1	RG	MRGCD only	F	1.782	1.782	5556	0	2403	801	8760	0.4796	0.4775	0.2290	Y	N	29572	32359	61932	2976
1	RG	Outside MRGCD	D	0.000	1.115	0	100	0	0	100	0.8500	0.0000	0.0000	-	N	0			131
		River Basin Subtotals				5556	250	2403	801	9010						29572	32359	61932	3304
		County Totals				5556	250	2403	801	9010						29572	32359	61932	3304
3	LC	Quemado & Vicinity	F	1.333	0.000	595	0	0	0	595	0.5500	0.7000	0.3850	N	-	1442	618	2060	0
3	LC	San Francisco River--Apache-Aragon	F	0.272	0.000	294	0	0	0	294	0.4000	0.9000	0.3600	Y	-	200	22	222	0
3	LC	San Francisco River--Glenwood	F	2.000	0.000	513	0	0	0	513	0.4000	0.2124	0.0850	Y	-	2565	9511	12076	0
3	LC	San Francisco River--Luna	F	0.888	0.000	95	0	0	0	95	0.4000	0.5000	0.2000	Y	-	211	211	422	0
3	LC	San Francisco River--Reserve	F	1.272	0.000	340	0	0	0	340	0.4000	0.2232	0.0893	Y	-	1081	3763	4844	0
		River Basin Subtotals				1837	0	0	0	1837						5499	14125	19624	0
3	RG	San Augustin Plains	F	0.000	1.866	0	100	0	0	100	0.5500	0.0000	0.0000	-	N	0			339
		River Basin Subtotals				0	100	0	0	100						0			339
		County Totals				1837	100	0	0	1937						5499	14125	19624	339
5	P	Rio Hondo	F	1.241	0.000	1264	0	0	0	1264	0.5500	0.7000	0.3850	N	-	2852	1222	4074	0
5	P	Rio Hondo	S	0.000	1.138	0	283	0	0	283	0.6500	0.0000	0.0000	-	N	0			495
5	P	Rio Penasco	F	1.341	1.341	39	59	942	236	1276	0.5500	0.7000	0.3850	N	N	2392	1025	3417	719
5	P	Roswell Basin North	D	0.000	2.268	0	40	0	0	40	0.8500	0.0000	0.0000	-	Y	0			107
5	P	Roswell Basin North	S	0.000	2.070	0	18500	0	0	18500	0.7000	0.0000	0.0000	-	Y	0			54707

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 requirment 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); TFSW=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.

Table 8. Irrigated Agriculture. Withdrawals in acre-feet, in New Mexico counties, 1999. Data compiled by A. A. Lucero, New Mexico Office of the State Engineer.

CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
5	P	Roswell Basin North (part)	F	1.920	0.000	789	0	2813	0	3602	0.6000	0.7500	0.4500	Y	-	11526	3842	15369	0
5	P	Roswell Basin North (part)	F	0.000	1.920	0	71641	0	7952	79593	0.6000	0.0000	0.0000	-	Y	0			254698
5	P	Scattered	F	2.813	2.813	0	50	250	500	800	0.6000	0.9000	0.5400	N	N	1172	130	1302	2579
		River Basin Subtotals				2092	90573	4005	8688	105358						17942	6219	24162	313305
		County Totals				2092	90573	4005	8688	105358						17942	6219	24162	313305
6	LC	Scattered	D	0.000	1.084	0	50	0	0	50	0.8500	0.0000	0.0000	-	N	0			64
6	LC	Scattered	F	1.656	0.000	512	0	0	0	512	0.5500	0.7000	0.3850	N	N	1542	661	2202	0
		River Basin Subtotals				512	50	0	0	562						1542	661	2202	64
6	RG	Scattered	D	0.000	0.834	0	20	0	0	20	0.8500	0.0000	0.0000	-	N	0			20
6	RG	Scattered	F	0.387	0.387	1608	350	536	230	2724	0.5500	0.7000	0.3850	N	N	1509	647	2155	408
		River Basin Subtotals				1608	370	536	230	2744						1509	647	2155	428
		County Totals				2120	420	536	230	3306						3051	1308	4357	492
7	AWR	Canadian River	F	1.119	0.000	5210	0	0	0	5210	0.5500	0.6000	0.3300	N	-	10600	7067	17667	0
7	AWR	Canadian River	S	1.262	0.000	600	0	0	0	600	0.6500	0.6000	0.3900	N	-	1165	777	1942	0
7	AWR	Cimarron River	F	0.640	0.000	8500	0	0	0	8500	0.5500	0.6000	0.3300	N	-	9891	6594	16485	0
7	AWR	Cimarron River	S	0.000	1.112	0	535	0	0	535	0.6500	0.0000	0.0000	-	-	0			915
7	AWR	Dry Cimarron	F	1.432	0.000	505	0	0	0	505	0.5500	0.7000	0.3850	N	-	1315	564	1878	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	1.368	0.000	160	0	0	0	160	0.5500	0.7000	0.3850	N	-	398	171	569	0
7	AWR	Vermejo Conservancy District	F	0.556	0.000	5808	0	0	0	5808	0.5500	0.6897	0.3793	Y	-	5871	2642	8513	0

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7	AWR	Vermejo Conservancy District	S	0.563	0.000	100	0	0	0	100	0.6500	0.6897	0.4483	Y	-	87	39	126	0
			River Basin Subtotals			21263	535	0	0	21798						30181	18220	48400	915
			County Totals			21263	535	0	0	21798						30181	18220	48400	915
9	AWR	Scattered	F	0.000	0.765	0	4110	0	0	4110	0.5500	0.0000	0.0000	-	N	0			5717
9	AWR	Scattered	S	0.000	0.788	0	5610	0	0	5610	0.8000	0.0000	0.0000	-	N	0			5526
			River Basin Subtotals			0	9720	0	0	9720						0			11243
9	P	Scattered	S	0.000	0.809	0	1350	0	0	1350	0.8000	0.0000	0.0000	-	N	0			1365
			River Basin Subtotals			0	1350	0	0	1350						0			1365
9	TG	Scattered	D	0.000	0.964	0	190	0	0	190	0.8500	0.0000	0.0000	-	N	0			215
9	TG	Scattered	F	0.000	0.935	0	21510	0	0	21510	0.6000	0.0000	0.0000	-	N	0			33520
9	TG	Scattered	S	0.000	1.062	0	112650	0	0	112650	0.8000	0.0000	0.0000	-	N	0			149543
			River Basin Subtotals			0	134350	0	0	134350						0			183278
			County Totals			0	145420	0	0	145420						0			195886
11	P	Fort Sumner Irrigation District	F	1.572	0.000	5219	0	0	0	5219	0.2710	0.7637	0.2070	Y	-	30274	9367	39641	0
11	P	Scattered	S	0.000	1.870	0	3420	0	0	3420	0.6500	0.0000	0.0000	-	N	0			9839
			River Basin Subtotals			5219	3420	0	0	8639						30274	9367	39641	9839
			County Totals			5219	3420	0	0	8639						30274	9367	39641	9839
13	RG	EBID Only	D	2.088	0.000	300	0	0	0	300	0.8500	0.5518	0.3311	N	-	737	599	1336	0
13	RG	EBID Only	F	2.606	2.415	0	0	52403	17323	69726	0.6000	0.5518	0.3311	Y	N	227604	184871	412475	69725
13	RG	Hueco Basin	F	0.000	2.766	0	155	0	0	155	0.6000	0.0000	0.0000	-	N	0			715

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13	RG	Hueco Basin	S	0.000	2.433	0	25	0	0	25	0.6500	0.0000	0.0000	-	N	0			94
13	RG	Inside EBID but exclusive of EBID	D	0.000	2.088	0	240	0	0	240	0.8500	0.0000	0.0000	-	N	0			590
13	RG	Inside EBID but exclusive of EBID	S	0.000	3.025	0	1360	0	0	1360	0.6000	0.0000	0.0000	-	N	0			6857
13	RG	Nutt-Hockett	F	0.000	1.572	0	10	0	0	10	0.6000	0.0000	0.0000	-	N	0			26
13	RG	Nutt-Hockett	S	0.000	1.896	0	170	0	0	170	0.6500	0.0000	0.0000		N	0			496
13	RG	Outside EBID	F	0.000	2.690	0	3844	0	0	3844	0.6000	0.0000	0.0000	-	N	0			17234
13	RG	Outside EBID--Santa Teresa Sod Far	S	0.000	3.944	0	200	0	0	200	0.5766	0.0000	0.0000	-	Y	0			1368
		River Basin Subtotals				300	6004	52403	17323	76030						228341	185470	413811	97105
		County Totals				300	6004	52403	17323	76030						228341	185470	413811	97105
15	P	Black River	F	2.761	2.761	47	538	292	292	1169	0.5500	0.8000	0.4400	N	N	1702	425	2127	4167
15	P	Carlsbad Basin Scattered	S	0.000	2.571	0	93	0	0	93	0.6500	0.0000	0.0000	-	N	0			368
15	P	Carlsbad Basin--Scattered	F	2.742	2.742	326	1118	0	0	1444	0.5500	0.8000	0.4400	Y	N	1625	406	2032	5574
15	P	Carlsbad Irrigation District	F	2.772	2.772	2503	0	12600	4358	19461	0.6000	0.6939	0.4163	Y	-	69776	30780	100556	20134
15	P	Rio Penasco	F	0.000	0.902	0	38	0	0	38	0.5500	0.7000	0.3850	N	N	0	0	0	62
15	P	Roswell Basin South	F	0.000	1.690	0	9884	0	0	9884	0.6000	0.0000	0.0000	-	Y	0			27840
15	P	Roswell Basin South	S	0.000	2.000	0	22685	0	0	22685	0.7000	0.0000	0.0000	-	Y	0			64814
		River Basin Subtotals				2876	34356	12892	4650	54774						73103	31611	104715	122959
		County Totals				2876	34356	12892	4650	54774						73103	31611	104715	122959
17	LC	Gila River--Cliff Gila	F	1.888	1.888	1033	0	42	42	1117	0.4000	0.2509	0.1004	Y	-	5074	15149	20223	198
17	LC	Gila River--Red Rock	F	2.083	2.083	0	0	88	53	141	0.4000	0.3647	0.1459	Y	N	458	798	1257	276

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17	LC	Gila River--Upper Gila	F	0.907	0.000	63	0	0	0	63	0.4000	0.1454	0.0582	Y	-	143	839	982	0
17	LC	Lordsburg Valley	F	0.000	1.695	0	189	0	0	189	0.5500	0.0000	0.0000	-	N	0			582
		River Basin Subtotals				1096	189	130	95	1510						5675	16786	22462	1056
17	RG	Mimbres River	F	1.509	1.509	382	750	402	268	1802	0.5500	0.6500	0.3575	N	N	2151	1158	3309	2793
17	RG	Mimbres River	S	0.000	1.482	0	110	0	0	110	0.6500	0.0000	0.0000	-	N	0			251
		River Basin Subtotals				382	860	402	268	1912						2151	1158	3309	3044
		County Totals				1478	1049	532	363	3422						7826	17944	25771	4100
19	P	Anton Chico	F	1.297	0.000	2547	0	0	0	2547	0.5500	0.6000	0.3300	N	-	6006	4004	10010	0
19	P	Colonias	F	0.000	1.415	0	223	0	0	223	0.5500	0.0000	0.0000	-	N	0			574
19	P	Puerto de Luna	F	1.469	0.000	601	0	0	0	601	0.5500	0.6000	0.3300	N	-	1605	1070	2675	0
19	P	Scattered	F	0.000	1.162	0	274	0	0	274	0.5500	0.0000	0.0000	-	N	0			579
19	P	Scattered	S	0.000	1.450	0	15	0	0	15	0.6500	0.0000	0.0000	-	N	0			33
		River Basin Subtotals				3148	512	0	0	3660						7611	5074	12685	1186
		County Totals				3148	512	0	0	3660						7611	5074	12685	1186
21	AWR	Scattered	F	0.000	1.032	0	20	0	0	20	0.5500	0.0000	0.0000	-	N	0			38
21	AWR	Scattered	S	0.000	1.031	0	2280	0	0	2280	0.6500	0.0000	0.0000	-	N	0			3616
		River Basin Subtotals				0	2300	0	0	2300						0			3654
		County Totals				0	2300	0	0	2300						0			3654
23	LC	Animas Valley	F	0.000	1.982	0	4428	0	0	4428	0.5500	0.0000	0.0000	-	N	0			15957
23	LC	Animas Valley	S	0.000	1.619	0	2168	0	0	2168	0.6500	0.0000	0.0000	-	N	0			5400

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23	LC	Gila River--Virden Valley	F	2.031	2.031	0	0	1657	703	2360	0.5500	0.7000	0.3850	N	N	6119	2622	8741	2596
23	LC	Lordsburg Valley	F	0.000	2.001	0	1613	0	0	1613	0.5500	0.0000	0.0000	-	N	0			5868
23	LC	Playas	F	0.000	2.908	0	375	0	0	375	0.5500	0.0000	0.0000	-	N	0			1983
23	LC	San Simon Valley	F	0.000	1.111	0	366	0	0	366	0.5500	0.0000	0.0000	-	Y	0			739
23	LC	San Simon Valley	S	0.000	1.230	0	317	0	0	317	0.6500	0.0000	0.0000	-	N	0			600
			River Basin Subtotals			0	9267	1657	703	11627						6119	2622	8741	33143
			County Totals			0	9267	1657	703	11627						6119	2622	8741	33143
25	P	Scattered	D	0.000	1.953	0	220	0	0	220	0.8500	0.0000	0.0000	-	N	0			505
			River Basin Subtotals			0	220	0	0	220						0			505
25	TG	Scattered	D	0.000	2.062	0	605	0	0	605	0.8500	0.0000	0.0000	-	N	0			1468
25	TG	Scattered	F	0.000	1.650	0	1000	0	0	1000	0.5500	0.0000	0.0000	-	N	0			3000
25	TG	Scattered	S	0.000	1.399	0	57993	0	0	57993	0.6500	0.0000	0.0000	-	N	0			124819
			River Basin Subtotals			0	59598	0	0	59598						0			129287
			County Totals			0	59818	0	0	59818						0			129792
27	P	Rio Hondo & Tributaries	F	2.004	2.004	1455	606	1181	506	3748	0.4400	0.7000	0.3500	N	N	12006	5145	17151	5065
27	P	Rio Hondo & Tributaries	S	0.000	2.059	0	100	0	0	100	0.6500	0.0000	0.0000	-	N	0			317
27	P	Rio Hondo Tributaries	D	0.000	0.979	0	5	0	0	5	0.8500	0.0000	0.0000	-	N	0			6
27	P	Scattered	F	0.000	0.979	0	2	0	0	2	0.4500	0.7000	0.3150	N	N	0	0	0	4
			River Basin Subtotals			1455	713	1181	506	3855						12006	5145	17151	5392
27	RG	Carrizozo & Vicinity	D	0.000	1.384	0	30	0	0	30	0.8500	0.0000	0.0000	-	N	0			49

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27	RG	Carrizozo & Vicinity	F	0.000	1.859	0	130	0	0	130	0.5500	0.0000	0.0000	-	N	0			439
27	RG	Carrizozo & Vicinity	S	0.000	2.033	0	70	0	0	70	0.6500	0.0000	0.0000	-	N	0			219
			River Basin Subtotals			0	230	0	0	230						0			707
			County Totals			1455	943	1181	506	4085						12006	5145	17151	6099
29	RG	Mimbres Basin	S	0.000	2.160	0	783	0	0	783	0.6500	0.0000	0.0000	-	N	0			2602
29	RG	Mimbres River	D	0.000	1.626	0	1879	0	0	1879	0.8500	0.0000	0.0000	-	N	0			3594
29	RG	Mimbres River	F	1.713	1.713	200	21569	600	600	22969	0.5500	0.6500	0.3575	N	N	2492	1342	3833	69046
29	RG	Mimbres River--Floodwater Area	F	0.812	0.000	10350	0	0	0	10350	0.4500	1.0000	0.4500	N	-	18676	0	18676	0
29	RG	Nutt-Hockett	D	0.000	1.530	0	1361	0	0	1361	0.8500	0.0000	0.0000	-	N	0			2450
29	RG	Nutt-Hockett	F	0.000	1.654	0	1735	0	0	1735	0.6000	0.0000	0.0000	-	N	0			4783
29	RG	Nutt-Hockett	S	0.000	1.854	0	3225	0	0	3225	0.6500	0.0000	0.0000	-	N	0			9199
			River Basin Subtotals			10550	30552	600	600	42302						21168	1342	22509	91674
			County Totals			10550	30552	600	600	42302						21168	1342	22509	91674
31	LC	Zuni & Ramah	F	0.150	0.000	3242	0	0	0	3242	0.5500	0.7000	0.3850	N	-	884	379	1263	0
			River Basin Subtotals			3242	0	0	0	3242						884	379	1263	0
31	RG	Scattered	F	1.562	0.000	150	0	0	0	150	0.5500	0.8000	0.4400	N	-	426	106	532	0
			River Basin Subtotals			150	0	0	0	150						426	106	532	0
31	UC	Scattered	F	0.166	0.000	1715	0	0	0	1715	0.5500	0.7000	0.3850	N	-	518	222	739	0
			River Basin Subtotals			1715	0	0	0	1715						518	222	739	0
			County Totals			5107	0	0	0	5107						1828	707	2534	0

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33	AWR	Scattered	D	0.000	0.762	0	50	0	0	50	0.8500	0.0000	0.0000	-	N	0			45
33	AWR	Scattered	F	0.847	0.000	13730	0	0	0	13730	0.5500	0.7000	0.3850	N	-	21144	9062	30206	0
33	AWR	Scattered	S	1.001	0.000	1100	0	0	0	1100	0.6500	0.7000	0.4550	N	-	1694	726	2420	0
			River Basin Subtotals			14830	50	0	0	14880						22838	9788	32626	45
			County Totals			14830	50	0	0	14880						22838	9788	32626	45
35	P	Rio Penasco	F	1.133	0.000	625	0	0	0	625	0.5500	0.7000	0.3850	N	-	1287	552	1839	0
			River Basin Subtotals			625	0	0	0	625						1287	552	1839	0
35	RG	Salt Basin	F	0.000	2.178	0	397	0	0	397	0.6000	0.0000	0.0000	-	N	0			1441
35	RG	Salt Basin	S	0.000	2.192	0	1730	0	0	1730	0.6500	0.0000	0.0000	-	N	0			5834
35	RG	Tularosa Basin	D	0.000	2.584	0	1821	0	0	1821	0.8500	0.0000	0.0000	-	N	0			5536
35	RG	Tularosa Basin	F	2.529	2.529	250	0	1071	357	1678	0.6000	0.7000	0.4200	N	N	5568	2386	7954	1505
35	RG	Tularosa Basin	S	0.000	2.817	0	2230	0	0	2230	0.6500	0.0000	0.0000	-	N	0			9664
			River Basin Subtotals			250	6178	1071	357	7856						5568	2386	7954	23980
			County Totals			875	6178	1071	357	8481						6855	2938	9793	23980
37	AWR	Arch Hurley Conservancy District	F	0.861	0.000	27096	0	0	0	27096	0.6000	0.4274	0.2564	Y	-	38883	52092	90975	0
37	AWR	Arch Hurley Conservancy District	S	0.848	0.000	5561	0	0	0	5561	0.6500	0.4274	0.2564	Y	-	7257	9722	16979	0
37	AWR	Inside AHCD but exclusive of AHCD	D	0.000	1.750	0	17	0	0	17	0.8500	0.0000	0.0000	-	N	0			35
37	AWR	Outside AHCD	S	0.000	1.247	0	883	0	0	883	0.6500	0.0000	0.0000	-	N	0			1694
			River Basin Subtotals			32657	900	0	0	33557						46140	61814	107954	1729
37	P	House & Vicinity	F	0.000	1.029	0	310	0	0	310	0.5500	0.0000	0.0000	-	N	0			580

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CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
37	P	House & Vicinity	S	0.000	1.172	0	2350	0	0	2350	0.6500	0.0000	0.0000	-	N	0			4237
			River Basin Subtotals			0	2660	0	0	2660						0			4817
			County Totals			32657	3560	0	0	36217						46140	61814	107954	6546
39	RG	Rio Chama	F	1.072	1.072	21030	500	210	70	21810	0.5000	0.6000	0.3000	N	N	45539	30359	75898	1222
39	RG	Santa Cruz & Vicinity	F	1.153	0.000	4260	0	0	0	4260	0.5500	0.7000	0.3850	N	-	8931	3827	12758	0
39	RG	Truchas & Vicinity	F	1.132	0.000	2882	0	0	0	2882	0.4000	0.7000	0.2800	N	-	8156	3495	11652	0
39	RG	Velarde & Vicinity	D	0.000	0.868	0	35	0	0	35	0.8500	0.0000	0.0000	-	N	0			36
39	RG	Velarde & Vicinity	F	1.342	0.000	2460	0	0	0	2460	0.5000	0.7000	0.3500	N	-	6603	2830	9432	0
			River Basin Subtotals			30632	535	210	70	31447						69229	40511	109740	1258
39	UC	Dulce & Vicinity	F	0.748	0.000	400	0	0	0	400	0.5000	0.7000	0.3500	N	-	598	256	855	0
			River Basin Subtotals			400	0	0	0	400						598	256	855	0
			County Totals			31032	535	210	70	31847						69827	40767	110595	1258
41	P	Scattered	S	0.000	1.128	0	450	0	0	450	0.7000	0.0000	0.0000	-	N	0			725
			River Basin Subtotals			0	450	0	0	450						0			725
41	TG	Causey-Lingo	F	0.000	0.989	0	730	0	0	730	0.6000	0.0000	0.0000	-	N	0			1203
41	TG	Causey-Lingo	S	0.000	0.985	0	2750	0	0	2750	0.7000	0.0000	0.0000	-	N	0			3870
41	TG	Portales Basin	D	0.000	1.127	0	123	0	0	123	0.8500	0.0000	0.0000	-	N	0			163
41	TG	Portales Basin	F	0.000	1.094	0	3901	0	0	3901	0.6000	0.0000	0.0000	-	N	0			7113
41	TG	Portales Basin	S	0.000	1.196	0	79388	0	0	79388	0.7000	0.0000	0.0000	-	N	0			135640
			River Basin Subtotals			0	86892	0	0	86892						0			147989

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CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
				County Totals		0	87342	0	0	87342						0			148714
43	RG	Cuba & Vicinity	F	0.978	0.978	1585	70	0	0	1655	0.5000	0.7000	0.3500	N	N	3100	1329	4429	137
43	RG	Jemez Basin	F	1.278	0.000	1570	0	0	0	1570	0.5000	0.7000	0.3500	N	-	4013	1720	5733	0
43	RG	MRGCD only	F	1.985	1.985	5410	0	499	166	6075	0.4796	0.4775	0.2290	Y	N	24457	26761	51218	687
43	RG	Outside MRGCD (Dixon Apples)	S	1.591	0.000	50	0	0	0	50	0.6000	1.0000	0.0000	N	-	133	0	133	0
				River Basin Subtotals		8615	70	499	166	9350						31703	29810	61513	824
				County Totals		8615	70	499	166	9350						31703	29810	61513	824
45	UC	Animas River	F	1.808	0.000	4000	0	0	0	4000	0.5500	0.7000	0.3850	N	-	13149	5635	18784	0
45	UC	Animas River	S	2.072	0.000	978	0	0	0	978	0.6500	0.7000	0.4550	N	-	3118	1336	4454	0
45	UC	Chaco River	F	1.791	0.000	306	0	0	0	306	0.4500	0.7000	0.3150	N	-	1218	522	1740	0
45	UC	Hammond Irrigation District	F	2.088	0.000	141	0	0	0	141	0.5500	0.7200	0.3960	Y	-	535	208	743	0
45	UC	Hammond Irrigation District	S	1.963	0.000	3157	0	0	0	3157	0.6500	0.7200	0.4680	Y	-	9534	3708	13242	0
45	UC	La Plata River	F	1.572	0.000	2055	0	0	0	2055	0.5500	0.7000	0.3850	N	-	5874	2517	8391	0
45	UC	La Plata River	S	1.482	0.000	612	0	0	0	612	0.6500	0.7000	0.4550	N	-	1395	598	1993	0
45	UC	Navajo Indian Irrigation Project	S	1.344	0.000	49745	0	0	0	49745	0.5852	0.9360	0.4252	Y	-	114247	7812	122059	0
45	UC	Navajo--Colorado River Storage Prj.	F	1.903	0.000	163	0	0	0	163	0.5000	0.7500	0.3750	Y	-	620	207	827	0
45	UC	Pine River Irrigation District	F	0.758	0.000	411	0	0	0	411	0.5000	0.7481	0.3740	Y	-	623	210	833	0
45	UC	San Juan River	F	1.679	0.000	9630	0	0	0	9630	0.5500	0.7000	0.3850	N	-	29398	12599	41997	0
45	UC	San Juan River	S	1.884	0.000	1458	0	0	0	1458	0.6500	0.7000	0.4550	N	-	4226	1811	6037	0
				River Basin Subtotals		72656	0	0	0	72656						183937	37163	221100	0

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		County Totals				72656	0	0	0	72656						183937	37163	221100	0
47	AWR	Canadian River	F	1.234	0.000	1065	0	0	0	1065	0.5500	0.7000	0.3850	N	-	2389	1024	3414	0
47	AWR	Sapello River	F	1.528	0.000	1610	0	0	0	1610	0.4500	0.7000	0.3150	N	-	5467	2343	7810	0
		River Basin Subtotals				2675	0	0	0	2675						7856	3367	11224	0
47	P	Scattered	F	0.880	0.000	3447	0	0	0	3447	0.5000	0.6000	0.3000	N	-	6067	4044	10111	0
47	P	Storrie Irrigation Project	F	1.707	0.000	4353	0	0	0	4353	0.5000	0.6000	0.3000	N	-	14861	9907	24769	0
47	P	Storrie Irrigation Project	S	1.682	0.000	670	0	0	0	670	0.6500	1.0000	0.6500	N	-	1734	0	1734	0
		River Basin Subtotals				8470	0	0	0	8470						22662	13951	36614	0
		County Totals				11145	0	0	0	11145						30518	17318	47836	0
49	RG	Estancia Basin	D	0.000	1.876	0	40	0	0	40	0.8500	0.0000	0.0000	-	N	0			88
49	RG	Estancia Basin	F	0.000	1.022	0	3866	0	0	3866	0.6000	0.0000	0.0000	-	N	0			6585
49	RG	Estancia Basin	S	0.000	1.164	0	5197	0	0	5197	0.6500	0.0000	0.0000	-	N	0			9307
49	RG	Pojoaque Valley	D	0.000	1.079	0	20	0	0	20	0.8500	0.0000	0.0000	-	N	0			25
49	RG	Pojoaque Valley Irrigation District	F	0.910	0.910	1917	0	280	100	2297	0.5500	0.7530	0.4141	Y	N	3635	1192	4827	165
49	RG	Santa Cruz & Vicinity	F	0.740	0.000	4600	0	0	0	4600	0.5500	0.7000	0.3850	N	-	6189	2652	8842	0
49	RG	Santa Fe & Vicinity	F	1.550	1.550	595	20	110	110	835	0.5000	0.7000	0.3500	N	N	2185	937	3122	403
		River Basin Subtotals				7112	9143	390	210	16855						12009	4781	16791	16573
		County Totals				7112	9143	390	210	16855						12009	4781	16791	16573
51	RG	Above Elephant Butte--Alamosa Creek	F	1.990	1.990	300	631	742	247	1920	0.6000	0.7000	0.4200	N	N	3456	1481	4937	2912
51	RG	Above Elephant Butte--Engle	D	0.000	0.000	0	0	0	0	0	0.8500	1.0000	0.8500	N	-	0	0	0	0

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51	RG	EBID only	F	2.102	2.101	0	0	3077	586	3663	0.6000	0.6500	0.3900	Y	N	10780	5804	16584	2052
51	RG	Lake Valley & Vicinity	F	0.000	1.871	0	131	0	0	131	0.5500	0.0000	0.0000	-	N	0			446
51	RG	Los Animas Creek and others	F	2.102	2.102	200	556	230	80	1066	0.5500	0.7000	0.3850	N	N	1643	704	2348	2431
51	RG	Nutt-Hockett	F	0.000	1.836	0	180	0	0	180	0.6000	0.0000	0.0000	-	N	0			551
51	RG	Truth or Consequences	F	0.000	2.102	0	842	0	0	842	0.6000	0.0000	0.0000	-	N	0			2950
			River Basin Subtotals			500	2340	4049	913	7802						15879	7989	23869	11342
			County Totals			500	2340	4049	913	7802						15879	7989	23869	11342
53	RG	Bosque del Apache	F	2.282	0.000	2304	0	0	0	2304	0.5500	0.7000	0.3850	N	-	9560	4097	13656	0
53	RG	La Jolla	F	2.478	2.478	30	40	154	103	327	0.5500	0.7000	0.3850	N	N	829	355	1184	644
53	RG	MRGCD only	F	2.668	2.668	3073	0	7972	5315	16360	0.4796	0.4775	0.2290	Y	N	61443	67233	128676	29567
53	RG	Outside MRGCD	D	0.000	1.284	0	80	0	0	80	0.8500	0.0000	0.0000	-	N	0			121
53	RG	San Augustine Plains	S	0.000	1.856	0	1120	0	0	1120	0.6500	0.0000	0.0000	-	N	0			3198
			River Basin Subtotals			5407	1240	8126	5418	20191						71832	71685	143516	33530
			County Totals			5407	1240	8126	5418	20191						71832	71685	143516	33530
55	RG	Cerro-Questa	F	1.109	0.000	4245	0	0	0	4245	0.5000	0.6000	0.3000	N	-	9415	6277	15692	0
55	RG	Cerro-Questa	S	0.000	1.182	0	600	0	0	600	0.6500	0.0000	0.0000	-	N	0			1091
55	RG	Costilla	F	0.662	0.000	5515	0	0	0	5515	0.5000	0.6000	0.3000	N	-	7302	4868	12170	0
55	RG	Costilla	S	0.000	1.228	0	100	0	0	100	0.6500	0.0000	0.0000	N	-	0			189
55	RG	Embudo & Vicinity	F	1.160	0.000	5020	0	0	0	5020	0.5000	0.7000	0.3500	N	-	11646	4991	16638	0
55	RG	Embudo & Vicinity	S	0.000	1.212	0	250	0	0	250	0.6500	0.0000	0.0000	N	-	0			466

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55	RG	Pilar & Ojo Caliente	F	1.159	0.000	80	0	0	0	80	0.5000	0.9000	0.4500	N	-	185	21	206	0
55	RG	Taos & Vicinity	F	1.338	1.338	13650	40	150	50	13890	0.5000	0.7000	0.3500	N	N	36929	15827	52755	241
55	RG	Taos & Vicinity	S	0.000	1.419	0	50	0	0	50	0.6500	0.0000	0.0000	N	-	0			109
		River Basin Subtotals				28510	1040	150	50	29750						65477	31984	97461	2096
		County Totals				28510	1040	150	50	29750						65477	31984	97461	2096
57	RG	Estancia Basin	D	0.000	0.709	0	30	0	0	30	0.8500	0.0000	0.0000	-	N	0			25
57	RG	Estancia Basin	F	0.000	1.366	0	3877	0	0	3877	0.6000	0.0000	0.0000	-	N	0			8827
57	RG	Estancia Basin	S	0.000	1.210	0	13299	0	0	13299	0.6500	0.0000	0.0000	-	N	0			24757
		River Basin Subtotals				0	17206	0	0	17206						0			33609
		County Totals				0	17206	0	0	17206						0			33609
59	AWR	Clayton & Vicinity	D	0.000	2.186	0	15	0	0	15	0.8500	0.0000	0.0000	-	N	0			39
59	AWR	Clayton & Vicinity	F	0.000	1.106	0	472	0	0	472	0.6000	0.0000	0.0000	-	N	0			870
59	AWR	Clayton & Vicinity	S	0.000	0.922	0	50233	0	0	50233	0.6500	0.0000	0.0000	-	N	0			71254
59	AWR	Dry Cimarron	F	1.253	1.253	1595	600	190	190	2575	0.5500	0.7000	0.3850	N	N	4067	1743	5809	1800
59	AWR	Dry Cimarron	S	0.000	1.008	0	2000	0	0	2000	0.6500	0.0000	0.0000	N	-	0			3102
59	AWR	Tramperos Creek	F	0.822	0.822	270	80	0	0	350	0.5500	0.7000	0.3850	N	N	404	173	576	120
		River Basin Subtotals				1865	53400	190	190	55645						4471	1916	6385	77185
		County Totals				1865	53400	190	190	55645						4471	1916	6385	77185
61	RG	Inside MRGCD but exclusive of CD	D	0.000	1.128	0	35	0	0	35	0.8500	0.0000	0.0000	-	N	0			46
61	RG	MRGCD only	F	2.028	2.028	13838	0	5220	1740	20798	0.5000	0.4775	0.2467	Y	N	77299	84584	161883	7057

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CN	RVB	LOCALE	T	CIRSW	CIRGW	ASWO	AGWO	ASWC	AGWC	TAI	EF	EC	EJ	MSW	MGW	TFWSW	CLSW	TPWSW	TPWGW
		River Basin Subtotals				13838	35	5220	1740	20833						77299	84584	161883	7103
		County Totals				13838	35	5220	1740	20833						77299	84584	161883	7103
		State Totals				292043	567656	96114	42978	998793						1113306	734050	1847357	1376597

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Table 9. Irrigated Agriculture. Depletions in acre-feet, in New Mexico counties, 1999. Data compiled by A. A. Lucero, New Mexico Office of the State Engineer.

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	0.783	0.000	0.050	0.000	0.000	0.050	0.000	0	20	0	0	20	0	16
1	RG	Inside MRGCD but exclusive of MRG	D	0.000	1.115	0.000	0.000	0.000	0.000	0.000	0.000	0	130	0	0	130	0	145
1	RG	MRGCD only	F	1.782	1.782	0.030	0.050	0.073	0.153	0.000	0.123	5556	0	2403	801	8760	16353	1603
1	RG	Outside MRGCD	D	0.000	1.115	0.000	0.000	0.000	0.000	0.000	0.000	0	100	0	0	100	0	112
											River Basin Subtotals	5556	250	2403	801	9010	16353	1876
											County Totals	5556	250	2403	801	9010	16353	1876
3	LC	Quemado & Vicinity	F	1.333	0.000	0.020	0.050	0.030	0.100	0.000	0.000	595	0	0	0	595	872	0
3	LC	San Francisco River--Apache-Aragon	F	0.272	0.000	0.020	0.050	0.080	0.150	0.000	0.000	294	0	0	0	294	92	0
3	LC	San Francisco River--Glenwood	F	2.000	0.000	0.020	0.050	0.080	0.150	0.000	0.130	513	0	0	0	513	1180	0
3	LC	San Francisco River--Luna	F	0.888	0.000	0.020	0.050	0.080	0.150	0.000	0.000	95	0	0	0	95	97	0
3	LC	San Francisco River--Reserve	F	1.272	0.000	0.020	0.050	0.080	0.150	0.000	0.000	340	0	0	0	340	497	0
											River Basin Subtotals	1837	0	0	0	1837	2738	0
3	RG	San Augustin Plains	F	0.000	1.866	0.000	0.050	0.000	0.000	0.050	0.000	0	100	0	0	100	0	196
											River Basin Subtotals	0	100	0	0	100	0	196
											County Totals	1837	100	0	0	1937	2738	196
5	P	Rio Hondo	F	1.241	0.000	0.010	0.050	0.024	0.084	0.000	0.000	1264	0	0	0	1264	1700	0
5	P	Rio Hondo	S	0.000	1.136	0.000	0.262	0.000	0.000	0.262	0.000	0	283	0	0	283	0	406
5	P	Rio Penasco	F	1.341	1.341	0.030	0.050	0.100	0.180	0.000	0.150	39	59	942	236	1276	1552	443
5	P	Roswell Basin North	D	0.000	2.268	0.000	0.000	0.000	0.000	0.000	0.000	0	40	0	0	40	0	91

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5	P	Roswell Basin North	S	0.000	2.070	0.000	0.243	0.000	0.000	0.243	0.000	0	18500	0	0	18500	0	47601
5	P	Roswell Basin North (part)	F	1.920	0.000	0.032	0.050	0.050	0.132	0.000	0.000	789	0	2813	0	3602	7829	0
5	P	Roswell Basin North (part)	F	0.000	1.920	0.000	0.050	0.050	0.000	0.050	0.100	0	71641	0	7952	79593	0	161223
5	P	Scattered	F	2.813	2.813	0.032	0.050	0.050	0.132	0.050	0.100	0	50	250	500	800	796	1695
										River Basin Subtotals		2092	90573	4005	8688	105358	11877	211459
										County Totals		2092	90573	4005	8688	105358	11877	211459
6	LC	Scattered	D	0.000	1.084	0.000	0.000	0.000	0.000	0.000	0.000	0	50	0	0	50	0	54
6	LC	Scattered	F	1.656	0.000	0.040	0.050	0.050	0.140	0.000	0.000	512	0	0	0	512	967	0
										River Basin Subtotals		512	50	0	0	562	967	54
6	RG	Scattered	D	0.000	0.834	0.000	0.000	0.000	0.000	0.000	0.000	0	20	0	0	20	0	17
6	RG	Scattered	F	0.387	0.387	0.025	0.050	0.100	0.175	0.050	0.150	1608	350	536	230	2724	975	245
										River Basin Subtotals		1608	370	536	230	2744	975	262
										County Totals		2120	420	536	230	3306	1942	316
7	AWR	Canadian River	F	1.119	0.000	0.030	0.050	0.120	0.200	0.000	0.000	5210	0	0	0	5210	6996	0
7	AWR	Canadian River	S	1.262	0.000	0.030	0.262	0.000	0.292	0.000	0.000	600	0	0	0	600	978	0
7	AWR	Cimarron River	F	0.640	0.000	0.030	0.050	0.120	0.200	0.000	0.000	8500	0	0	0	8500	6528	0
7	AWR	Cimarron River	S	0.000	1.112	0.030	0.262	0.000	0.292	0.000	0.000	0	535	0	0	535	0	595
7	AWR	Dry Cimarron	F	1.432	0.000	0.043	0.050	0.100	0.193	0.000	0.000	505	0	0	0	505	863	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

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7	AWR	Purgatoire	F	1.368	0.000	0.030	0.050	0.120	0.200	0.000	0.000	160	0	0	0	160	263	0
7	AWR	Vermejo Conservancy District	F	0.556	0.000	0.030	0.050	0.050	0.130	0.000	0.000	5808	0	0	0	5808	3649	0
7	AWR	Vermejo Conservancy District	S	0.563	0.000	0.030	0.262	0.000	0.262	0.000	0.000	100	0	0	0	100	71	0
											River Basin Subtotals	21263	535	0	0	21798	19912	595
											County Totals	21263	535	0	0	21798	19912	595
9	AWR	Scattered	F	0.000	0.765	0.000	0.050	0.000	0.000	0.050	0.000	0	4110	0	0	4110	0	3301
9	AWR	Scattered	S	0.000	0.788	0.000	0.065	0.000	0.000	0.065	0.000	0	5610	0	0	5610	0	4708
											River Basin Subtotals	0	9720	0	0	9720	0	8009
9	P	Scattered	S	0.000	0.809	0.000	0.065	0.000	0.000	0.065	0.000	0	1350	0	0	1350	0	1163
											River Basin Subtotals	0	1350	0	0	1350	0	1163
9	TG	Scattered	D	0.000	0.964	0.000	0.000	0.000	0.000	0.000	0.000	0	190	0	0	190	0	183
9	TG	Scattered	F	0.000	0.935	0.000	0.050	0.000	0.000	0.050	0.000	0	21510	0	0	21510	0	21117
9	TG	Scattered	S	0.000	1.062	0.000	0.065	0.000	0.000	0.065	0.000	0	112650	0	0	112650	0	127411
											River Basin Subtotals	0	134350	0	0	134350	0	148711
											County Totals	0	145420	0	0	145420	0	157883
11	P	Fort Sumner Irrigation District	F	1.572	0.000	0.030	0.050	0.290	0.370	0.000	0.000	5219	0	0	0	5219	11240	0
11	P	Scattered	S	0.000	1.870	0.000	0.262	0.000	0.000	0.262	0.000	0	3420	0	0	3420	0	8071
											River Basin Subtotals	5219	3420	0	0	8639	11240	8071
											County Totals	5219	3420	0	0	8639	11240	8071

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13	RG	EBID Only	D	2.088	0.000	0.000	0.000	0.000	0.000	0.000	0.000	300	0	0	0	300	626	0
13	RG	EBID Only	F	2.606	2.415	0.040	0.050	0.082	0.172	0.000	0.132	0	0	52403	17323	69726	160051	47357
13	RG	Hueco Basin	F	0.000	2.766	0.000	0.050	0.000	0.000	0.050	0.000	0	155	0	0	155	0	450
13	RG	Hueco Basin	S	0.000	2.433	0.000	0.262	0.000	0.000	0.262	0.000	0	25	0	0	25	0	77
13	RG	Inside EBID but exclusive of EBID	D	0.000	2.088	0.000	0.000	0.000	0.000	0.000	0.000	0	240	0	0	240	0	501
13	RG	Inside EBID but exclusive of EBID	S	0.000	3.025	0.000	0.283	0.000	0.000	0.283	0.000	0	1360	0	0	1360	0	5278
13	RG	Nutt-Hockett	F	0.000	1.572	0.000	0.050	0.000	0.000	0.050	0.000	0	10	0	0	10	0	17
13	RG	Nutt-Hockett	S	0.000	1.896	0.000	0.262	0.000	0.000	0.262	0.000	0	170	0	0	170	0	407
13	RG	Outside EBID	F	0.000	2.690	0.000	0.020	0.000	0.000	0.050	0.000	0	3844	0	0	3844	0	10857
13	RG	Outside EBID--Santa Teresa Sod Far	S	0.000	3.944	0.000	0.208	0.000	0.000	0.208	0.000	0	200	0	0	200	0	953
											River Basin Subtotals	300	6004	52403	17323	76030	160677	65897
											County Totals	300	6004	52403	17323	76030	160677	65897
15	P	Black River	F	2.761	2.761	0.030	0.050	0.050	0.130	0.050	0.100	47	538	292	292	1169	1058	2447
15	P	Carlsbad Basin Scattered	S	0.000	2.571	0.000	0.262	0.000	0.000	0.262	0.000	0	93	0	0	93	0	302
15	P	Carlsbad Basin--Scattered	F	2.742	2.742	0.030	0.050	0.050	0.130	0.050	0.100	326	1118	0	0	1444	1010	3219
15	P	Carlsbad Irrigation District	F	2.772	2.772	0.040	0.050	0.050	0.140	0.000	0.000	2503	0	12600	4358	19461	47727	12080
15	P	Rio Penasco	F	0.000	0.902	0.030	0.050	0.100	0.180	0.000	0.150	0	38	0	0	38	0	34
15	P	Roswell Basin South	F	0.000	1.690	0.000	0.050	0.000	0.000	0.050	0.000	0	9884	0	0	9884	0	17539
15	P	Roswell Basin South	S	0.000	2.000	0.000	0.243	0.000	0.000	0.243	0.000	0	22685	0	0	22685	0	56395

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											River Basin Subtotals	2876	34356	12892	4650	54774	49795	92016
											County Totals	2876	34356	12892	4650	54774	49795	92016
17	LC	Gila River--Cliff Gila	F	1.888	1.888	0.020	0.050	0.080	0.150	0.130	0.130	1033	0	42	42	1117	2334	90
17	LC	Gila River--Red Rock	F	2.083	2.083	0.020	0.050	0.080	0.150	0.050	0.130	0	0	88	53	141	211	125
17	LC	Gila River--Upper Gila	F	0.907	0.000	0.020	0.050	0.080	0.150	0.000	0.000	63	0	0	0	63	66	0
17	LC	Lordsburg Valley	F	0.000	1.695	0.000	0.050	0.000	0.000	0.050	0.000	0	189	0	0	189	0	336
											River Basin Subtotals	1096	189	130	95	1510	2611	551
17	RG	Mimbres River	F	1.509	1.509	0.051	0.050	0.080	0.181	0.050	0.130	382	750	402	268	1802	1397	1645
17	RG	Mimbres River	S	0.000	1.482	0.000	0.262	0.000	0.000	0.262	0.000	0	110	0	0	110	0	206
											River Basin Subtotals	382	860	402	268	1912	1397	1851
											County Totals	1478	1049	532	363	3422	4008	2402
19	P	Anton Chico	F	1.297	0.000	0.030	0.050	0.118	0.198	0.000	0.000	2547	0	0	0	2547	3958	0
19	P	Colonias	F	0.000	1.415	0.000	0.050	0.000	0.000	0.050	0.000	0	223	0	0	223	0	331
19	P	Puerto de Luna	F	1.469	0.000	0.030	0.050	0.118	0.198	0.000	0.000	601	0	0	0	601	1058	0
19	P	Scattered	F	0.000	1.162	0.000	0.050	0.000	0.000	0.050	0.000	0	274	0	0	274	0	334
19	P	Scattered	S	0.000	1.450	0.000	0.262	0.000	0.000	0.262	0.000	0	15	0	0	15	0	27
											River Basin Subtotals	3148	512	0	0	3660	5016	692
											County Totals	3148	512	0	0	3660	5016	692
21	AWR	Scattered	F	0.000	1.032	0.000	0.050	0.000	0.000	0.050	0.000	0	20	0	0	20	0	22

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21	AWR	Scattered	S	0.000	1.031	0.000	0.338	0.000	0.000	0.338	0.000	0	2280	0	0	2280	0	3145
											River Basin Subtotals	0	2300	0	0	2300	0	3167
											County Totals	0	2300	0	0	2300	0	3167
23	LC	Animas Valley	F	0.000	1.982	0.000	0.050	0.000	0.000	0.050	0.000	0	4428	0	0	4428	0	9215
23	LC	Animas Valley	S	0.000	1.619	0.000	0.262	0.000	0.000	0.262	0.000	0	2168	0	0	2168	0	4430
23	LC	Gila River--Virden Valley	F	2.031	2.031	0.038	0.050	0.080	0.168	0.000	0.130	0	0	1657	703	2360	3931	1613
23	LC	Lordsburg Valley	F	0.000	2.001	0.000	0.050	0.000	0.000	0.050	0.000	0	1613	0	0	1613	0	3389
23	LC	Playas	F	0.000	2.908	0.000	0.050	0.000	0.000	0.050	0.000	0	375	0	0	375	0	1145
23	LC	San Simon Valley	F	0.000	1.111	0.000	0.050	0.000	0.000	0.050	0.000	0	366	0	0	366	0	427
23	LC	San Simon Valley	S	0.000	1.230	0.000	0.338	0.000	0.000	0.338	0.000	0	317	0	0	317	0	522
											River Basin Subtotals	0	9267	1657	703	11627	3931	20741
											County Totals	0	9267	1657	703	11627	3931	20741
25	P	Scattered	D	0.000	1.953	0.000	0.000	0.000	0.000	0.000	0.000	0	220	0	0	220	0	430
											River Basin Subtotals	0	220	0	0	220	0	430
25	TG	Scattered	D	0.000	2.062	0.000	0.050	0.000	0.000	0.050	0.000	0	605	0	0	605	0	1310
25	TG	Scattered	F	0.000	1.650	0.000	0.050	0.000	0.000	0.050	0.000	0	1000	0	0	1000	0	1732
25	TG	Scattered	S	0.000	1.399	0.000	0.262	0.000	0.000	0.262	0.000	0	57993	0	0	57993	0	102389
											River Basin Subtotals	0	59598	0	0	59598	0	105431
											County Totals	0	59818	0	0	59818	0	105861

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27	P	Rio Hondo & Tributaries	F	2.004	2.004	0.023	0.050	0.063	0.136	0.050	0.113	1455	606	1181	506	3748	6001	2404
27	P	Rio Hondo & Tributaries	S	0.000	2.059	0.000	0.262	0.000	0.000	0.262	0.000	0	100	0	0	100	0	260
27	P	Rio Hondo Tributaries	D	0.000	0.979	0.000	0.000	0.000	0.000	0.000	0.000	0	5	0	0	5	0	5
27	P	Scattered	F	0.000	0.979	0.023	0.050	0.050	0.123	0.050	0.000	0	2	0	0	2	0	2
										River Basin Subtotals		1455	713	1181	506	3855	6001	2671
27	RG	Carrizozo & Vicinity	D	0.000	1.384	0.000	0.000	0.000	0.000	0.000	0.000	0	30	0	0	30	0	42
27	RG	Carrizozo & Vicinity	F	0.000	1.859	0.000	0.050	0.000	0.000	0.050	0.000	0	130	0	0	130	0	254
27	RG	Carrizozo & Vicinity	S	0.000	2.033	0.000	0.262	0.000	0.000	0.262	0.000	0	70	0	0	70	0	180
										River Basin Subtotals		0	230	0	0	230	0	476
										County Totals		1455	943	1181	506	4085	6001	3147
29	RG	Mimbres Basin	S	0.000	2.160	0.000	0.262	0.000	0.000	0.262	0.000	0	783	0	0	783	0	2134
29	RG	Mimbres River	D	0.000	1.626	0.000	0.000	0.000	0.000	0.000	0.000	0	1879	0	0	1879	0	3055
29	RG	Mimbres River	F	1.713	1.713	0.038	0.050	0.080	0.168	0.050	0.130	200	21569	600	600	22969	1601	39956
29	RG	Mimbres River--Floodwater Area	F	0.812	0.000	0.000	0.050	0.000	0.050	0.000	0.000	10350	0	0	0	10350	8824	0
29	RG	Nutt-Hockett	D	0.000	1.530	0.000	0.000	0.000	0.000	0.000	0.000	0	1361	0	0	1361	0	2082
29	RG	Nutt-Hockett	F	0.000	1.654	0.000	0.050	0.000	0.000	0.050	0.000	0	1735	0	0	1735	0	3013
29	RG	Nutt-Hockett	S	0.000	1.854	0.000	0.262	0.000	0.000	0.262	0.000	0	3225	0	0	3225	0	7546
										River Basin Subtotals		10550	30552	600	600	42302	10425	57786
										County Totals		10550	30552	600	600	42302	10425	57786

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), 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=surfaced water component of acreage irrigated with combined water; AGWC=groundwater component of acreage irrigated with combined water; TAI=total irrigated acreage; 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.

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31	LC	Zuni & Ramah	F	0.150	0.000	0.030	0.050	0.060	0.140	0.000	0.000	3242	0	0	0	3242	554	0
		River Basin Subtotals										3242	0	0	0	3242	554	0
31	RG	Scattered	F	1.562	0.000	0.030	0.050	0.050	0.130	0.000	0.000	150	0	0	0	150	265	0
		River Basin Subtotals										150	0	0	0	150	265	0
31	UC	Scattered	F	0.166	0.000	0.025	0.050	0.060	0.135	0.000	0.000	1715	0	0	0	1715	323	0
		River Basin Subtotals										1715	0	0	0	1715	323	0
		County Totals										5107	0	0	0	5107	1142	0
33	AWR	Scattered	D	0.000	0.762	0.000	0.000	0.000	0.000	0.000	0.000	0	50	0	0	50	0	38
33	AWR	Scattered	F	0.847	0.000	0.034	0.050	0.100	0.184	0.000	0.000	13730	0	0	0	13730	13769	0
33	AWR	Scattered	S	1.001	0.000	0.034	0.262	0.000	0.296	0.000	0.000	1100	0	0	0	1100	1427	0
		River Basin Subtotals										14830	50	0	0	14880	15196	38
		County Totals										14830	50	0	0	14880	15196	38
35	P	Rio Penasco	F	1.133	0.000	0.030	0.050	0.100	0.180	0.000	0.000	625	0	0	0	625	836	0
		River Basin Subtotals										625	0	0	0	625	836	0
35	RG	Salt Basin	F	0.000	2.178	0.000	0.050	0.000	0.000	0.050	0.000	0	397	0	0	397	0	908
35	RG	Salt Basin	S	0.000	2.192	0.000	0.262	0.000	0.000	0.262	0.000	0	1730	0	0	1730	0	4786
35	RG	Tularosa Basin	D	0.000	2.584	0.000	0.000	0.000	0.000	0.000	0.000	0	1821	0	0	1821	0	4705
35	RG	Tularosa Basin	F	2.529	2.529	0.030	0.050	0.075	0.155	0.000	0.125	250	0	1071	357	1678	3859	1016
35	RG	Tularosa Basin	S	0.000	2.817	0.000	0.262	0.000	0.000	0.262	0.000	0	2230	0	0	2230	0	7928

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											River Basin Subtotals	250	6178	1071	357	7856	3859	19343
											County Totals	875	6178	1071	357	8481	4695	19343
37	AWR	Arch Hurley Conservancy District	F	0.861	0.000	0.064	0.050	0.099	0.213	0.000	0.000	27096	0	0	0	27096	28299	0
37	AWR	Arch Hurley Conservancy District	S	0.848	0.000	0.064	0.338	0.000	0.402	0.000	0.000	5561	0	0	0	5561	6613	0
37	AWR	Inside AHCD but exclusive of AHCD	D	0.000	1.750	0.000	0.000	0.000	0.000	0.000	0.000	0	17	0	0	17	0	30
37	AWR	Outside AHCD	S	0.000	1.247	0.000	0.338	0.000	0.000	0.338	0.000	0	883	0	0	883	0	1473
											River Basin Subtotals	32657	900	0	0	33557	34912	1503
37	P	House & Vicinity	F	0.000	1.029	0.000	0.050	0.000	0.000	0.050	0.000	0	310	0	0	310	0	335
37	P	House & Vicinity	S	0.000	1.172	0.000	0.338	0.000	0.000	0.338	0.000	0	2350	0	0	2350	0	3685
											River Basin Subtotals	0	2660	0	0	2660	0	4020
											County Totals	32657	3560	0	0	36217	34912	5523
39	RG	Rio Chama	F	1.072	1.072	0.038	0.050	0.097	0.185	0.050	0.147	21030	500	210	70	21810	26982	649
39	RG	Santa Cruz & Vicinity	F	1.153	0.000	0.029	0.050	0.100	0.179	0.000	0.000	4260	0	0	0	4260	5791	0
39	RG	Truchas & Vicinity	F	1.132	0.000	0.013	0.050	0.050	0.113	0.000	0.000	2882	0	0	0	2882	3631	0
39	RG	Velarde & Vicinity	D	0.000	0.868	0.000	0.000	0.000	0.000	0.000	0.000	0	35	0	0	35	0	30
39	RG	Velarde & Vicinity	F	1.342	0.000	0.038	0.050	0.080	0.168	0.000	0.000	2460	0	0	0	2460	3856	0
											River Basin Subtotals	30632	535	210	70	31447	40260	679
39	UC	Dulce & Vicinity	F	0.746	0.000	0.038	0.050	0.097	0.185	0.000	0.000	400	0	0	0	400	355	0
											River Basin Subtotals	400	0	0	0	400	355	0

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											County Totals	31032	535	210	70	31847	40615	679
41	P	Scattered	S	0.000	1.128	0.000	0.243	0.000	0.000	0.243	0.000	0	450	0	0	450	0	631
											River Basin Subtotals	0	450	0	0	450	0	631
41	TG	Causey-Lingo	F	0.000	0.989	0.000	0.050	0.000	0.000	0.050	0.000	0	730	0	0	730	0	758
41	TG	Causey-Lingo	S	0.000	0.985	0.000	0.243	0.000	0.000	0.243	0.000	0	2750	0	0	2750	0	3367
41	TG	Portales Basin	D	0.000	1.127	0.000	0.000	0.000	0.000	0.000	0.000	0	123	0	0	123	0	139
41	TG	Portales Basin	F	0.000	1.094	0.000	0.050	0.000	0.000	0.050	0.000	0	3901	0	0	3901	0	4481
41	TG	Portales Basin	S	0.000	1.196	0.000	0.243	0.000	0.000	0.243	0.000	0	79388	0	0	79388	0	118020
											River Basin Subtotals	0	86892	0	0	86892	0	126765
											County Totals	0	87342	0	0	87342	0	127396
43	RG	Cuba & Vicinity	F	0.978	0.978	0.018	0.050	0.060	0.128	0.050	0.000	1585	70	0	0	1655	1749	72
43	RG	Jemez Basin	F	1.278	0.000	0.038	0.050	0.060	0.148	0.000	0.000	1570	0	0	0	1570	2303	0
43	RG	MRGCD only	F	1.985	1.985	0.030	0.050	0.098	0.178	0.000	0.148	5410	0	499	166	6075	13817	378
43	RG	Outside MRGCD (Dixon Apples)	S	1.591	0.000	0.000	0.283	0.000	0.283	0.000	0.000	50	0	0	0	50	102	0
											River Basin Subtotals	8615	70	499	166	9350	17971	450
											County Totals	8615	70	499	166	9350	17971	450
45	UC	Animas River	F	1.808	0.000	0.044	0.050	0.090	0.184	0.000	0.000	4000	0	0	0	4000	8563	0
45	UC	Animas River	S	2.072	0.000	0.044	0.262	0.000	0.306	0.000	0.000	978	0	0	0	978	2646	0
45	UC	Chaco River	F	1.791	0.000	0.044	0.050	0.060	0.154	0.000	0.000	306	0	0	0	306	632	0

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45	UC	Hammond Irrigation District	F	2.088	0.000	0.044	0.050	0.100	0.194	0.000	0.000	141	0	0	0	141	352	0
45	UC	Hammond Irrigation District	S	1.963	0.000	0.044	0.262	0.000	0.306	0.000	0.000	3157	0	0	0	3157	8094	0
45	UC	La Plata River	F	1.572	0.000	0.044	0.050	0.060	0.154	0.000	0.000	2055	0	0	0	2055	3728	0
45	UC	La Plata River	S	1.482	0.000	0.044	0.262	0.000	0.306	0.000	0.000	612	0	0	0	612	1185	0
45	UC	Navajo Indian Irrigation Project	S	1.344	0.000	0.020	0.808	0.000	0.828	0.000	0.000	49745	0	0	0	49745	122215	0
45	UC	Navajo--Colorado River Storage Prj.	F	1.903	0.000	0.044	0.050	0.090	0.184	0.000	0.000	163	0	0	0	163	367	0
45	UC	Pine River Irrigation District	F	0.758	0.000	0.044	0.050	0.090	0.184	0.000	0.000	411	0	0	0	411	369	0
45	UC	San Juan River	F	1.679	0.000	0.044	0.050	0.100	0.194	0.000	0.000	9630	0	0	0	9630	19306	0
45	UC	San Juan River	S	1.884	0.000	0.044	0.262	0.000	0.306	0.000	0.000	1458	0	0	0	1458	3587	0
											River Basin Subtotals	72656	0	0	0	72656	171044	0
											County Totals	72656	0	0	0	72656	171044	0
47	AWR	Canadian River	F	1.234	0.000	0.034	0.050	0.100	0.194	0.000	0.000	1065	0	0	0	1065	1569	0
47	AWR	Sapello River	F	1.528	0.000	0.034	0.050	0.106	0.190	0.000	0.000	1610	0	0	0	1610	2927	0
											River Basin Subtotals	2675	0	0	0	2675	4496	0
47	P	Scattered	F	0.880	0.000	0.034	0.050	0.106	0.190	0.000	0.000	3447	0	0	0	3447	3610	0
47	P	Storrie Irrigation Project	F	1.707	0.000	0.034	0.050	0.106	0.190	0.000	0.000	4353	0	0	0	4353	8842	0
47	P	Storrie Irrigation Project	S	1.682	0.000	0.000	0.262	0.000	0.262	0.000	0.000	670	0	0	0	670	1422	0
											River Basin Subtotals	8470	0	0	0	8470	13874	0
											County Totals	11145	0	0	0	11145	18370	0

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49	RG	Estancia Basin	D	0.000	1.876	0.000	0.000	0.000	0.000	0.000	0.000	0	40	0	0	40	0	75
49	RG	Estancia Basin	F	0.000	1.022	0.000	0.050	0.000	0.000	0.050	0.000	0	3866	0	0	3866	0	4149
49	RG	Estancia Basin	S	0.000	1.164	0.000	0.262	0.000	0.000	0.262	0.000	0	5197	0	0	5197	0	7634
49	RG	Pojoaque Valley	D	0.000	1.079	0.000	0.000	0.000	0.000	0.000	0.000	0	20	0	0	20	0	22
49	RG	Pojoaque Valley Irrigation District	F	0.910	0.910	0.030	0.050	0.060	0.140	0.000	0.110	1917	0	280	100	2297	2279	101
49	RG	Santa Cruz & Vicinity	F	0.740	0.000	0.029	0.050	0.100	0.179	0.000	0.000	4600	0	0	0	4600	4013	0
49	RG	Santa Fe & Vicinity	F	1.550	1.550	0.029	0.050	0.100	0.179	0.000	0.150	595	20	110	110	835	1288	227
											River Basin Subtotals	7112	9143	390	210	16855	7580	12208
											County Totals	7112	9143	390	210	16855	7580	12208
51	RG	Above Elephant Butte--Alamosa Creek	F	1.990	1.990	0.040	0.050	0.082	0.172	0.050	0.132	300	631	742	247	1920	2430	1875
51	RG	Above Elephant Butte--Engle	D	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0	0	0	0	0	0	0
51	RG	EBID only	F	2.102	2.101	0.040	0.050	0.082	0.172	0.000	0.132	0	0	3077	586	3663	7580	1394
51	RG	Lake Valley & Vicinity	F	0.000	1.871	0.000	0.050	0.000	0.000	0.050	0.000	0	131	0	0	131	0	257
51	RG	Los Animas Creek and others	F	2.102	2.102	0.040	0.050	0.082	0.172	0.050	0.132	200	556	230	80	1066	1059	1418
51	RG	Nutt-Hockett	F	0.000	1.836	0.000	0.050	0.000	0.000	0.050	0.000	0	180	0	0	180	0	347
51	RG	Truth or Consequences	F	0.000	2.102	0.000	0.050	0.000	0.000	0.050	0.000	0	842	0	0	842	0	1858
											River Basin Subtotals	500	2340	4049	913	7802	11069	7149
											County Totals	500	2340	4049	913	7802	11069	7149
53	RG	Bosque del Apache	F	2.282	0.000	0.030	0.050	0.050	0.130	0.000	0.000	2304	0	0	0	2304	5941	0

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), 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=surfaced water component of acreage irrigated with combined water; AGWC=groundwater component of acreage irrigated with combined water; TAI=total irrigated acreage; 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

Table 9. Irrigated Agriculture. Depletions in acre-feet, in New Mexico counties, 1999. Data compiled by A. A. Lucero, New Mexico Office of the State Engineer.

CN	RVB	LOCALE	T	CIRSW	CIRGW	IDFCL	IDFOF	IDFBF	IDFSW	IDFGWO	IDFGWC	ASWO	AGWO	ASWC	AGWC	TAI	TPDSW	TPDGW
53	RG	La Jolla	F	2.478	2.478	0.030	0.050	0.068	0.148	0.050	0.118	30	40	154	103	327	523	389
53	RG	MRGCD only	F	2.668	2.668	0.034	0.050	0.068	0.152	0.000	0.118	3073	0	7972	5315	16360	33947	15854
53	RG	Outside MRGCD	D	0.000	1.284	0.000	0.000	0.000	0.000	0.000	0.000	0	80	0	0	80	0	103
53	RG	San Augustine Plains	S	0.000	1.856	0.000	0.262	0.000	0.000	0.262	0.000	0	1120	0	0	1120	0	2623
											River Basin Subtotals	5407	1240	8126	5418	20191	40411	18969
											County Totals	5407	1240	8126	5418	20191	40411	18969
55	RG	Cerro-Questa	F	1.109	0.000	0.040	0.050	0.050	0.140	0.000	0.000	4245	0	0	0	4245	5367	0
55	RG	Cerro-Questa	S	0.000	1.182	0.000	0.262	0.000	0.000	0.262	0.000	0	600	0	0	600	0	895
55	RG	Costilla	F	0.662	0.000	0.040	0.050	0.050	0.140	0.000	0.000	5515	0	0	0	5515	4162	0
55	RG	Costilla	S	0.000	1.228	0.000	0.262	0.000	0.000	0.262	0.000	0	100	0	0	100	0	155
55	RG	Embudo & Vicinity	F	1.160	0.000	0.022	0.050	0.080	0.152	0.000	0.000	5020	0	0	0	5020	6708	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	1.159	0.000	0.038	0.050	0.050	0.138	0.000	0.000	80	0	0	0	80	106	0
55	RG	Taos & Vicinity	F	1.338	1.338	0.022	0.050	0.080	0.152	0.050	0.130	13650	40	150	50	13890	21271	132
55	RG	Taos & Vicinity	S	0.000	1.419	0.000	0.262	0.000	0.000	0.262	0.000	0	50	0	0	50	0	90
											River Basin Subtotals	28510	1040	150	50	29750	37614	1654
											County Totals	28510	1040	150	50	29750	37614	1654
57	RG	Estancia Basin	D	0.000	0.709	0.000	0.000	0.000	0.000	0.000	0.000	0	30	0	0	30	0	21
57	RG	Estancia Basin	F	0.000	1.366	0.000	0.050	0.000	0.000	0.050	0.000	0	3877	0	0	3877	0	5561

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), 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=surfaced water component of acreage irrigated with combined water; AGWC=groundwater component of acreage irrigated with combined water; TAI=total irrigated acreage; 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.

Table 9. Irrigated Agriculture. Depletions in acre-feet, in New Mexico counties, 1999. Data compiled by A. A. Lucero, New Mexico Office of the State Engineer.

CN	RVB	LOCALE	T	CIRSW	CIRGW	IDFCL	IDFOF	IDFBF	IDFSW	IDFGWO	IDFGWC	ASWO	AGWO	ASWC	AGWC	TAI	TPDSW	TPDGW
57	RG	Estancia Basin	S	0.000	1.210	0.000	0.262	0.000	0.000	0.262	0.000	0	13299	0	0	13299	0	20308
											River Basin Subtotals	0	17206	0	0	17206	0	25890
											County Totals	0	17206	0	0	17206	0	25890
59	AWR	Clayton & Vicinity	D	0.000	2.186	0.000	0.000	0.000	0.000	0.000	0.000	0	15	0	0	15	0	33
59	AWR	Clayton & Vicinity	F	0.000	1.106	0.000	0.050	0.000	0.000	0.050	0.000	0	472	0	0	472	0	548
59	AWR	Clayton & Vicinity	S	0.000	0.922	0.000	0.338	0.000	0.000	0.338	0.000	0	50233	0	0	50233	0	61969
59	AWR	Dry Cimarron	F	1.253	1.253	0.043	0.050	0.100	0.193	0.050	0.150	1595	600	190	190	2575	2668	1063
59	AWR	Dry Cimarron	S	0.000	1.008	0.000	0.262	0.000	0.000	0.262	0.000	0	2000	0	0	2000	0	2544
59	AWR	Tramperos Creek	F	0.822	0.822	0.040	0.050	0.040	0.130	0.050	0.000	270	80	0	0	350	251	69
											River Basin Subtotals	1865	53400	190	190	55645	2919	66226
											County Totals	1865	53400	190	190	55645	2919	66226
61	RG	Inside MRGCD but exclusive of CD	D	0.000	1.128	0.000	0.000	0.000	0.000	0.000	0.000	0	35	0	0	35	0	39
61	RG	MRGCD only	F	2.028	2.028	0.060	0.050	0.029	0.139	0.000	0.079	13838	0	5220	1740	20798	44022	3807
											River Basin Subtotals	13838	35	5220	1740	20833	44022	3846
											County Totals	13838	35	5220	1740	20833	44022	3846
											State Totals	292043	567658	96114	42978	998793	751475	1021476

Key: CN=county number; RVB=river basin; T=type of irrigation system, i.e., drip (D), flood (F), 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=surfaced water component of acreage irrigated with combined water; AGWC=groundwater component of acreage irrigated with combined water; TAI=total irrigated acreage; 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.

Table 10. Irrigated Agriculture. Summary of acreage irrigated, withdrawals, conveyance losses, and depletions (acre-feet) in New Mexico river basins, 1999.

RIVER BASIN	T	ASWO	AGWO	ASWC	AGWC	TASW	TAGW	TAI	TFWSW	CLSW	TPWSW	TPWGW	TPDSW	TPDGW
Arkansas-White-Red	D	0	82	0	0	0	82	82	0	0	0	119	0	101
Arkansas-White-Red	F	65929	5282	190	190	66119	5472	71591	101283	83841	185122	8545	68346	5003
Arkansas-White-Red	S	7361	61541	0	0	7361	61541	68902	10203	11264	21467	86107	9089	74434
Basin Totals		73290	66905	190	190	73480	67095	140575	111486	95105	206589	94771	77435	79538
Texas Gulf	D	0	918	0	0	0	918	918	0	0	0	1846	0	1632
Texas Gulf	F	0	27141	0	0	0	27141	27141	0	0	0	44836	0	28088
Texas Gulf	S	0	252781	0	0	0	252781	252781	0	0	0	413872	0	351187
Basin Totals		0	280840	0	0	0	280840	280840	0	0	0	460554	0	380907
Pecos	D	0	265	0	0	0	265	265	163151	71919	235073	618	0	526
Pecos	F	23215	84743	18078	13844	41293	98587	139880	1734	0	1734	322575	97217	202086
Pecos	S	670	49246	0	0	670	49246	49916	0	0	0	136900	1422	118541
Basin Totals		23885	134254	18078	13844	41963	148098	190061	164885	71919	236807	460093	98639	321153
Rio Grande	D	300	5821	0	0	300	5821	6121	737	599	1336	12882	626	10949
Rio Grande	F	113060	39813	76059	28146	189119	67959	257078	631293	494213	1125506	238333	392150	146001
Rio Grande	S	50	30519	0	0	50	30519	30569	133	0	133	75701	102	61582
Basin Totals		113410	76153	76059	28146	189469	104299	293768	632163	494812	1126975	326916	392878	218532
Upper Colorado	D	0	0	0	0	0	0	0	0	0	0	0	0	0
Upper Colorado	F	18821	0	0	0	18821	0	18821	52533	22376	74909	0	33995	0
Upper Colorado	S	55950	0	0	0	55950	0	55950	132520	15265	147785	0	137727	0
Basin Totals		74771	0	0	0	74771	0	74771	185053	37641	222694	0	171722	0
Lower Colorado	D	0	50	0	0	0	50	50	0	0	0	64	0	54
Lower Colorado	F	6687	6971	1787	798	8474	7769	16243	19719	34573	54292	28199	10801	16340
Lower Colorado	S	0	2485	0	0	0	2485	2485	0	0	0	6000	0	4952
Basin Totals		6687	9506	1787	798	8474	10304	18778	19719	34573	54292	34263	10801	21346
State Totals		292043	567658	96114	42978	388157	610636	998793	1113306	734050	1847357	1376597	751475	1021476

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=ground water 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, 1999.

COUNTY	ASWO	AGWO	ASWC	AGWC	TAI
Bernalillo	5556	250	2403	801	9010
Catron	1837	100	0	0	1937
Chaves	2092	90573	4005	8688	105358
Cibola	2120	420	536	230	3306
Colfax	21263	535	0	0	21798
Curry	0	145420	0	0	145420
De Baca	5219	3420	0	0	8639
Dona Ana	300	6004	52403	17323	76030
Eddy	2876	34356	12892	4650	54774
Grant	1478	1049	532	363	3422
Guadalupe	3148	512	0	0	3660
Harding	0	2300	0	0	2300
Hidalgo	0	9267	1657	703	11627
Lea	0	59818	0	0	59818
Lincoln	1455	943	1181	506	4085
Los Alamos	0	0	0	0	0
Luna	10550	30552	600	600	42302
McKinley	5107	0	0	0	5107
Mora	14830	50	0	0	14880
Otero	875	6178	1071	357	8481
Quay	32657	3560	0	0	36217
Rio Arriba	31032	535	210	70	31847
Roosevelt	0	87342	0	0	87342
Sandoval	8615	70	499	166	9350
San Juan	72656	0	0	0	72656
San Miguel	11145	0	0	0	11145
Santa Fe	7112	9143	390	210	16855
Sierra	500	2340	4049	913	7802
Socorro	5407	1240	8126	5418	20191
Taos	28510	1040	150	50	29750
Torrance	0	17206	0	0	17206
Union	1865	53400	190	190	55645
Valencia	13838	35	5220	1740	20833
Total	292043	567658	96114	42978	998793

Key: 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.

Table 12. Acreage irrigated by drip, flood, and sprinkler application methods and sources of irrigation water in New Mexico counties, 1999.

COUNTY	DASW	DAGW	TDA	FASW	FAGW	TFA	SASW	SAGW	TSA	TAI
Bernalillo	0	230	230	7959	821	8780	0	0	0	9010
Catron	0	0	0	1837	100	1937	0	0	0	1937
Chaves	0	40	40	6097	80438	86535	0	18783	18783	105358
Cibola	0	70	70	2656	580	3236	0	0	0	3306
Colfax	0	0	0	20563	0	20563	700	535	1235	21798
Curry	0	190	190	0	25620	25620	0	119610	119610	145420
De Baca	0	0	0	5219	0	5219	0	3420	3420	8639
Dona Ana	300	240	540	52403	21332	73735	0	1755	1755	76030
Eddy	0	0	0	15768	16228	31996	0	22778	22778	54774
Grant	0	0	0	2010	1302	3312	0	110	110	3422
Guadalupe	0	0	0	3148	497	3645	0	15	15	3660
Harding	0	0	0	0	20	20	0	2280	2280	2300
Hidalgo	0	0	0	1657	7485	9142	0	2485	2485	11627
Lea	0	825	825	0	1000	1000	0	57993	57993	59818
Lincoln	0	35	35	2636	1244	3880	0	170	170	4085
Los Alamos	0	0	0	0	0	0	0	0	0	0
Luna	0	3240	3240	11150	23904	35054	0	4008	4008	42302
McKinley	0	0	0	5107	0	5107	0	0	0	5107
Mora	0	50	50	13730	0	13730	1100	0	1100	14880
Otero	0	1821	1821	1946	754	2700	0	3960	3960	8481
Quay	0	17	17	27096	310	27406	5561	3233	8794	36217
Rio Arriba	0	35	35	31242	570	31812	0	0	0	31847
Roosevelt	0	123	123	0	4631	4631	0	82588	82588	87342
Sandoval	0	0	0	9064	236	9300	50	0	50	9350
San Juan	0	0	0	16706	0	16706	55950	0	55950	72656
San Miguel	0	0	0	10475	0	10475	670	0	670	11145
Santa Fe	0	60	60	7502	4096	11598	0	5197	5197	16855
Sierra	0	0	0	4549	3253	7802	0	0	0	7802
Socorro	0	80	80	13533	5458	18991	0	1120	1120	20191
Taos	0	0	0	28660	90	28750	0	1000	1000	29750
Torrance	0	30	30	0	3877	3877	0	13299	13299	17206
Union	0	15	15	2055	1342	3397	0	52233	52233	55645
Valencia	0	35	35	19058	1740	20798	0	0	0	20833
Total	300	7136	7436	323826	206928	530754	64031	396572	460603	998793

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, 1999.

RIVER BASIN	DASW	DAGW	TDA	FASW	FAGW	TFA	SASW	SAGW	TSA	TAI
Arkansas-White-Red	0	82	82	66119	5472	71591	7361	61541	68902	140575
Texas Gulf	0	918	918	0	27141	27141	0	252781	252781	280840
Pecos	0	265	265	41293	98587	139880	670	49246	49916	190061
Rio Grande	300	5821	6121	189119	67959	257078	50	30519	30569	293768
Upper Colorado	0	0	0	18821	0	18821	55950	0	55950	74771
Lower Colorado	0	50	50	8474	7769	16243	0	2485	2485	18778
State Totals	300	7136	7436	323826	206928	530754	64031	396572	460603	998793

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.

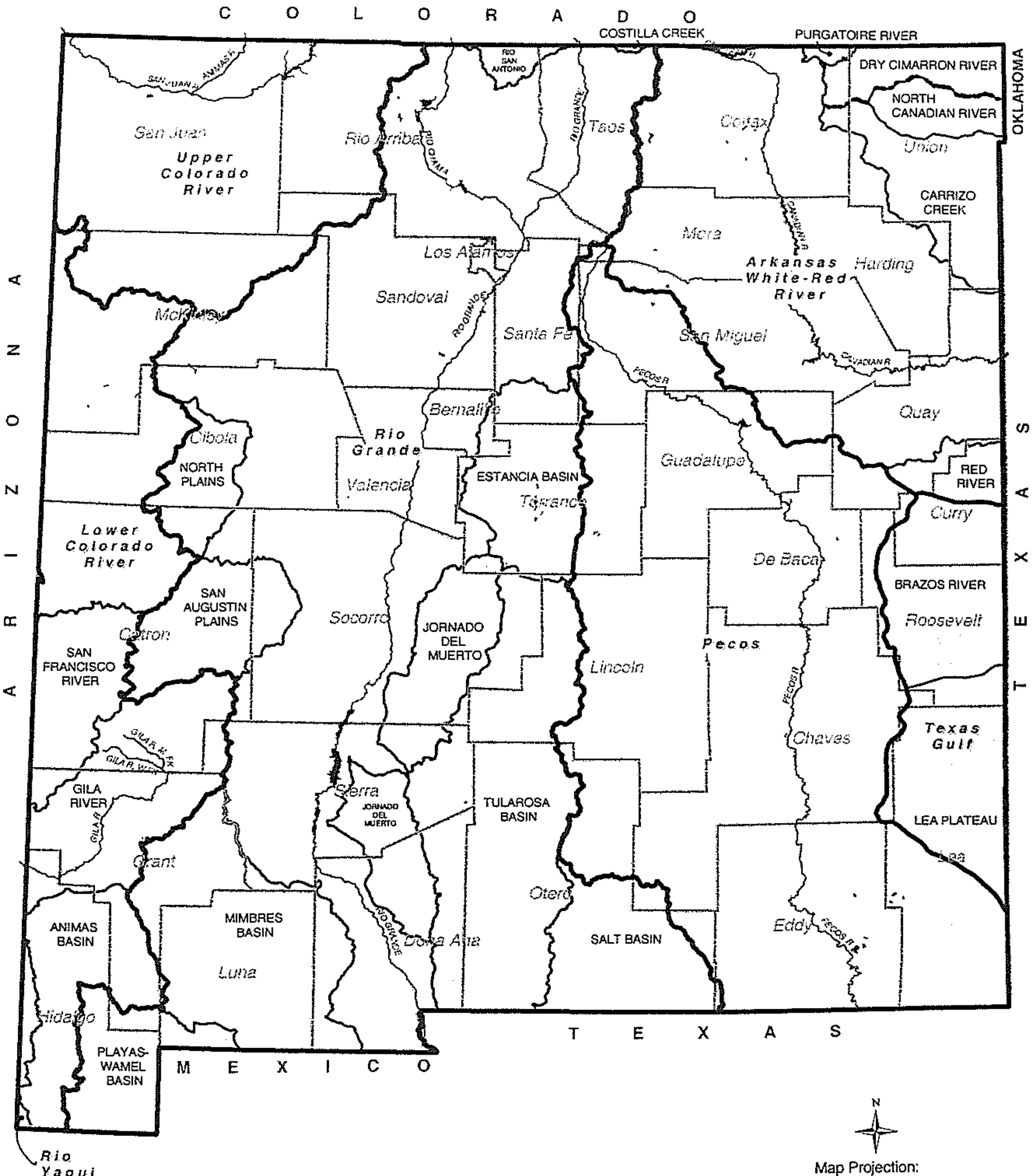

Figure 1
River Basins in New Mexico

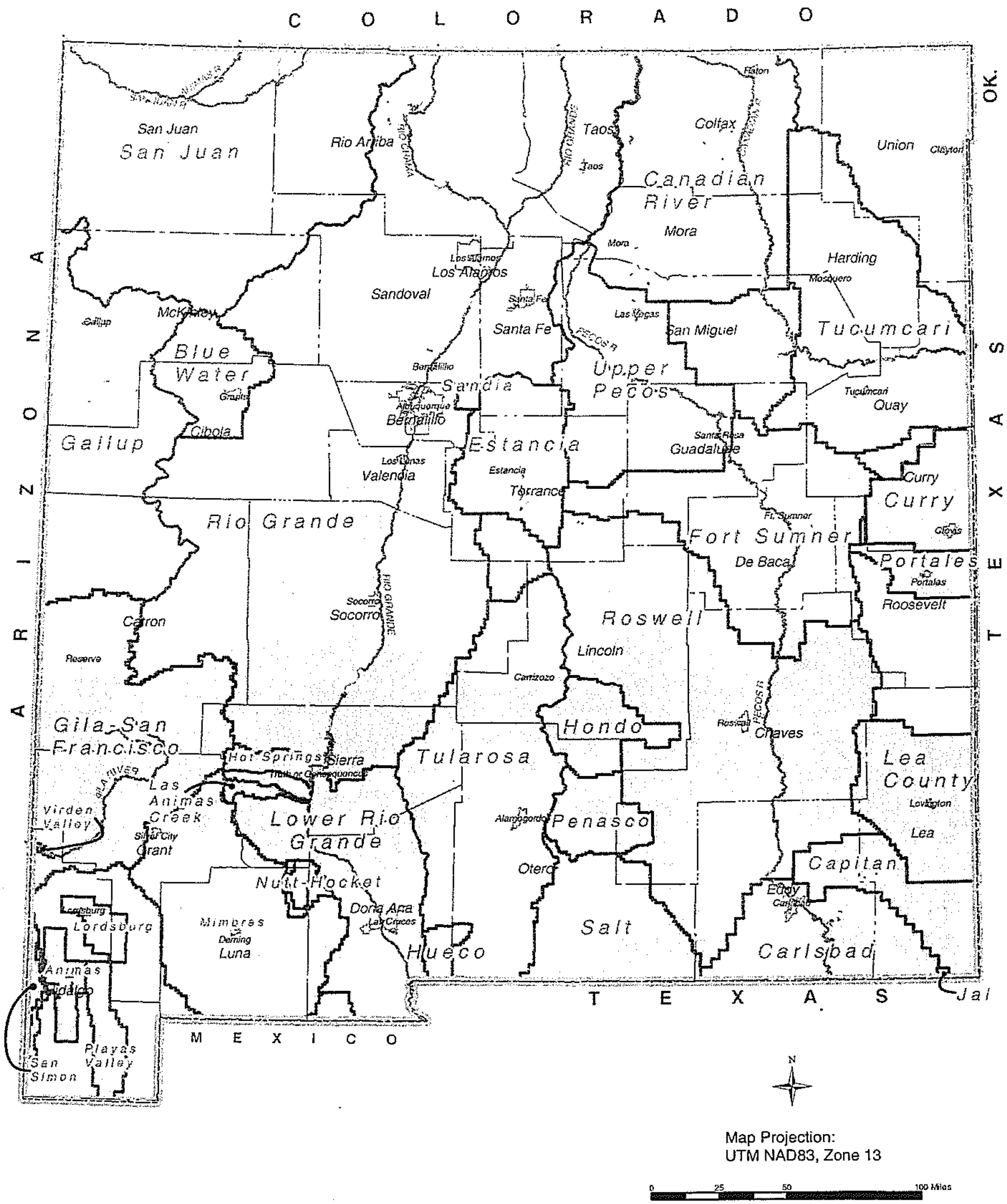

Figure 2
Groundwater Basins in New Mexico