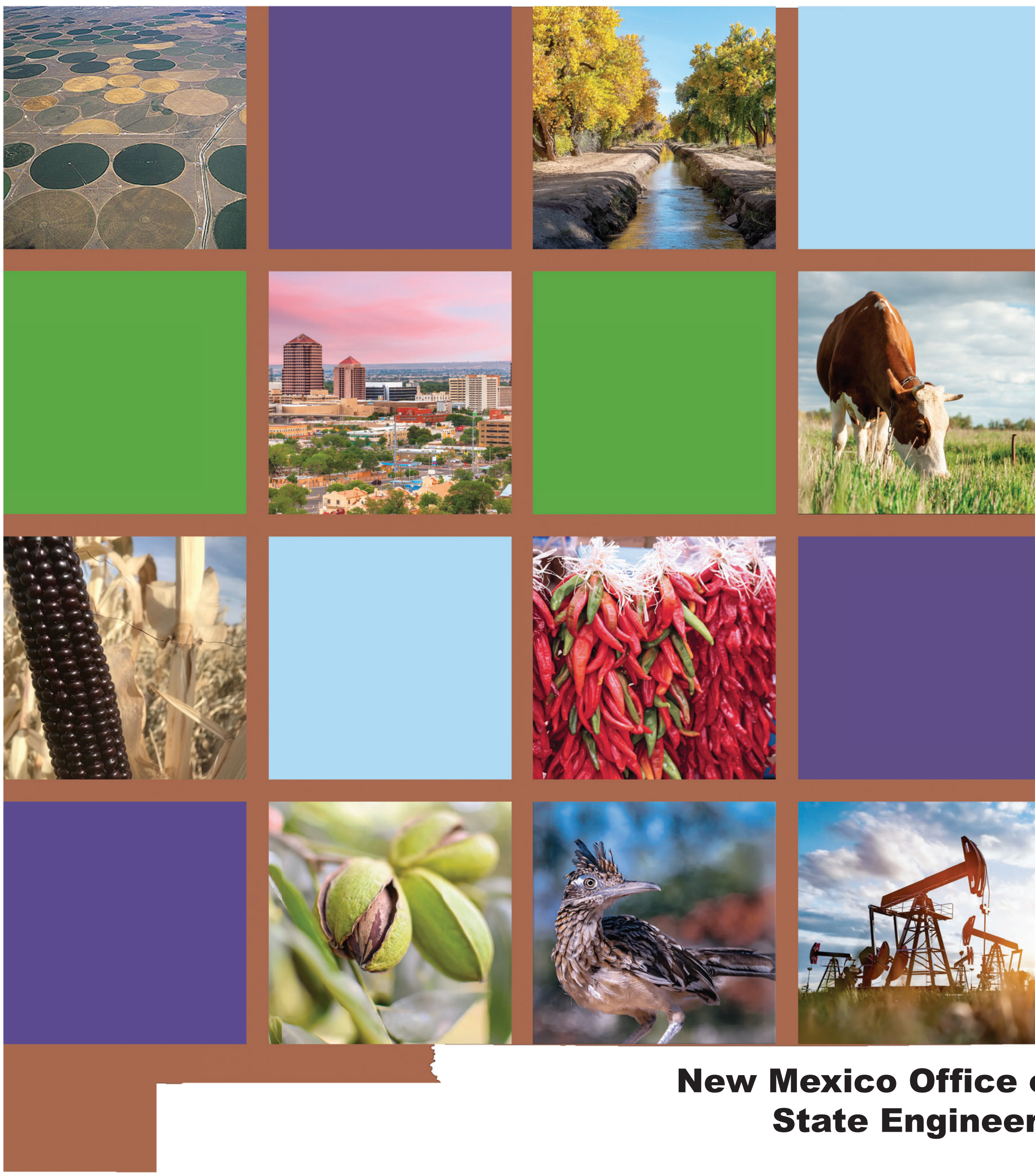
New Mexico Water Use by Categories 2020

Office of the State Engineer
Interstate Stream Commission



New Mexico Office of the State Engineer

Technical Report 56

NEW MEXICO
WATER USE BY CATEGORIES
2020

PREPARED BY

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NEW MEXICO OFFICE OF THE STATE ENGINEER
TECHNICAL REPORT 56
NOVEMBER 2024

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PUBLISHED BY
NEW MEXICO OFFICE OF THE STATE ENGINEER
WATER USE AND CONSERVATION BUREAU
P.O. BOX 25102
SANTA FE, NM 87504

Acknowledgements:

We would like to thank Michael Opitz, Water Resources Manager, for his contributions to this report.

We would also like to thank Jacob S. Romero, Water Resources Professional II, for creating and designing the cover art.

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EXECUTIVE SUMMARY

The *New Mexico Water Use by Categories* report (Report) is prepared once every five years by the Water Use and Conservation Bureau of the New Mexico Office of the State Engineer. The purpose of the Report is to provide the public with comprehensive and useful water use data.

The Report contains statewide water use data for the 2020 calendar year. Water withdrawals in New Mexico counties and river basins were tabulated for nine water use categories. Categories labeled “Self-Supplied” include water users who withdrew water directly from a groundwater or surface water source for individual use, but not water users who received their water from a public water supplier.

1. Public Water Supply
2. Self-Supplied Domestic
3. Irrigated Agriculture
4. Self-Supplied Livestock
5. Self-Supplied Commercial
6. Self-Supplied Industrial
7. Self-Supplied Mining
8. Self-Supplied Power
9. Reservoir Evaporation

Each water use category is defined in the chapters of this Report. The general procedures used to quantify withdrawals are presented in a step-by-step format. Water use tables, located in **Appendix B** and organized by county and river basin, provide details on the state’s water use.

State Summary

The population of New Mexico increased from 2,089,291 in 2015 to 2,117,522 in 2020, an increase of 28,231 or 1.35%.

In 2020, withdrawals for all water use categories combined totaled 3,805,077 acre-feet (AF). Surface water accounted for 1,882,385 AF (49.47%) of the total withdrawals, and groundwater accounted for 1,922,692 AF (50.53%) of the total withdrawals. A summary of withdrawals for 2020 by category and source is provided below.

Public Water Supply accounted for 299,803 AF (7.88%) of the total withdrawals, consisting of:

- 70,333 AF (23.46%) of surface water
- 229,470 AF (76.54%) of groundwater

Self-Supplied Domestic accounted for 30,151 AF (0.79%) of the total withdrawals, consisting entirely of groundwater.

Irrigated Agriculture accounted for 2,966,697 AF (77.97%) of the total withdrawals, consisting of:

- 1,467,442 AF (49.46%) of surface water.
- 1,499,256 AF (50.54%) of groundwater.

  The estimated total acreage irrigated (TAI) on farms in 2020 was 786,192 acres. Approximately 212,177 acres (26.99%) were irrigated with surface water, 454,954 acres

(57.87%) were irrigated with groundwater, and 119,061 acres (15.14%) were irrigated with a combination of groundwater and surface water.

Total drip irrigation (TDA) accounted for 16,533 acres (2.10%), total flood irrigation (TFA) accounted for 275,052 acres (34.99%), and total sprinkler irrigation (TSA) accounted for 494,607 acres (62.91%). In some areas of the state, surface water was not sufficient to meet the irrigation demand.

Livestock accounted for 38,519 AF (1.01%) of the total withdrawals, consisting of:
- 3,147 AF (8.17%) of surface water.
- 35,371 AF (91.83%) of groundwater.

Commercial uses accounted for 56,627 AF (1.49%) of the total withdrawals, consisting of:
- 26,101 AF (46.09%) of surface water.
- 30,526 AF (53.91%) of groundwater.

Industrial uses accounted for 8,586 AF (0.23%) of the total withdrawals, consisting of:
- 0 AF (0%) of surface water.
- 8,586 AF (100%) of groundwater.

Mining accounted for 56,752 AF (1.49%) of the total withdrawals, consisting of:
- 367 AF (0.65%) of surface water.
- 56,385 AF (99.35%) of groundwater.

Power accounted for 65,420 AF (1.72%) of the total withdrawals, consisting of:
- 32,474 AF (49.64%) of surface water.
- 32,946 AF (50.36%) of groundwater.

Evaporation from reservoirs with a storage capacity of 5,000 AF or more amounted to 282,522 AF (7.42%) of the total withdrawals.

Basin Summary

The State of New Mexico contains six river basins:

1. Arkansas-White-Red
2. Lower Colorado
3. Pecos
4. Rio Grande
5. Texas Gulf
6. Upper Colorado

Figure ES1. Major River Basins in New Mexico

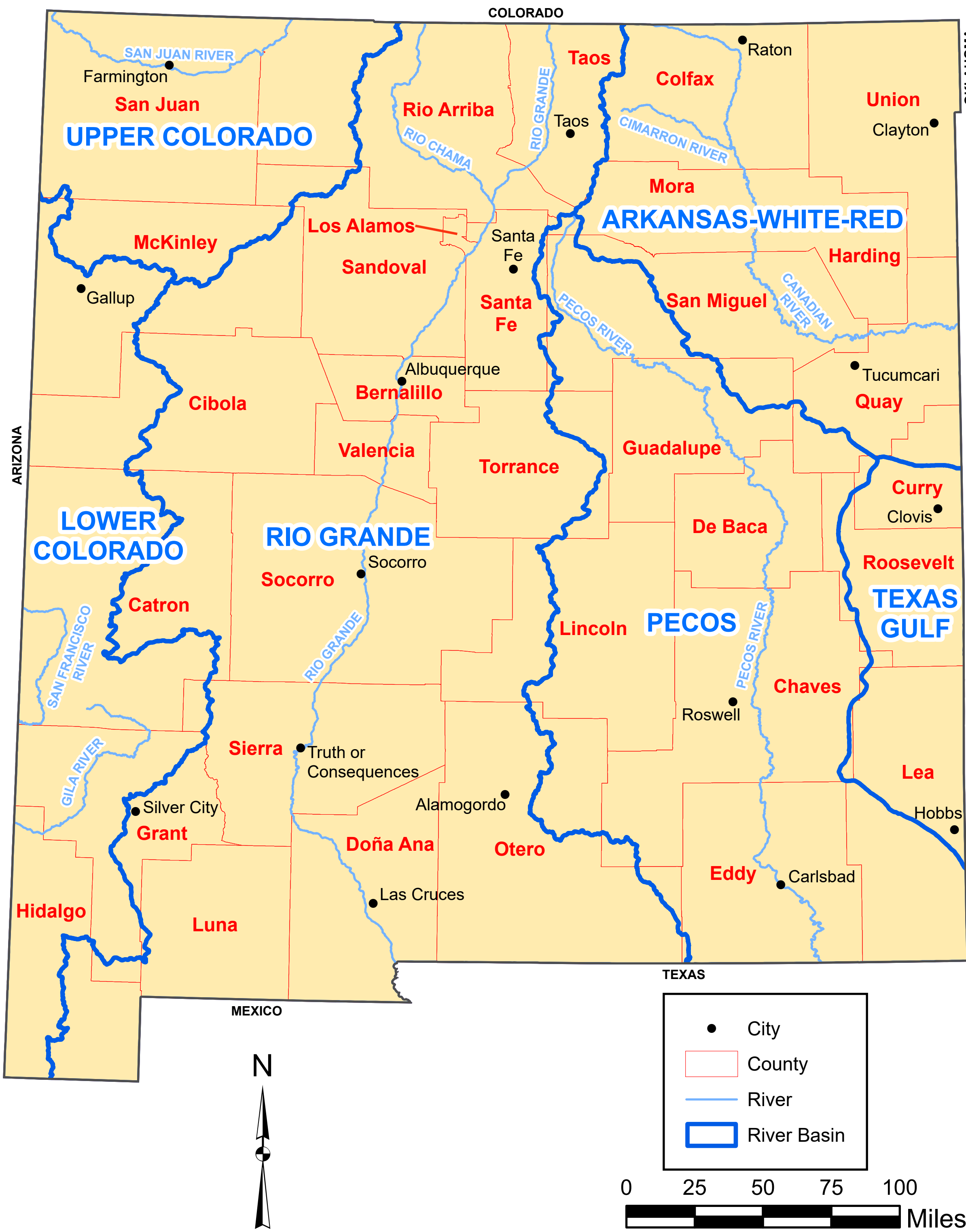
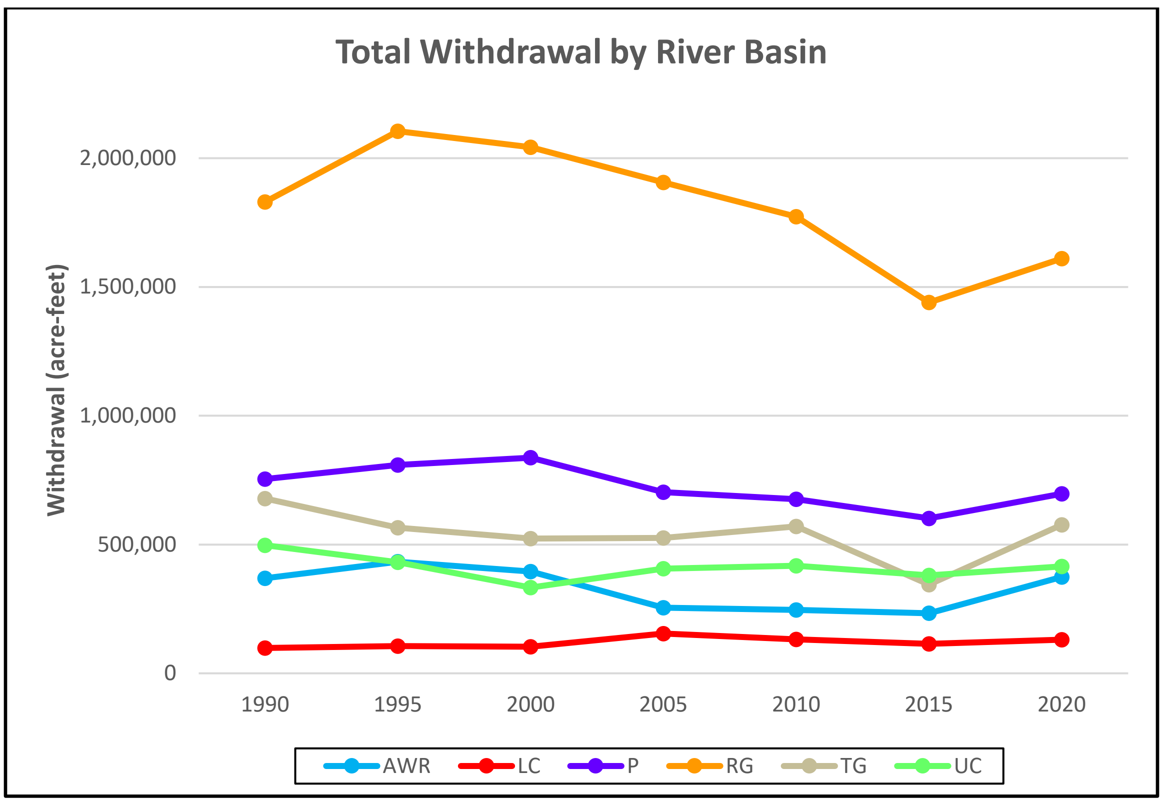


Table ES.1. Summary of population and withdrawals for New Mexico's six river basins

River Basin	2020 Population	Withdrawals Surface Water (WSW)		Withdrawals Groundwater (WGW)		Total Withdrawals (TW)	
		acre-feet	% of basin total	acre-feet	% of basin total	acre-feet	% of state total
Arkansas-White-Red	31,507	238,400	64	135,949	36	374,349	10
Lower Colorado	65,537	57,381	44	73,319	56	130,700	3
Pecos	194,004	247,722	36	449,703	64	697,426	18
Rio Grande	1,564,141	925,266	57	685,558	43	1,610,825	42
Texas Gulf	133,455	208	0	576,171	100	576,379	15
Upper Colorado	128,878	413,408	100	1,990	0	415,398	11
State Totals	**2,117,522**	**1,882,385**	**49**	**1,922,692**	**51**	**3,805,077**	**100**

Figure ES.2. Total withdrawals in acre-feet for New Mexico's six river basins



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ACRONYMS AND ABBREVIATIONS

ABCWUA	Albuquerque Bernalillo County Water Utility Authority
AF	acre-feet
A_g	gross irrigated acreage
A_n	net irrigated acreage
AWR	Arkansas-White-Red River Basin
BCCP	Blaney-Criddle Computer Program
CIR	consumptive irrigation requirement
CIR_a	the weighted consumptive irrigation requirement recomputed using the consumptive use predicted by the crop production function for alfalfa
CIR_m	multi-crop adjusted consumptive irrigation requirement
CIR_w	weighted consumptive irrigation requirement
E_c	off-farm conveyance efficiency
E_f	on-farm irrigation efficiency
EMNRD	New Mexico Energy, Minerals, and Natural Resources Department
EPAct	Energy Policy Act of 1992
ET	evapotranspiration
FDR	farm delivery requirement
gal	gallon(s)
GIS	geographic information system
GPCD	gallons per capita per day
gpm	gallons per minute
LC	Lower Colorado River Basin
LRG	Lower Rio Grande Basin
MBC method	Modified Blaney-Criddle method
MDWC	mutual domestic water community/co-op
MDWCA	mutual domestic water community/co-op association
MDWUA	mutual domestic water users association
NASS	National Agricultural Statistics Service (USDA)
NMAC	New Mexico Administrative Code
NMED	New Mexico Environment Department
NMISC	New Mexico Interstate Stream Commission
NMOSE	New Mexico Office of the State Engineer
NMSA	New Mexico Statutes Annotated (1978)
NMSU	New Mexico State University
NMTRD	New Mexico Taxation and Revenue Department
NOAA	National Oceanic and Atmospheric Administration
OBC method	Original Blaney-Criddle method
P	Pecos River Basin

PDR	project diversion requirement
PNM	Public Service Company of New Mexico
POP	population
PWS	public water supplier
R	monthly rainfall
R_e	effective rainfall
Report	Water Use by Categories report
RG	Rio Grande Basin
SCS	Soil Conservation Service
SIC	standard industrial classification
T	temperature
T or C	Truth or Consequences
TAI	total acreage irrigated
TDA	acreage irrigated by drip
TFA	acreage irrigated by flood
TFWSW	total farm withdrawal, surface water
TG	Texas Gulf River Basin
TPWGW	total project withdrawal, groundwater
TPWSW	total project withdrawal, surface water
TSA	acreage irrigated by sprinkler
TW	total withdrawals
U *or* u_m	consumptive use
UC	Upper Colorado River Basin
USBR	U.S. Bureau of Reclamation
USDA	U.S. Department of Agriculture
USEPA	United States Environmental Protection Agency
USGS	U.S. Geological Survey
WEC	water exchange codes
WGW	withdrawal groundwater
WSW	withdrawal surface water
WUA	water users association
WUCB	Water Use and Conservation Bureau
WWC	water withdrawal code

1 INTRODUCTION

The inventory of water use in the State of New Mexico is a necessary activity, with formal investigations dating back to at least 1896 (Follett). The New Mexico Office of the State Engineer (NMOSE) began its regular quantitative estimates of water use for the state in 1975 and has prepared reports every five years since then. These reports are valuable resources to the NMOSE, the New Mexico Legislature, various state and federal agencies, state and regional water planners, municipalities, consultants, and others. This *New Mexico Water Use by Categories* report (Report) presents water use as withdrawals for the 2020 calendar year. The purpose of this Report is to make comprehensive, current, and useful water use withdrawal data available to the public.

Data from this Report can be used for various analyses, including for regional planning and for tracking changes in water use in different categories over time. For example…

- As communities experience changes in population or industries, changes in public water supply use might also be observed.
- Over time, other areas of the state may observe changes in the amount of irrigated acreage and livestock in production.
- Legislators may find it helpful to consider trends in water use when determining budget allocations for projects.
- Making this type of data available to the public will help ensure that informed decisions can be made regarding the state's limited water resources.

The results of the 2020 water use inventory are presented in this Report. Categories inventoried include:

- Public Water Supply and Self-Supplied Domestic (Chapter 2)
- Irrigated Agriculture (Chapter 3)
- Self-Supplied Livestock (Chapter 4)
- Self-Supplied Commercial, Industrial, Mining, and Power (Chapter 5)
- Reservoir Evaporation (Chapter 6)

1.1 History of Water Use Inventories

In 1950, the U.S. Bureau of Reclamation (USBR) published water withdrawals and depletions in drainage basins and the state for the period from 1945 to 1949. State Engineer Steve Reynolds (1959) reported similar data for 1955 to the U.S. Senate Select Committee on National Water Resources. The NMOSE compiled withdrawals and depletions for 1965, which were published by New Mexico State Planning Office in 1967. Data for 1970 were compiled by the NMOSE and published by the USBR and the New Mexico Interstate Stream Commission (NMISC) in 1976. Data for 1975, 1980, 1985, 1990, 1995, 2000, 2005, 2010, and 2015 were compiled and published by the NMOSE.

1.2 The 2020 Water Use Report

The 2020 Report is similar to the 2015 Report in text, format, and content. As in the 2015 Report, depletion calculations are excluded from this Report. The statistics presented here are principally withdrawals.

Some Reports prior to 2005 contained lengthy discussions on topics such as water requirements for various types of turfgrass, benchmark studies of indoor water use, factors that affect water use in communities, causes of poor irrigation efficiency, and factors that affect livestock water use. This type of information is still valuable and can be reviewed in Technical Report 51 (Wilson, et al., 2003) and Technical Report 52 S (Longworth, et al., 2008).

Chapters 2 through 6 contain information pertinent to the nine water use categories.

Chapter 2, Public Water Supply and Self-Supplied Domestic, includes total withdrawals for residential purposes, as well as a description of the procedures used to calculate residential water use in gallons per capita per day (GPCD). Additionally, it identifies some of the unique water circumstances experienced by communities across the state and how those conditions are accounted for in this Report.

Chapter 3, Irrigated Agriculture, describes the procedures used to determine irrigation withdrawals, and provides information on two significant New Mexican crops, alfalfa and pecans. Explanations of the Original Blaney-Criddle and Modified Blaney-Criddle methods for calculating consumptive use and the subsequent calculation of consumptive irrigation requirements (CIRs) for a cropping pattern are also included in Chapter 3.

Chapter 4, Self-Supplied Livestock, presents trends in livestock populations throughout the state with an emphasis on the dairy industry, and explains the procedure for calculating livestock withdrawals.

Chapter 5, Self-Supplied Commercial, Industrial, Mining, and Power, discusses the general procedure used to calculate withdrawals for the self-supplied commercial, industrial, mining, and power categories.

Chapter 6, Reservoir Evaporation, presents two methods for calculating reservoir evaporation in New Mexico.

Appendix A contains a county table and local maps.

Appendix B contains a series of tables that report population and water use data for New Mexico counties and river basins for 2020. Withdrawals are calculated for each of the nine water use categories.

- Table 1: Population data for the self-supplied domestic and public water supply categories, by river basin
- Table 2: Summary of withdrawals by category, in acre-feet (AF)
- Table 3: Summary of withdrawals expressed as a percentage of the total withdrawals in the state, by category
- Table 4: Summary of the percentage of measured withdrawals for each category
- Table 5: Summary of water use by county and category
- Table 6: Summary of water use by river basin and category

- Table 7: Details of the public water supply and self-supplied domestic categories, including individual water systems by county and river basin and information on population, per capita water use, and withdrawals by source
- Table 8: Summary of irrigated agriculture by county, river basin, locale, and irrigation type including information on irrigated acreage, CIRs, efficiencies, and withdrawals
- Table 9: Summary of irrigated agriculture by county, water source, and irrigation method
- Table 10: Summary of irrigated agriculture by river basin, water source, and irrigation method

Appendix C contains a glossary of terms used in the Report.

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2 PUBLIC WATER SUPPLY AND SELF-SUPPLIED DOMESTIC

This chapter includes:

- Definitions of water supply categories
- Summaries of state and county populations for 2020
- An explanation of the gallons per capita per day (GPCD) values used to calculate withdrawals for self-supplied domestic uses
- A description of the procedure used to quantify self-supplied domestic withdrawals
- A description of the procedure used to quantify public water supply withdrawals and GPCD
- Water exchange codes
- Water withdrawal codes
- Information about individual water systems

A summary of 2020 public water supply and self-supplied domestic withdrawals can be found in **Appendix B, Table 7.** (Note: Tables in the appendices that use abbreviations include a key at the bottom of the page.) Total withdrawals are computed by county and river basin.

2.1 Definition of Categories

2.1.1 Public Water Supply

The public water supply category includes community water systems that rely on surface water and/or groundwater diversions, and that consist of common collection, treatment, storage, and distribution facilities operated for the delivery of water to multiple service connections. For the purposes of this Report, these systems will be known as public water suppliers (PWS). This definition also includes mutual domestic systems, mutual domestic water user associations, and other similar types of systems. The following are examples of multiple service connection systems:

- Municipal systems that serve residential, commercial, and industrial water users
- Prisons
- Residential and mixed-use subdivisions
- Mobile home parks

The public water supply category also captures other water uses supplied by PWSs such as the irrigation of golf courses and parks and evaporation/seepage from ponds/lakes.

Wells permitted by the NMOSE under 72-12-1 New Mexico Statutes Annotated (NMSA) 1978 are not included in this section.

2.1.2 Self-Supplied Domestic

The self-supplied domestic category includes self-supplied residences that may be single family or multi-family dwellings with well permits issued by the NMOSE under 72-12-1.1 NMSA 1978. This category includes water used for domestic purposes as defined under 19.27.5.7.F New Mexico Administrative Code (NMAC).

2.2 Population

2.2.1 State Population

New Mexico had a 1.35% growth rate between 2015 and 2020, ranking 40th in the country, based on U.S. Census data. The total population for 2020 was 2,117,522. Growth in New Mexico from 2015-2020 was less than the national growth rate of 3.37%, and lower than the growth rates in neighboring states.

Table 2.1. Population estimates for selected western states.

Geographic Area	Population Estimates July 1, 2015[1]	2020 Census Data[1]	Percent Growth 2015-2020	National Rank of % Growth 2015-2020
United States	**320,635,163**	**331,449,281**	**3.37%**	-
Utah	2,981,835	3,271,616	9.72%	2
Texas	27,470,056	29,145,505	6.10%	6
Colorado	5,450,623	5,773,714	5.93%	7
Arizona	6,829,676	7,151,502	4.71%	14
New Mexico	2,089,291	2,117,522	1.35%	40

[1]Source: U.S. Census Bureau

2.2.2 County Populations

County populations are provided in **Table 2.2**. Counties are ranked from highest to lowest based on percentage change from 2015. Counties with the highest growth rates are Los Alamos (8.99%), Eddy (7.97%), Sandoval (7.45%), Taos (5.16%), and Otero (4.74%). Fourteen counties (compared to 21 counties in 2015) experienced a decrease in population during the five-year period.

Table 2.2. County populations by percent growth change.

County	2015 Estimate[1]	2020 Census[1]	Population Change	Percent Change
State of New Mexico	**2,089,291**	**2,117,522**	**28,231**	**1.35**
Los Alamos	17,817	19,419	1,602	8.99
Eddy	57,715	62,314	4,599	7.97
Sandoval	138,521	148,834	10,313	7.45
Taos	32,797	34,489	1,692	5.16
Otero	64,768	67,839	3,071	4.74
Lincoln	19,352	20,269	917	4.74
Santa Fe	148,098	154,823	6,725	4.54
Luna	24,367	25,427	1,060	4.35
Lea	71,476	74,455	2,979	4.17
Quay	8,445	8,746	301	3.56
Sierra	11,236	11,576	340	3.03
Catron	3,476	3,579	103	2.96
Dona Ana	214,034	219,561	5,527	2.58
Rio Arriba	39,370	40,363	993	2.52
Guadalupe	4,350	4,452	102	2.34
Valencia	75,661	76,205	544	0.72
Cibola	27,044	27,172	128	0.47
Roosevelt	19,137	19,191	54	0.28
Bernalillo	676,248	676,444	196	0.03
Colfax	12,429	12,387	-42	-0.34
Grant	28,364	28,185	-179	-0.63
McKinley	73,462	72,902	-560	-0.76
Chaves	65,825	65,157	-668	-1.01
Union	4,163	4,079	-84	-2.02
Socorro	17,152	16,595	-557	-3.25
Torrance	15,596	15,045	-551	-3.53
San Miguel	28,215	27,201	-1,014	-3.59
Curry	50,290	48,430	-1,860	-3.70
San Juan	128,246	121,661	-6,585	-5.13
Hidalgo	4,436	4,178	-258	-5.82
Harding	719	657	-62	-8.62
Mora	4,609	4,189	-420	-9.11
De Baca	1,873	1,698	-175	-9.34

[1] Source: U.S. Census Bureau

Appendix B, Table 1, provides the distribution of population by river basin in New Mexico. The distribution was determined by tabulating the total population served for the public water supply and self-supplied domestic categories for each of the six river basins. The populations for each basin are as follows:

- Rio Grande – 1,564,141
- Pecos – 194,004
- Texas Gulf – 133,455
- Upper Colorado – 128,878
- Lower Colorado – 65,537
- Arkansas-White-Red – 31,507

2.3 Per Capita Water Use for the Self-Supplied Domestic Category

For the purpose of estimating withdrawals for the self-supplied domestic population, in most counties, an area-wide average of 80 GPCD was used. This GPCD value was selected based upon water fixture and appliance standards in the mid 1990's and research completed by Brown and Caldwell (1984). This information is summarized in **Table 2.3**. In counties where additional water is required for landscaping and evaporative cooling due to warmer climatic conditions, an area-wide average of 100 GPCD was used. In counties where a segment of the population does not have consistent access to indoor running water, an area-wide average of 70 GPCD was used.

Table 2.3. Indoor water use in single- and multi-family dwelling units without water-conserving plumbing fixtures and appliances, in gallons per capita per day (GPCD).

Items and Assumptions	GPCD[1]
Toilets (1.6 gal/flush x 4 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
Faucets (estimated)	9
Dishwasher (13 gal/load x .17 load/capita day)	2.2
Washing machine (50 gal/load x .30 load/capita day)	15.0
Evaporative cooling	20.0
Total	78.9

As part of the New Mexico Water Use by Categories 2010 report, an assessment was completed (NMOSE & Aquacraft, 2013) to review studies that directly measured indoor water use. This assessment provided information on three efficiency classes:

- Class 1 represents high-efficiency homes that comply with United States Environmental Protection Agency (USEPA) Water Sense Standards.
- Class 2 represents homes that are intermediate-efficiency homes and generally fall into compliance with the Energy Policy Act of 1992 (EPAct) standards.
- Class 3 represents home groups that generally pre-date the EPAct standards.

The result of this assessment supported the conclusion that indoor water use can be reduced with USEPA Water Sense and EPAct fixtures. **Table 2.4,** below, provides a breakdown, by fixture, of the average measured water use for each class. This information provides evidence that reductions in water use are obtainable with conservation measures.

Table 2.4. Indoor water use in single family dwelling unit plumbing fixtures and appliances, in gallons per capita per day (GPCD).

Items and Assumptions	Class 1	Class 2	Class 3
Toilets	9.2	12.34	16.6
Leakage	5.68	8.11	11.49
Showers	10.89	11.66	9.8
Baths	2.09	1.19	1.64
Faucets	8.43	9.47	9.46
Dishwasher	0.85	0.67	1.02
Washing machine	8.03	10.46	14.57
Other (includes miscellaneous uses that do not fit other categories)	0.38	1.26	2.44
Total	45.55	55.16	67.02

It is not possible to accurately quantify self-supplied domestic use by class of water users. Therefore, the withdrawal values utilized in this Report should be considered conservative in nature. In other words, the reported values may be higher than the actual withdrawals.

2.4 Procedure for Quantifying Self-Supplied Domestic Withdrawals

Step 1. Determine Self-Supplied Domestic Population
The self-supplied domestic population in a county is calculated by subtracting the population served by PWSs from the total population in that county. When a county has two or more river basins, the population within each basin must be determined. The distribution of the population in each county by river basin is based upon ratios derived from 2020 census block and tract data. The population served by PWSs in each basin is then subtracted from the total population of the respective basins to yield the self-supplied domestic population.

Step 2. Determine Total Withdrawals
Self-supplied domestic withdrawals are computed using the following equation:

$$W = (POP)(GPCD)/892.74 \qquad (2.1)$$

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

2.5 Procedure for Quantifying Public Water Supply Withdrawals and GPCD

Step 1. Identify All PWSs
The first step toward quantifying public water supply withdrawals is to identify all PWSs in the state. For this Report, the New Mexico Public Water System Boundaries (PWSB) data set was used. For the purposes of this Report, the NMOSE's definition of PWSs is reasonably consistent with the NMED non-transient community water systems. To ensure accuracy in identifying the PWSs, some systems were contacted by the NMOSE.

Step 2. Distribute Surveys to PWSs
Many, but not all, PWSs are required by permit conditions to report their annual withdrawals (sometimes referred to as diversions) to the NMOSE. To obtain information from both reporting and non-reporting PWSs, the NMOSE's Water Use and Conservation Bureau (WUCB) mailed surveys to all PWSs.

Step 3. Determine Total Withdrawals for Each PWS
Withdrawal data for the majority of PWSs were obtained from NMOSE meter records or via the aforementioned surveys. For entities for which data were unavailable, withdrawals were obtained from NMED's Water & Sewer Rate Surveys or estimated based on population and the applicable GPCD value for the self-supplied domestic category.

Step 4. Determine Public Water Utility Population Served
In census years, population figures for many of the communities served by water utilities can be extracted from statistics published by the U.S. Census Bureau. It is important that these figures be compared with the data reported by PWSs. Any discrepancies between census data and PWS data are investigated and resolved prior to calculating PWS withdrawals. **An important step in determining the utility's population served is to separate the population of self-supplied residents from the total population of the larger community in which the PWS is located.**

Populations for communities not identified in the census are obtained from the water system manager, regulatory agency, or estimated by some other means. Many water utilities estimate, with reasonable accuracy, the population served based on the total number of connections and the average number of residents per connection.

Step 5. Determine the GPCD
Equation 2.1 is rearranged to solve for GPCD:

$$\mathrm{GPCD} = (W)(892.74)/\mathrm{POP} \qquad (2.2)$$

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. An unusually high or low GPCD indicates a possible error in either the population data or the water withdrawal data. When data appear to be suspect, the water supplier is contacted to discuss the discrepancies.

Some areas of the state have seasonal communities with small year-round residential populations. These communities experience a large seasonal influx of residents for the summer and/or winter months. Due to the population and per capita water requirements being reported based on the number of residents who live in the community year-round, these seasonal communities will generally exhibit a higher GPCD.

A similar phenomenon occurs on the state's military bases, but on a daily basis. While the residential population of enlisted personnel and their families may be relatively small, there is a large influx of civilians working on the base during the day. In addition, many military installations have a golf course, resulting in an unusually high GPCD relative to the residential population. (Military golf courses are discussed in more detail in Chapter 5.)

An alternative method to calculating the GPCD using the formula provided above is to use NMOSE's GPCD Calculator. The NMOSE developed the GPCD Calculator to provide a standardized methodology for GPCD calculations. The methodology provides the PWS with a categorized baseline of historical and current water use, which can be used to assist the system in planning, tracking, and reporting water uses.

2.6 Water Exchange Codes

Water exchange codes (WEC) are used in this Report to identify water exchange transactions that occur among PWSs. These exchanges occur outside of the NMOSE water rights transfer permit process. WECs cover the following types of transactions:

- Water imports and exports over or between political and physical boundaries.
- The transfer of water from one PWS to another.
- Other aspects of a water system that may be of interest.

The codes were developed using information provided by PWSs and military bases, and from internal knowledge of particular water systems. Explanations of the WECs are provided in **Table 2.5,** and the WECs are used in **Appendix B, Table 7.**

Table 2.5. Water exchange codes.

Water Exchange Code (WEC)	Explanation
0	No water exchanges occurred.
1	Water is **imported** over or between political and physical boundaries.
2	Water is **exported** over or between political and physical boundaries.
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 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 residents who live on the installation year-round.
11	This water utility provides water to a facility that experiences a daily influx of population. The withdrawal shown reflects the total water use. However, the population and per capita water use reported are based on the potential number of people who visit the center on a daily basis.
12	This water utility provides water to a training facility that houses a constant population year-round. The withdrawal shown reflects the total water use. However, the reported population and per capita use are based upon the facility's residential population.
13	This water utility provides water to a golf course.

2.7 Water Withdrawal Codes

Water withdrawal codes (WWC) in this Report are used to identify PWSs where either data could not be obtained, or data was quantified using the NMOSE GPCD Calculator. Where data could not be obtained, withdrawals were estimated or computed.

A WWC identifies:

- PWSs with no 2020 withdrawal data
- PWSs that submitted 2020 NMOSE GPCD calculator data

The codes were developed based on the way the withdrawal was estimated or computed. Explanations of the WWCs are listed in **Table 2.6,** below, and are used in **Appendix B, Table 7.**

Table 2.6. Water withdrawal codes.

Water Withdrawal Code (WWC)	Explanation
1	Withdrawals were computed using the rural-supply GPCD.
2	Withdrawals were obtained from NMED's Water & Sewer Rate Surveys.
3	Withdrawals were computed using a relevant GPCD.
4	Withdrawals were obtained from the NMOSE GPCD calculator.
5	Withdrawals were obtained from NMOSE's survey.

2.8 Information About Individual Water Systems

Specific information about individual water systems is organized by county in the text that follows. County numbers are identified in parentheses (00). Only counties having unique circumstances related to their water systems are included below. Except where stated otherwise, water exchanged from one water utility to another is added to the withdrawal of the receiving organization and is subtracted from the withdrawal of the utility providing the water.

Bernalillo County (01):

- The Albuquerque Bernalillo County Water Utility Authority (ABCWUA) serves the City of Albuquerque as well as some population outside the city limits. ABCWUA provides water to Lost Horizon Co-op Association, Kirtland Air Force Base, Pajarito Mesa MDWCA, and the University of New Mexico. For the purposes of this Report and for comparison purposes, the withdrawal and population reported for Kirtland Air Force Base was subtracted from ABCWUA's total and reported separately in **Appendix B, Table 7.** Therefore, the ABCWUA population numbers and GPCD are different than those presented in the ABCWUA 2020 NMOSE GPCD Calculator.
- ABCWUA supplies treated effluent water to the Arroyo del Oso, Los Altos, Puerto del Sol, and Tijeras Arroyo golf courses.
- The Entranosa Water Co-op provides water to a population of approximately 5,500 in Bernalillo County and 2,150 in Santa Fe County.
- Entranosa sells water to East Mountain Water Hauling and Vista de Mañana.
- The Lost Horizon Co-op Association and Pajarito Mesa MDWCA purchase all water from ABCWUA

- Irrigation water for the Paako Ridge Golf Course is supplied by the Entranosa Water Co-op and is included in the city's withdrawals.
- Irrigation water for the Desert Greens Golf Course is supplied by ABCWUA and is included in ABCWUA's withdrawals.

Chaves County (05):

- In addition to producing municipal drinking water, the Village of Dexter also pumps groundwater to maintain the water level in Lake Van, which is outside the village limits, and to irrigate park areas around the lake. Therefore, Dexter's GPCD appears elevated relative to the population.
- Roswell Municipal Water System supplies treated effluent water to the Roswell Country Club.

Cibola County (06):

- Grants Domestic Water System supplies treated effluent water to the Coyote del Malpais Golf Course.

Colfax County (07):

- The Raton Domestic Water System provides water to the Carisbrook Property Owners Association. This withdrawal and population is reported under the Raton Domestic Water System in **Appendix B, Table 7.**
- The Village of Angel Fire provides water to the Angel Fire Resort for snow making and to the golf course.
- Springer Water System supplies water to French MDWCA and the Springer Correctional Facility. These withdrawals and populations are reported under the Springer Water System.
- The Raton Domestic Water System supplies effluent water to the Raton golf course.

DeBaca County (11):

- Fort Sumner Municipal Water System provides a portion of the Valley MDWCA supply.

Doña Ana County (13):

- The population served by the Hatch Water System includes residents in Placitas and Rodey, which are outside of the Hatch village limits.
- Doña Ana MDWCA supplies water to the Fairview, Picacho Hills, and Radium Springs water systems. These withdrawals and populations are reported under Doña Ana MDWCA in Appendix B, Table 7.
- Las Cruces Municipal Water System provides water to the Hacienda Acres Water System, Las Alturas Estates, San Pablo MDWCA, San Andres Estates Water System, and the University Estates Water System. These populations and withdrawals are reported under the Las Cruces Municipal Water System in Appendix B, Table 7.
- Holly Garden Mobile Home Park purchases some water from the Las Cruces Municipal Water System.
- Camino Real Regional Utility Authority provides water to the Union Pacific Strauss Yard.
- Lake Section Water Company supplies water to Orogrande MDWCA. These withdrawals and populations are reported under Lake Section in Appendix B, Table 7.

- Rancho Vista Mobile Home Park purchases some water from the Las Cruces Municipal Water System. This withdrawal is reported under the Las Cruces Municipal Water System. The withdrawal from the Rancho Vista well is reported in Appendix B, Table 7.

Eddy County (15):

- The population served by the Carlsbad Municipal System includes residents in La Huerta, which is outside of the city limits.
- Carlsbad Municipal System supplies water to the Lake Carlsbad Golf Course, Ellipse Global, Otis MDWCA, and the Waste Isolation Pilot Plant.
- Loving supplies all of the water distributed in Malaga. Withdrawals for both cities are reported separately in the withdrawal column in **Appendix B, Table 7.**
- Caprock imports all water from the Mor-West Corporation.
- Morningside Water Users Co-op purchases water from the Artesia Municipal Water System.

Grant County (17):

- Silver City provides water to Arenas Valley, Pinos Altos, and the Rosedale and Tyrone MDWCAs. These withdrawals are reported separately in **Appendix B, Table 7.**
- The Town of Hurley and North Hurley MDWCA purchase water from Freeport-McMoRan Chino Mines.
- Hanover MDWCA purchases water from the Bayard Municipal Water System**.**
- The Silver City Water System supplies effluent water to the Silver City golf course.

Guadalupe County (19):

- Vaughn Duran Water System provides water to Encino in Torrance County. This withdrawal is reported separately in **Appendix B, Table 7.**
- Santa Rosa Water System supplies water to the Hollywood Ranch Domestic WUA and Rio Pecos Villa MDWCA. These populations and withdrawals are reported under Santa Rosa Water System in Appendix B, Table 7.
- Riveras MDWUA and Puerto de Luna MDWCA purchase water from the Santa Rosa Water System.

Lea County (25):

- Lovington Municipal Water System provides an estimated 2,200 acre-feet of water to the oil and gas industry. This withdrawal is included in the City's withdrawal and is not included in the mining category of this report.
- Mescalero Ridge Water Co-op and Caprock Water Company purchase water from the Morwest Corporation.

Lincoln County (27):

- The Alto Lakes Water & Sanitation District supplies treated effluent water to the Alto Lakes golf course.
- CDS Rainmakers Utility LLC provides water to the Rainmakers golf course.

Los Alamos County (28):

- Withdrawals for the Los Alamos National Laboratory and the City of White Rock are included as part of the Los Alamos Municipal Water System withdrawals in the public supply category.
- Los Alamos and White Rock's treated sewage effluent is used to irrigate the Los Alamos golf course, numerous athletic fields, and for cooling tower makeup water at electric power generating stations. It is not accounted for in any other category within this Report.

McKinley County (31):

- The City of Gallup provides water to Gamerco.
- The Gallup Water System supplies effluent water to the Gallup Municipal golf course.
- Coal Basin DWUA purchases untreated water from the Gallup Water System.

Otero County (35):

- The Alamogordo Domestic Water System provides water to Oasis Mobile Home Park. Oasis also has its own water supply which is used for irrigation.
- The Alamogordo Domestic Water System supplies effluent water to the Desert Lakes golf course.
- Lake Section Water Company provides water to Orogrande.
- Holloman Air Force Base supplies water to White Sands National Park.
- Cloud Country Estates WUA maintains a fishing pond, therefore the GPCD appears elevated relative to the population.

Quay County (37):

- The City of Tucumcari supplies all of the water distributed by the Hills Village Water System, Liberty MDWUA, and Rad Water Users Coop. These withdrawals are reported separately in **Appendix B, Table 7.**
- The Tucumcari Water System provides water to the Tucumcari Municipal golf course.
- Logan Water System supplies all of the water distributed by San Jon Water System. These withdrawals are reported separately in **Appendix B, Table 7.**

Rio Arriba County (39):

- The Española Water System supplies all of the water distributed by Cuatro Villas WUA. The volume of water delivered to Cuatro Villas is unknown, therefore it is reported under Espanola's withdrawal.
- The Española Water System supplies water to Agua Sana WUA.

Roosevelt County (41):

- The City of Portales supplies all of the water distributed by the Roosevelt County Water Co-op. These withdrawals are reported separately in **Appendix B, Table 7.**

Sandoval County (43):

- Rio Rancho Water & Wastewater Services provides a portion of the water supply for the Bernalillo Water System.

San Juan County (45):

- Aztec Domestic Water System supplies water to the Southside WUA and Flora Vista Mutual Domestic. The withdrawals and population data are reported separately in **Appendix B, Table 7.**
- Aztec Domestic Water System supplies water to Hydro Pure Technology Inc.
- The Bloomfield Water Supply System provides water to the Apple Orchard MDWCA, Aztec Domestic Water System, and Blanco MDWCA. These withdrawals are reported separately in **Appendix B, Table 7.**
- The Farmington Water System supplies the Bluff View Power Plant with approximately 390 AF of water. This withdrawal is not reported separately as part of the power category.
- The Farmington Water System supplies water to the Flora Vista Mutual Domestic and the Morningstar Water System.
- The Farmington Water System supplies water to the Civitan and Piñon Hills golf courses.
- The Lower Valley WUA and the City of Farmington provide water to the Upper La Plata WUA. These withdrawals are reported separately.

San Miguel County (47):

- El Creston MDWCA purchases water from the City of Las Vegas.
- The City of Las Vegas provides water to United World College.

Santa Fe County (49):

- The City of Santa Fe supplied approximately 1,200 AF of treated effluent water to the following entities: Santa Fe River, Marty Sanchez Golf Course, Santa Fe Country Club Golf Course, soccer fields at the Municipal Recreation Complex, and SWAN Park .
- Las Campanas Golf Course uses approximately 320 AF of self-supplied water and is reported separately as part of the commercial category.
- The City of Santa Fe supplies water to Santa Fe County. These withdrawals are reported separately in **Appendix B, Table 7**.
- Santa Fe County supplies water to Cañoncito at Apache Canyon, Hyde Park Estates, and the Las Campanas Water System. These withdrawals are reported separately in **Appendix B, Table 7**.
- The Glorieta Camps serves a flux population that is not included in the population in **Appendix B, Table 7.**
- Cañada De Los Alamos MDWCA's well went dry, and as of July 2020, purchases water from Santa Fe County. The amount is unknown.
- The City of Santa Fe supplies water to water to the Quail Run golf course.

Sierra County (51):

- Water supplied to the Truth or Consequences (T or C) golf course by the City of T or C is treated effluent water and therefore is not accounted for separately in this Report.
- Elephant Butte Water System provides water to Elephant Butte Lake State Park.

Socorro County (53):

- The Socorro Water System supplies water to the Energetic Materials Research and Testing Center. Therefore, Socorro Water System's GPCD may appear to be slightly elevated relative to the population.

Taos County (55):

- The Taos Municipal Water System supplies treated effluent water to the Taos Country Club golf course.
- The Village of Taos Ski Valley supplies all the potable water for the homes, condominiums, hotels, restaurants, and shops in Taos Ski Valley. The water used for snowmaking at Taos Ski Valley is reported in the commercial category rather than in the public water supply category since it is permitted separately.
- Llano Quemado MDWCA provides water to El Valle De Los Rancho W & SD. These withdrawals are reported separately in **Appendix B, Table 7.**
- Taos Municipal Water System occasionally purchases water from El Prado Water & Sanitation District.

Torrance County (57):

- Encino purchases water from the Vaughn Duran Water System in Guadalupe County. These withdrawals are reported separately in **Appendix B, Table 7.**
- Moriarity Water System provides water to Homestead Water Company.

Union County (59):

- The Clayton Municipal Supply supplies water to Clayton golf course.

3 IRRIGATED AGRICULTURE

This chapter includes:

- A definition of the water supply category.
- An overview of the Original Blaney-Criddle (OBC) and Modified Blaney-Criddle (MBC) methods for computing the consumptive use, and subsequently the consumptive irrigation requirement (CIR) of crops.
- A description of the procedure used to quantify irrigation withdrawals.
- A discussion of the methods used to calibrate the consumptive use for two important New Mexican crops: alfalfa and pecans.
- An overview of the irrigated acreage data used in this Report.

The irrigated agriculture category had higher withdrawals than any other water use sector in 2020, totaling 2,966,697 AF, or 77.97% of total withdrawals. Summaries of irrigation withdrawals can be found in **Appendix B, Tables 8-10.**

CIRs in this Report are primarily calculated using the OBC method, however, the MBC method is used to compute consumptive use in the Upper Colorado River Basin to maintain consistency with NMISC compact accounting. Additionally, this Report uses metered withdrawal data consistent with those reported by the NMISC, NMOSE, Middle Rio Grande Conservancy District, and Elephant Butte Irrigation District.

3.1 Definition of Category

The irrigated agriculture category includes all withdrawals of water for the irrigation of crops grown on farms, ranches, and wildlife refuges.

3.2 The OBC Method

3.2.1 Consumptive Use (U)

The OBC method (Blaney and Criddle, 1950, 1962) for determining consumptive use was born out of studies conducted in New Mexico during 1939 and 1940 for the Pecos River Joint Investigation initiated by the National Resources Planning Board.

The OBC method uses mean monthly air temperatures (T) expressed in degrees Fahrenheit, monthly percentage of annual daylight hours (D) based on the latitude of the area under study, seasonal consumptive use coefficients (K), and the length of the growing season. These are used to estimate the total consumptive use (U), or evapotranspiration (ET), of water during the growing season for a crop. The consumptive use in inches for each month is expressed as follows in equation 3.1:

$$U = ET = [(T)(D)/100](K) \qquad (3.1)$$

Adding the consumptive use computed for each month yields the total consumptive use for a specific crop during the growing season.

The distinctive feature of this method is that the consumptive use coefficient (K) remains constant throughout the frost-free period. A different consumptive use coefficient is used for that part of a crop's growing season that occurs before the last spring frost (T<32°F) or past the first fall frost (T<32°F). The consumptive use coefficient during the frost period is lower than the consumptive use coefficient during the frost-free period of the growing season. For crops that 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 counted separately so that the appropriate consumptive use coefficients can be applied. In a month during 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.

3.2.2 USBR Effective Rainfall (R_e)

The amount of rainfall available to crops is influenced by the following factors:

- Duration and intensity of rainfall
- Antecedent moisture condition of the soil
- Infiltration capacity of the soil
- Presence of surface seals and crusts
- Slope of fields
- Root development of the crop
- Interception by the plant canopy

The OBC method did not have a procedure for estimating effective rainfall. In 1962, Blaney and Criddle adopted a USBR method. The USBR method expresses effective rainfall (R_e) as a percentage of the total monthly rainfall. For each 1-inch increment in rainfall, there is a corresponding decrease in the percentage of effective rainfall. This method was originally published as a table of values that has since been changed to a set of equations (**Table 3.1**). Effective rainfall (R_e) cannot exceed the consumptive use (U). The monthly CIR for each crop in the cropping pattern is computed by subtracting the effective rainfall (R_e) from 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.

$$CIR = U - R_e \tag{3.2}$$

Table 3.1. USBR effective rainfall.

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

3.3 The MBC Method

3.3.1 Consumptive Use (u_m)

The U.S. Department of Agriculture (USDA) Soil Conservation Service (SCS) introduced the MBC method in 1967. In 1970 it was revised and published (USDA, 1970).

The MBC method uses mean monthly air temperatures (t) expressed in degrees Fahrenheit, monthly percentage of annual daylight hours (d) based on the latitude of the area under study, monthly consumptive use coefficients (k), and the length of the growing season to estimate the total monthly consumptive use (u_m) of water for a crop that is well watered and free of disease. The consumptive use in inches for each month is expressed as:

$$u_m = [(t)(d)/100](k) \tag{3.3}$$

where $k = (k_t)(k_c)$. The climatic coefficient (k_t) equals 0.0173t-0.314, and k_c is the crop growth stage coefficient.

The procedure used to calculate the final *monthly* consumptive use coefficient (k) distinguishes the MBC method from the OBC method, which uses a *seasonal* consumptive use coefficient.

- The climatic coefficient (k_t), expressed as a function of the mean monthly temperature, is computed.
- The value of the crop growth stage coefficient (k_c) is obtained from a curve plotted on a graph. Because the growth characteristics of each crop are different, a separate curve is generally required for each crop. Curves for a limited number of crops were published in SCS Technical Release 21 (USDA, 1970).
- Multiplying k_t by k_c yields the final consumptive use coefficient (k) for a specific crop and month.
- 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.
- Adding the consumptive use computed for each month yields the total consumptive use for a specific crop during the growing season.

3.3.2 SCS Effective Rainfall (r_e)

The SCS developed a method for estimating effective rainfall as a function of consumptive use and rainfall. This method was established as the result of research that analyzed the soil-moisture balance from 50 years of precipitation records at each of 22 Weather Bureau stations in the United States (now part of the National Weather Service). To calculate effective rainfall (r_e) in inches, the SCS method uses the following equation:

$$r_e = (0.70917r^{0.82416} - 0.11556)(10^{0.02426u_m})(f) \tag{3.4}$$

where r is the rainfall in inches, u_m is the monthly consumptive use in inches, and

$$f = 0.531747+0.295164D-0.057697D^2+0.003804D^3 \tag{3.5}$$

where D is the net depth of irrigation water in inches normally applied to the field.

In New Mexico, the default depth of irrigation is three inches. If other depth information is available, it is used in equation 3.5. The effective rainfall (r_e) cannot exceed the consumptive use

(u_m). The monthly CIR for each crop in the cropping pattern is computed by subtracting the effective rainfall (r_e) from the consumptive use (u_m). Adding the computed effective rainfall for each month yields the total effective rainfall for a specific crop during the growing season.

$$CIR = u_m - r_e \quad (3.6)$$

3.4 Procedure for Quantifying Irrigation Withdrawals

This section discusses irrigation water requirements, separated by irrigation system type and water source, as well as factors that influence the CIR and how the CIR is computed using the Blaney-Criddle Computer Program (BCCP) developed by NMOSE staff (Wilson, 1990). The BCCP uses three electronic data files that include (1) crop acreages, (2) temperature and precipitation data, and (3) growing season data. Summaries of irrigation withdrawals can be found in **Appendix B, Tables 8-10.**

Multiple steps are necessary to calculate the final CIR. These steps vary as a function of the crop species and cropping pattern. Interim CIRs, represented by CIR_w, CIR_a, and CIR_m, are used in this procedure as placeholders for entry into Step 8 as the CIR.

The step-by-step procedure used for quantifying irrigation withdrawals is described below.

Step 1. Calculate Gross Actively Irrigated Acreage by Type of Irrigation System
Irrigated acreage for the Report was compiled using the USDA Cropland Data Layer (CDL). The CDL is a georeferenced crop-specific land cover classification product with a 30-meter resolution that is produced annually. GIS was used to integrate the CDL crop types with a layer of potentially irrigated polygons covering the entire state. WUCB staff analyzed the results for each county using satellite imagery to ensure accuracy. During this process, edits were made as needed to reflect on-the-ground conditions. For example, areas that appeared to be dryland farmed were removed from the analysis.

OpenET is a satellite-based online platform that provides estimates of evapotranspiration (https://etdata.org). WUCB staff used OpenET to assist in distinguishing between irrigated and non-irrigated land.

Ancillary data from the USBR, USDA Farm Service Agency, National Agricultural Statistics Service, NMISC, NMOSE district offices, irrigation districts, and conservancy districts were used to help validate and refine the totals obtained from the CDL and subsequent analysis.

Some of the locale names in this Report differ from those used in previous years. Name changes were made as necessary for consistency and to better reflect the actual geographic location of the locales.

The irrigated acreage in each county, river basin, and locale was compiled by crop type and irrigation method. On-farm irrigation efficiencies are used to determine farm delivery requirements, and these vary by the irrigation method. The types of irrigation methods used to irrigate cropland are classified as drip, flood, and sprinkler.

Once irrigated acreages and cropping patterns were identified, the gross irrigated acreage for each individual crop was tabulated by irrigation method. The gross irrigated acreage is the sum of the irrigated acreage and the multiple-cropped acreage.

Step 2. Obtain Temperature and Precipitation Data
Calculations in this Report used 2020 weather data from weather stations around the state. Parameter-elevation Regressions on Independent Slopes Model (PRISM) climate mapping system data were used in situations where weather stations were no longer in operation, or when gaps in weather data existed. Per the PRISM Climate Group website (http://prism.oregonstate.edu/), *"The PRISM Climate Group gathers climate observations from a wide range of monitoring networks, applies sophisticated quality control measures, and develops spatial climate datasets to reveal short- and long-term climate patterns."*

The average temperature and total rainfall for each month were obtained from the weather station or PRISM location most representative of a specific locale. In some instances, data from two weather stations were averaged to obtain the temperature and precipitation to use as input for the calculations.

On a statewide basis, precipitation was well below average in 2020 and well above average in 2015. With less effective rainfall in 2020, the CIRs in this 2020 Report are generally higher than the CIRs in the 2015 Report.

Step 3. Determine Irrigation Season
The irrigation season for each crop is defined by the earliest and latest moisture-use dates. For annual crops, the earliest moisture-use date is assumed to be the planting date, and the latest moisture-use date is assumed to be the day before harvest begins. Additionally, for some annual crops such as corn, spring small grains, and cotton, farmers may apply a pre-plant irrigation. Readily available documents were reviewed to identify areas where these practices are common. In such cases, a 15-day pre-plant irrigation period was added to the date of planting, resulting in a longer growing season and therefore a higher consumptive use.

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. This date is extrapolated from mean monthly temperature values. The latest moisture-use date correlates with the mean daily air temperature that signals the cessation of transpiration on the next day.

Step 4. Calculate Weighted Consumptive Irrigation Requirement (CIR_w)
The CIR for each crop in the cropping pattern was computed using the BCCP. The BCCP uses three electronic data files that include (1) crop acreages, (2) temperature and precipitation data, and (3) irrigation season data as determined above in Step 3. Separate CIRs are computed for each type of irrigation method (drip, flood, and sprinkler). The BCCP calculates additional information such as the crop distribution ratio, effective rainfall, and theoretical consumptive use for individual crops by irrigation method. Wilson (1992b) describes the calculation procedures and resulting outputs in detail.

The CIR was multiplied by the crop distribution ratio to obtain the weighted CIR for a crop. The weighted CIRs for each crop were added to obtain the weighted CIR (CIR_w) for the cropping pattern.

Step 5. Alfalfa Adjustment of CIR_w
For cropping patterns that contain alfalfa, Section 3.5.1 of the Report discusses how to determine if an alfalfa yield adjustment to the CIR_w is necessary.

- If an alfalfa adjustment is made, the CIR_w is recomputed using the consumptive use predicted by the crop production function for alfalfa. The adjusted CIR_w is renamed CIR_a and is used in the remaining steps outlined below.

- If no alfalfa yield adjustment is made, the CIR_w value and nomenclature remain unchanged.

Step 6. Calculate the Multi-Crop Adjusted CIR (CIR_m)
If the cropping pattern includes multiple-cropped acreage, that is, acreage on which two or more crops are produced in the same year, the appropriate CIR (CIR_w or CIR_a) must be adjusted. It is important to establish whether the cropping pattern in question includes multiple-cropped acreage. If multiple-cropped acreage exists, the CIR must be adjusted upward to account for the increase in water requirements necessary to produce more than one crop on the same land. This multi-crop adjustment (CIR_m) is made by multiplying the CIR_w or CIR_a, as appropriate (see Steps 4 and 5 above), by the ratio of the gross irrigated acreage (A_g) to the net irrigated acreage (A_n):

$$CIR_m = CIR_{(w,a)}[A_g/A_n] \qquad (3.7)$$

The net irrigated acreage is the difference between the gross irrigated acreage and the multiple-cropped acreage (A_n=A_g-A_m).

If no multi-crop adjustment is made, the CIR_w or CIR_a value and nomenclature, as appropriate, remain unchanged.

Note: There are two potential adjustments that could be made to the weighted CIR established in Step 4:

1. Alfalfa adjustment (Step 5), which results in CIR_a, and/or
2. Multi-crop adjustment (Step 6), which results in CIR_m.

Consequently, there are three possible CIRs that may be entered into the remaining steps used to calculate the irrigation withdrawals: CIR_w, CIR_a, or CIR_m. For convenience, the appropriate consumptive irrigation requirement value will be referred to simply as CIR in the remaining steps.

Step 7. Identify Irrigation Water Source
The irrigated acreage tabulated for each type of irrigation method is further identified by irrigation water source. Sources of water include surface water, groundwater, and combined water. Combined water exists when a field is irrigated with both groundwater and surface water. Combined water typically uses surface water as the primary source, and groundwater pumped from a well as a supplemental source.

Step 8. Calculate Farm Delivery Requirement
The farm delivery requirement (FDR) is computed by dividing the appropriate CIR (see steps 4-7, above) expressed as a depth or volume by the on-farm irrigation efficiency (E_f):

$$FDR = CIR/E_f \qquad (3.8)$$

For example, if the CIR is 2.0 acre-feet per acre and E_f = 60%, using equation 3.8, the FDR = 2.0/0.60 = 3.33 acre-feet per acre.

The on-farm irrigation efficiency is affected by farm and field conditions, such as:

- Soil type
- 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
- Farm water management practices

To be consistent with previous water use reports, historic on-farm efficiencies have been used for 2020. If the type of irrigation method changed, the on-farm efficiency was updated.

Step 9. Calculate Project Diversion Requirement
The project diversion requirement (PDR), or off-farm diversion requirement, is computed by dividing the farm delivery requirement (FDR) by the off-farm conveyance efficiency (E_c).

$$PDR = FDR/ E_c \tag{3.9}$$

For example, if the FDR=3.33 acre-feet per acre, and E_c=70%, the PDR = 3.33/0.70 = 4.76 acre-feet per acre. If the water source is located on the farm, there is no E_c.

Step 10. Determine Amounts of Groundwater and Surface Water Used
Acreage irrigated by combined water must be separated into its groundwater and surface water components. The components are calculated after the withdrawal has been computed. In 2020, 48% of the total withdrawals for irrigation purposes were measured (**Appendix B, Table 4**). Where measured withdrawals are not available, the groundwater and surface water components must be estimated. Estimates are made by (1) examining historical water right diversion records, (2) comparing recorded stream flows with the estimated demand, (3) contacting personnel in the County Extension Service, Natural Resources Conservation Service, or individual farmers with local familiarity, or (4) using component estimates from the previous *Water Use by Categories* report.

If records of measured withdrawals are available, the groundwater and surface water components for combined water can be determined by comparing the total computed withdrawal (PDR multiplied by the acreage) with the measured withdrawal. If a shortage occurs, that is, the measured surface water withdrawal is less than the computed withdrawal; it is assumed that the difference is made up with groundwater. The acreage irrigated by surface water is then calculated as the product of the surface water withdrawal and irrigation efficiency divided by the CIR. The acreage irrigated by groundwater is the difference between the total acreage irrigated and the computed acreage irrigated by surface water.

When separating combined water into its groundwater and surface water components, it is important that the correct irrigation efficiencies are used. Irrigation efficiencies can differ substantially between surface water (with an off-farm source) and groundwater (with an on-farm source).

Step 11. Adjust for Measured Withdrawals and Known Shortages
When measured withdrawals are not available, then, for irrigation with surface water, the total farm withdrawal, surface water (TFWSW) in **Appendix B, Table 8** equals the FDR multiplied by the acreage, and the total project withdrawal, surface water (TPWSW) equals the PDR multiplied by the acreage. For irrigation with groundwater, the total project withdrawal, groundwater

(TPWGW) equals the FDR multiplied by the acreage. With groundwater, the withdrawals are assumed to occur at each farm. This eliminates the project conveyance losses, making the FDR equal the PDR.

When measured withdrawals are available, they are compared with the computed withdrawals. When farm deliveries of surface water are measured, the measured amount is used for the TFWSW rather than using the computed amount. When project diversions of surface water are measured, the measured amount is used for the TPWSW rather than using the computed amount. When the measured TPWSW is less than the computed TPWSW, the conveyance efficiency is used to reduce the TFWSW below the computed TFWSW. When the measured TPWSW is greater than the computed TPWSW, the TFWSW remains equal to the computed amount and the excess water is assumed to return to the surface water source. Some irrigation ditches divert more than the minimum amount needed and return excess flows directly to the river. When groundwater diversions are measured, the measured amount is used for the TPWGW rather than using the computed amount.

In some cases, measured withdrawals are not available, but a shortage of irrigation water is apparent. If the water source is a river or stream with flows measured at or above the project diversion site, then the shortage can be estimated by comparing the available streamflow during the irrigation season to the computed TPWSW. When the water source is not measured, the shortage can be estimated in some cases by observation. The shortage is quantified as a supply factor that is used to reduce the TFWSW below the computed amount.

In **Appendix B, Table 8**, footnotes indicate when measured withdrawals or known shortages changed the TFWSW, TPWSW, or TPWGW from their computed amounts.

3.5 Calibration of Consumptive Use for Alfalfa and Pecans

In New Mexico, a primary use of irrigation water is to produce alfalfa. NMSU has conducted extensive research on alfalfa water use. This research has been incorporated into the water use estimates in this Report, as described in Section 3.5.1.

In 2020, the value of pecan production totaled $122,928,000, the second highest in the nation (NMDA, 2022). Pecan water use has been the subject of much research, and for this Report, water use was estimated as described in Section 3.5.2.

3.5.1 Alfalfa

Many researchers have developed crop production functions for alfalfa that relate ET and yield. To adjust the ET for alfalfa to reflect reported yields, the NMOSE evaluated several of the equations that have been used in New Mexico. Equations developed in different climates/elevations/latitudes or using yields outside of the range of reported yields for New Mexico were not considered for this analysis.

Sammis Crop Production Function

In the late 1970s, researchers at NMSU developed a crop production function for alfalfa that correlates annual ET with annual crop yield (Sammis et al., 1982). The Sammis crop production function was developed for statewide use.

This crop production function is a linear relationship expressed in the following equation:

$$Y = 0.1473\ ET - 0.553 \qquad (3.10)$$

where Y is the annual yield in tons per acre at 0% moisture content, and ET is the annual evapotranspiration in inches. Rearranging equation 3.10 to solve for ET results in the following expression:

$$ET = (Y + 0.553)/0.1473 \qquad (3.11)$$

Smeal Crop Production Function
In the 1980s, an alfalfa water use study at the NMSU Agricultural Science Center in Farmington, New Mexico, resulted in a regional crop production function for alfalfa. The results of this research were published in 1995 in Agricultural Experiment Station Bulletin 770 (Smeal et al., 1995). Farmington is located in northwestern New Mexico, and for this reason, this regional crop production function is more applicable in this area than the statewide function. The Smeal crop production function is used to estimate ET based upon reported alfalfa yields.

The Smeal crop production function is shown in the following equation (in English units):

$$Y = -3786 + 403\ ET \qquad (3.12)$$

where Y is the annual yield in pounds per acre at 0% moisture content, and ET is the seasonal evapotranspiration in inches. Rearranging equation 3.12 to solve for ET results in the following expression:

$$ET = (Y + 3786)/403 \qquad (3.13)$$

For the purpose of this water use inventory, alfalfa yields reported by the New Mexico Agricultural Statistics Service for 2020 (or yields from adjacent or same region counties) were used in either equation 3.11 or equation 3.13 to calibrate ET for alfalfa in several counties. If the ET predicted by equation 3.11 or equation 3.13 was higher than the value obtained using the OBC method, then the predicted ET was used in determining the CIR for alfalfa. Using this method results in a higher estimate of water use and was only done in cases where sufficient water was available to meet irrigation demand. The Smeal crop production function was used for Bernalillo, Cibola, McKinley, Rio Arriba, Sandoval, San Juan, Santa Fe, and Taos counties if the above criteria were met. The Sammis crop production function was used for the remaining counties in the state if the above criteria were met. For the 2020 Report, the alfalfa adjustment was made in Chaves, Dona Ana, Hidalgo, Lea, Lincoln, Luna, Torrance, and Union counties.

3.5.2 Pecan Orchards

It is generally accepted among pecan producers and agricultural researchers that the water requirements for pecan orchards are higher than those for other deciduous orchards. Studies conducted in the Rio Grande Valley near Las Cruces, New Mexico, and El Paso, Texas, by the USBR in 1972-73 and Seiichi Miyamoto in 1981 (Miyamoto, 1983), indicate that the growing season consumptive water use of mature pecan trees ranges from 3.3 to 4.3 AF per acre, depending on the tree size and planting density.

Historically, the NMOSE has estimated the water requirement for pecan orchards using the OBC method and a seasonal consumptive use coefficient (K) of 0.65. The research conducted by the USBR and Miyamoto indicates that a K of 0.65 is too low and needs to be revised. Evidence also suggests that the threshold temperatures normally used to define the growing season for deciduous orchards are inappropriate for pecan orchards. Transpiration in these orchards generally begins when the mean daily air temperature reaches 60°F in the spring, and it ends in the fall after a reasonably hard freeze (Miyamoto, 1983). Because the first fall frost of 28°F or below is a readily available date, it is considered the end of the growing season.

By using the above temperature criteria to define the growing season, and assuming the growing season consumptive use of water is at least 3.3 feet and the consumptive use coefficient outside the frost-free period is 0.40, the NMOSE 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. This value was used to calculate the CIR of pecan orchards included in 2020 cropping patterns. The consumptive use coefficients may be revised in the future.

3.6 Irrigated Acreage

This Report uses irrigated crop acreage and weather data for the 2020 calendar year. The data was compiled by WUCB staff. The NMISC conducted irrigated acreage inventories for the Upper Colorado River Basin in 2020, and this Report uses their data for portions of McKinley and Rio Arriba counties, and all of San Juan County. The Report also uses irrigated acreage and diversion data for the Gila River Basin collected by the NMISC and District 3 of the NMOSE.

The total acreage irrigated (**Appendix B, Table 10**) on farms in 2020 was 786,192 acres; 212,177 acres, or 26.99%, were irrigated with surface water, and 454,954 acres, or 57.87%, were irrigated with groundwater. The remaining 119,061 acres, or 15.14%, were irrigated with a combination of surface water and groundwater.

The total acres irrigated in New Mexico for the time period 1980-2020 are summarized in **Table 3.2.** The number of irrigated acres in production has varied substantially over the past 40 years. The 786,192 acres in production in 2020 represents a 4.86% increase from the 749,769 acres in production in 2015.

Table 3.2. Irrigated acreage in New Mexico, 1980-2020, and percent change in irrigated acreage.

	Acres	Percent Change from Previous Inventory
1980	1,087,120	-
1985	941,245	-13.42
1990	984,285	4.57
1995	963,050	-2.16
1999	998,793	3.71
2005	875,415	-12.35
2010	872,664	-0.31
2015	749,769	-14.08
2020	786,192	4.86

Acreage irrigated by drip (TDA), flood (TFA), and sprinkler (TSA) methods, as well as sources of irrigation water in New Mexico counties in 2020, are presented in **Appendix B, Table 9.** Drip irrigation accounted for 16,533 acres (2.10%); flood irrigation accounted for 275,052 acres (34.99%); and sprinkler irrigation accounted for 494,607 acres (62.91%).

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4 SELF-SUPPLIED LIVESTOCK

This chapter includes:

- A definition of the water supply category.
- A summary of the livestock population changes from 2015 to 2020 for non-dairy cattle, dairy cattle, sheep, hogs, chickens, and horses, as well as details regarding the changes in dairy cattle populations in several counties over the 40-year history for which this Report has been produced.
- An explanation of the per capita water use assumptions for livestock.
- A description of the procedure used to quantify self-supplied livestock withdrawals.

Withdrawals for self-supplied livestock totaled 38,519 AF, or 1.01 % of total withdrawals in 2020 (**Appendix B, Tables 2 and 3**).

4.1 Definition of Category

The livestock category includes water used to raise livestock, maintain self-supplied livestock facilities, and provide for on-farm processing of poultry and dairy products.

4.2 Livestock Population

All livestock totals are reported in **Table 4.1**. The 2020 year-end totals for non-dairy cattle in New Mexico were estimated at 1,148,273 head, a 6% increase from 2015. The number of dairy cows in 2020 was estimated at 338,894, an increase of 8% from 2015. The sheep and lamb population increased from 2015 by 13% to 55,306 in 2020. The swine population increased from 2015 by 62% to an estimated 1,603, while the horse population declined from 2015 by 12% to 27,399. The number of chickens is estimated to have increased by 109% to 146,694.

Table 4.1. New Mexico livestock population in 2015 and 2020.

Species[1]	2015	2020	Percent Change
All Cattle (Non-dairy)	1,079,749	1,148,273	6.35
Dairy Cows	315,001	338,894	7.59
Sheep/Lambs	48,754	55,306	13.44
Hogs/Pigs (swine)	987	1,603	62.41
Chickens	70,143	146,694	109.14
Horses	30,979	27,399	-11.56

[1]Sources: NMTRD, NASS, New Mexico Cooperative Extension Service.

Dairies continued to be a dominant component of the livestock category in the eastern and southeastern portions of the state and in Doña Ana County, located in the Rio Grande Basin (**Table 4.2**). Following the four counties shown on the table, Lea, Eddy, Socorro, and Luna counties also had over 10,000 dairy cows.

Table 4.2. Number of milk cows in Chaves, Doña Ana, Roosevelt, and Curry counties as of January 1 for selected years during the period from 1976 to 2020.

Year[1]	Chaves		Doña Ana		Roosevelt		Curry	
	No. Head	Percent Change	No. Head	Percent Change	No. Head	Percent Change	No. Head	Percent Change
1976	2,700	–	5,500	–	5,000	–	400	–
1980	4,000	48	9,200	67	5,100	2	1,200	200
1985	12,000	200	23,800	159	7,600	49	1,600	33
1990	19,000	58	24,000	1	9,000	18	1,100	-31
1995	70,000	268	31,000	29	20,400	127	13,000	1082
2000	80,000	14	36,000	16	35,000	72	30,000	131
2005	99,797	25	58,227	62	65,000	86	76,820	156
2010	82,000	-18	49,000	-16	60,000	-8	65,000	-15
2015	80,000	-2	37,000	-24	50,000	-17	75,000	15
2020	85,000	6	33,000	-11	55,000	10	85,000	13

[1]Sources: NMTRD, NASS, New Mexico Cooperative Extension Service.

4.3 Per Capita Water Use for Livestock

As with the human consumption of water, livestock water used for drinking and other uses, such as dairy sanitation, are estimated on a per capita basis. Daily requirements in gallons per capita for all livestock species analyzed in this Report are presented in **Table 4.3.** Dairy cows require the most water (primarily for drinking and facility sanitation).

Table 4.3. Drinking and miscellaneous water requirements for livestock in gallons per capita (animal) per day (GPCD).

Species	Drinking Water (GPCD)[1]	Miscellaneous Water (GPCD)[1]	Total (GPCD)[1]
Non-Dairy Cattle	9	1	10
Chickens	0.06	0.02	0.08
Hogs	2	1	3
Horses and Mules	12	1	13
Dairy Cows	38	27	65
Sheep	2	0.2	2.2

[1]Sources: Beef cattle—Sweeten et al., 1990; Horses—Van der Leeden et al., 1990; Dairy cattle—Hagevoort, 2012 correspondence, and Lovelace, 2009; all others—Soil Conservation Service, 1975; Sykes, 1955.

4.4 Procedure for Quantifying Livestock Withdrawals

Step 1. Determine Number of Livestock (by Species) per County

Livestock populations for this Report came from the New Mexico Taxation and Revenue Department (NMTRD) and the U.S. Department of Agriculture's National Agricultural Statistics

Service (NASS), along with input from the New Mexico Cooperative Extension Service. Also, the New Mexico Department of Agriculture and the U.S. Department of Agriculture jointly produce an annual agricultural statistics bulletin, the *2020 New Mexico Agricultural Statistics* (NMDA, 2021). For dairy cattle, the number of dairy cows was separated out from the total dairy cattle (which also includes bulls, heifers, calves, and non-lactating cows) to enable more accurate water use estimates. When a county includes two or more river basins, the number of livestock in each basin was estimated based on information such as location of ranches, feedlots, and dairies. The New Mexico Cooperative Extension Service provided some of this information.

Step 2. Determine Withdrawals

Withdrawals were calculated and reported for each species by county and river basin. Measured withdrawals, when available, were used in this Report. Non-metered withdrawals were computed using the following equation:

$$W = (GPCD)(POP)/892.74 \qquad (4.1)$$

where W is the annual withdrawal in acre-feet, POP is the population of each species, and GPCD is gallons per capita per day (taken from **Table 4.3** above). Only 4% of withdrawals for livestock were measured in 2020 (**Appendix B, Table 4**). The remaining 96% of withdrawals were calculated using **equation 4.1.**

Previous Reports assumed that water for chickens, hogs, horses, mules, and dairy cows comes from groundwater sources and that drinking water for non-dairy cattle and sheep comes from a combination of groundwater and surface water sources (groundwater sources are used where surface water supplies are either unreliable as a year-round source or offer unsatisfactory quality for livestock consumption). This Report generally used the same assumptions except where the Cooperative Extension Service provided other information.

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5 SELF-SUPPLIED COMMERCIAL, INDUSTRIAL, MINING, AND POWER

This chapter includes:

- Definitions of water supply categories.
- A description of the general procedure used to quantify withdrawals.
- A summary of withdrawals for each of the following self-supplied categories:
  - Commercial
  - Industrial
  - Mining
  - Power

Withdrawals for the Self-Supplied commercial, industrial, mining, and power categories accounted for 187,385 AF, or 4.92% of total withdrawals in 2020 (**Appendix B, Tables 2** and **3**).

5.1 Definition of Categories

5.1.1 Commercial

The commercial category includes:

- Self-supplied businesses providing a service or selling a finished product to a customer (e.g., motels, restaurants, recreational resorts, retail, nurseries, and campgrounds).
- Public and private institutions (e.g., public and private schools and hospitals) involved in the trade of goods or provision of services.
- Self-supplied golf courses that are not supplied by entities covered in the public water supply category.
- Off-stream fish hatcheries that produce fish for release.
- Non-metered schools.

The procedures used to calculate withdrawals for these categories are described in Sections 5.2 and 5.3.

5.1.2 Industrial

The industrial category includes self-supplied enterprises that process raw materials or manufacture durable or nondurable goods. This category also includes water used for the construction of highways, subdivisions, and other construction projects.

5.1.3 Mining

The mining category includes the following self-supplied enterprises that extract minerals occurring naturally in the earth's crust:

- Solids, such as potash, coal, and smelting ores.
- Liquids, such as crude petroleum.
- Gases, such as natural gas.

This category includes water used for oil and gas production (well drilling and 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, as well as water removed from underground excavations (mine dewatering) and stored in—and evaporated from—tailings ponds. The mining category also includes water used to irrigate new vegetative covers at former mine sites that have been reclaimed. It does not include the processing of raw materials, such as smelting ores, unless this activity occurs as an integral part of a mining operation and is included in an NMOSE permit.

Section 5.5 describes some of the mining activities that occur in New Mexico and their associated water use.

5.1.4 Power

The power category includes all self-supplied power generating facilities and water used in conjunction with coal-mining operations that are directly associated with a power generating facility that owns and/or operates the coal mines. Section 5.6 describes some power generating facilities and their associated water use.

5.2 General Procedure for Quantifying Withdrawals

The procedures for quantifying withdrawals for facilities in these categories are similar. The following steps outline the general procedure.

Step 1. Compile Metered Withdrawals
Some facilities in these categories report their metered diversions to NMOSE, and those reports are identified in agency databases or through district office communications. NMOSE agency databases identify withdrawals by use, which are then used to separate the metered withdrawal categories in this chapter.

Step 2. Estimate Non-Reported Withdrawals Having a Metering Requirement
While most self-supplied facilities are required to be metered and to report their annual water use, many do not. When metered records for the water-use inventory year are incomplete, water use is estimated based on earlier records (as with other categories in this Report) or prorated based on similar operations.

Step 3. Compile Non-Metered Withdrawals
Some facilities are unmetered, and these can be difficult to identify if a declaration has never been filed with the NMOSE. Consequently, many of these facilities are not captured in the water-use inventory. When possible, these entities are identified through directories maintained by various business associations and/or regulatory agencies. The executive director or operator is then contacted by phone or mail to obtain an estimate of water use.

5.3 Self-Supplied Commercial Withdrawals

5.3.1 Commercial Operations

Water withdrawals for commercial operations are computed by utilizing a per capita water requirement. For this Report, the requirements listed in **Table 5.1,** below, were used to quantify water use in non-metered commercial operations.

Table 5.1. Water requirements in gallons per capita per day (GPCD) for select commercial operations.

Type of Facility	Water Requirement (GPCD)
Restaurants	6
Service Stations	10
Factories	35
Day school	20
Boarding school	100
Hotels	131
Hospitals	300

Please note that during 2020, the global pandemic may have impacted water usage for some commercial operations due to the various closures and degree of closures throughout the state. To help account for this, ratios were applied to some estimated withdrawals based on the various public health orders that were issued throughout the year.

5.3.2 Golf Courses

In many communities, self-supplied golf courses are the largest water users in the commercial category. There are approximately 75 active golf courses in New Mexico, ranging from 9-hole par-three courses that cover as little as 20 acres to 18-hole courses that cover 200 acres or more.

The amount of water used at golf courses varies significantly. Annual water use ranges from less than 100 AF to more than 500 AF, depending upon the size of the course, climate, species of turfgrass, irrigation management practices, the number of ponds, and clubhouse facilities. Many private courses have clubhouse facilities that include a snack bar and restaurant, locker rooms with showers, and swimming pools, all of which can increase water withdrawals.

There are five types of water that golf courses can use: groundwater, surface water, municipal treated drinking water, municipal raw water, and municipal treated effluent. Accounting for how these facilities obtain their water is a challenge. They may have only one source, or they might use several.

Public and private golf courses that are self-supplied are included in this category. If a golf course is supplied with municipal treated effluent, the withdrawal has already been accounted for in the public water supply category. Regardless of the type of water used at military and university courses, they are always categorized as either public water supply (military) or commercial (university). Golf courses for which water use is categorized as public water supply are included in the Chapter 2 discussions.

Many golf course water supply systems in the state are metered and report their annual diversions to NMOSE. For the self-supplied courses that are not metered, withdrawals are estimated using the procedure outlined in Chapter 3, Irrigated Agriculture. This procedure requires knowledge or estimation of the acreage that is irrigated and the species of turfgrass. It is important that the species of turfgrass be identified because the CIR will vary depending on the type of grass that is grown and local climatic conditions. The CIR is assumed to be 100% met by the irrigation of the golf course. Withdrawals are then calculated by dividing the CIR by an assumed efficiency.

5.4 Self-Supplied Industrial Withdrawals

Water is used in the manufacturing industry for heating, cooling, conveying materials, washing, pollution control, and as part of product sales (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. As identified by Kollar and Brewer (1980), the quantity of intake water that is recirculated is affected by the following factors:

- The availability and cost of water delivered to the plant.
- The 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.
- The age of the plant.

5.5 Self-Supplied Mining Withdrawals

During 2020, New Mexico ranked first in the U.S. in the production of potash, second in the production of copper, and twelfth in the production of coal. New Mexico is also a leading producer of industrial minerals, and the top producer of perlite and zeolite in the nation (New Mexico Energy, Minerals and Natural Resources Department, 2021).

Before opening any mining operation, 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 (EMNRD). A directory of all the mining facilities registered in the state is updated annually. This directory is used to identify the mines and mills that are not required to report their annual water withdrawals directly to the NMOSE. Those operations are then contacted by mail or phone to obtain withdrawal data.

In 2020, New Mexico ranked third in the U.S. in the production of crude oil and eighth in the production of natural gas (U.S. Energy Information Administration, 2024). The oil and gas industry uses water for well drilling, hydraulic fracturing (fracking), and other activities. The industry reports the amount of water injected for fracking to FracFocus (FracFocus, 2024) and to the Oil Conservation Division of EMNRD (New Mexico Energy, Minerals, and Natural Resources Department, 2024).

When estimating the water withdrawals of the oil and gas industry, meter records of water wells as reported to the NMOSE were used when available. The water volumes injected into oil and gas wells for fracking were also used to estimate the withdrawal amounts from water wells. Data from the Oil Conservation Division of EMNRD indicate that around half of the injected water in 2020 was reused produced water, that is, water that came out of oil or gas wells along with the oil or gas. In this Report, produced water was not included in the water withdrawal amounts of the oil and gas industry because of its limited impact on the amount of water available for other uses.

The mining industry accounted for 56,752 AF, or 1.49% of the total withdrawals in the state (**Appendix B, Tables 2** and **3**). 95% of the water withdrawals for mining occurred in Eddy, Lea, and Grant counties. A breakdown of the major industries in the mining category and their associated percentage of water withdrawals are identified in **Table 5.2.** Oil and gas production accounted for 43% of water withdrawals. The production of metals (e.g., copper, molybdenum, gold, silver, and manganese) accounted for 28%. Potash mining also used significant quantities of water at 24%. The remaining portion of water use, about 5%, is used to produce aggregate (e.g., sand, gravel, crushed rock, base course, and caliche), industrial materials and minerals (e.g., calcite, silica, flux, pumice, mica, humate, gypsum, zeolites, perlite, limestone, and travertine), coal, and salt.

Table 5.2.   Percent water use by mining industry, 2020.

Mining Industry	Percent Water Use
Metals	27.86
Oil & Gas	42.67
Potash	24.40
Aggregate	3.85
Industrial	1.05
Coal	0.13
Other	0.05
Total	100

5.6 Self-Supplied Power Withdrawals

The New Mexico Environment Department's Air Permit Map (APMAP) Tool illustrates all NMED Permitted Air Facilities, which includes all electric utility companies in the state. APMAP was used to help identify all the self-supplied power-generating facilities in NM. These facilities were contacted by phone or email to obtain withdrawal data.

BHP (formerly BHP Billiton) in San Juan County has a complex water budget. For this Report, the water used at BHP's Navajo Mine, and the water that evaporated from Morgan Lake (which supplies the Arizona Public Service Four Corners Power Plant and is filled by water pumped from the San Juan River) is included in the self-supplied power category rather than the self-supplied mining category. For similar reasons, the Public Service Company of New Mexico's San Juan Generating Station and BHP's La Plata and San Juan coal mines are also accounted for in the self-supplied power category.

Withdrawals in the self-supplied power category increased approximately 31% between 2015 and 2020. Of these withdrawals, 32,474 AF (49.6%) were from surface water and 32,946 AF (50.4%) were from groundwater sources.

Wind and solar farms were not included as part of the self-supplied power category.

6 RESERVOIR EVAPORATION

This chapter includes:

- A definition of the water supply category.
- An overview of the National Weather Service Class A Pan.
- A description of the procedure for estimating reservoir evaporation using the pan approach.
- A description of the procedure for estimating evaporation from small reservoirs using empirical data.

Reservoirs provide benefits such as drinking and irrigation water to New Mexicans, but due to evaporation from their exposed water surfaces, they consume a significant part of available surface water supplies. Average annual gross evaporation from reservoirs ranges from around 40 inches in the mountains of northern New Mexico to around 75 inches in the valleys near the southern border of the state. In 2020, this amounted to 282,522 AF, or 7.42%, of the total withdrawals.

In most cases, evaporation information for the larger reservoirs was provided by the agency responsible for operation of that reservoir. When evaporation information was not provided, such as for the smaller reservoirs, evaporation was estimated from surface area, evaporation rate, and rainfall data.

Reservoir evaporation is generally calculated using National Weather Service Class A Pan data. The pan approach is discussed in detail in this chapter, along with an empirical method that is applied when there is a lack of data.

Stock pond evaporation calculations are not included in the Report for the following reasons: (1) comprehensive data regarding stock ponds is not available and (2) the volume of water and associated surface area varies from pond to pond, and throughout the year for an individual stock pond. The associated evaporation is difficult to quantify under these conditions.

Please see **Appendix B, Table 6,** for a summary of evaporation withdrawals by river basin.

6.1 Definition of Category

For the purpose of this water use inventory, reservoir evaporation is defined as net evaporation from man-made reservoirs with a storage capacity of approximately 5,000 AF or more. In 2020 evaporation was estimated for 25 reservoirs in the state.

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.

6.2 The National Weather Service Class A Pan

The most practical method for estimating reservoir evaporation is often the pan approach when the hydrologic and meteorological data required are available. A description of the National

Weather Service Class A Pan and a procedure for application of the pan approach are outlined below.

The National Weather Service Class A Pan is 4 feet in diameter and 10 inches deep (**Figure 6.1** (Photo source: Wikipedia™)). It is made of unpainted, 22-gage galvanized iron and sits on a wooden pallet so that the bottom of the pan is raised 6 inches above the ground, allowing air to circulate. 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 2 inches of the top and is refilled as soon as the water level drops 1 inch. The depth of water is measured with a micrometer hook gage located in a stilling well that supports the gage. An anemometer, which is used to measure wind movement, is mounted on the pallet, with the cups positioned 24 inches above the base of the pan. Maximum/minimum thermometers (which are stored in an instrument shelter), and a rain gage are also installed at the site. A 5-foot-high wire-mesh fence encloses the entire installation. A pan reading is taken every morning.

Figure 6.1. Class A Pan

Unlike a lake, the Class A pan permits considerable transfer of heat to and from its sides and bottom due to radiation exchange and 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, the effects of pan rims on air turbulence, and the convection of heat within the water in the pan, produce an evaporation rate that is greater than that from a lake or reservoir surface. The ratio of lake evaporation to pan evaporation is referred to as "the pan coefficient."

Studies conducted by the USDA 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 0.77 is used in the Pecos River Basin, consistent with the Pecos River Master's Manual (NMISC, 2003) used to calculate annual Pecos River Compact delivery obligations to Texas.

While the pan approach has a wide application, consideration should be given to the fact that in winter months in cold climates, water in the pan may freeze while water in the reservoir remains unfrozen.

6.3 Procedure for Estimating Reservoir Evaporation Using the Pan Approach

Step 1. Determine Average Monthly Reservoir Gage Height (Content)
Compute the average gage height of the water surface level, or the average reservoir content for each month, from daily measurements reported by the agency responsible for managing the reservoir. Sources of data include the NMISC, the U.S. Army Corps of Engineers, the USBR, the USGS, the National Oceanic and Atmospheric Administration (NOAA), and irrigation districts.

Step 2. Determine Reservoir Surface Area
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. Account for Winter Ice Surface Area
Winter evaporation estimates must account for 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 surface area covered by ice. For large reservoirs, daily measurements of ice cover may be available. Some agencies have developed tables showing the percentage of ice cover by month, based on historical records, which may be used when no other data are available.

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

Step 5. Calculate Monthly Gross Evaporation Rate
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. In winter, if the evaporation pan is iced over, but the water surface of a nearby reservoir remains unfrozen, agencies such as the USBR have developed empirical equations based on temperature that can be used to estimate gross evaporation.

Step 6. Obtain Rainfall Data
Obtain the total rainfall recorded for each month. These data are published monthly for most weather stations operated by the NOAA. When a reservoir is completely covered with ice for part of a month, recorded precipitation should include only those days when the water surface was exposed.

Step 7. Calculate Monthly Net Evaporation Rates
The net evaporation rate for each month, expressed as a depth of water in feet, is calculated by subtracting the measured rainfall, in feet, from the gross evaporation rate obtained in Step 5.

Step 8. Calculate Monthly Evaporation (AF)
The net volume of water evaporated in each month, expressed in acre-feet, is calculated by multiplying the exposed surface area, expressed in acres, by the net evaporation rate, expressed in feet.

Step 9. Calculate Annual Evaporation (AF)
Add the net evaporation for each month to get the net evaporation for the calendar year.

6.4 Procedure for Estimating Evaporation from Small Reservoirs Using Empirical Data

In some areas there are small reservoirs that are not monitored on a regular basis. Some of these are not equipped with a gage to measure the water level, and area capacity curves may not be available. The following procedure was used to estimate evaporation for these smaller reservoirs.

Step 1. Obtain Reservoir Surface Area
Refer to the elevation-area-capacity curve or table to obtain the mean monthly reservoir surface area using the mean gage height or mean storage volume of the reservoir. If the necessary data, curves, or tables are not available, satellite imagery can be used to estimate surface area in some cases.

Step 2. Estimate Monthly Gross Evaporation Rate
When available, estimate the monthly gross evaporation rate from pan evaporation data at the reservoir or a nearby weather station. When pan evaporation data are not available, estimate the monthly gross evaporation rate using evapotranspiration models that process satellite data, such as the models in OpenET (https://etdata.org).

Step 3. Estimate Monthly Rainfall
The monthly rainfall is obtained from nearby climate stations. When there are no nearby stations with the necessary information, data from PRISM (https://prism.oregonstate.edu) can be used.

Step 4. Calculate Net Evaporation Rate
For each month, subtract the rainfall from the gross evaporation rate to get the net evaporation rate.

Step 5. Calculate Annual Net Evaporation (acre-feet)
For each month, multiply the mean water surface area, expressed in acres, by the net evaporation rate, expressed in feet, to get the net evaporation in acre-feet. Sum the net evaporation from each month to get the annual net evaporation.

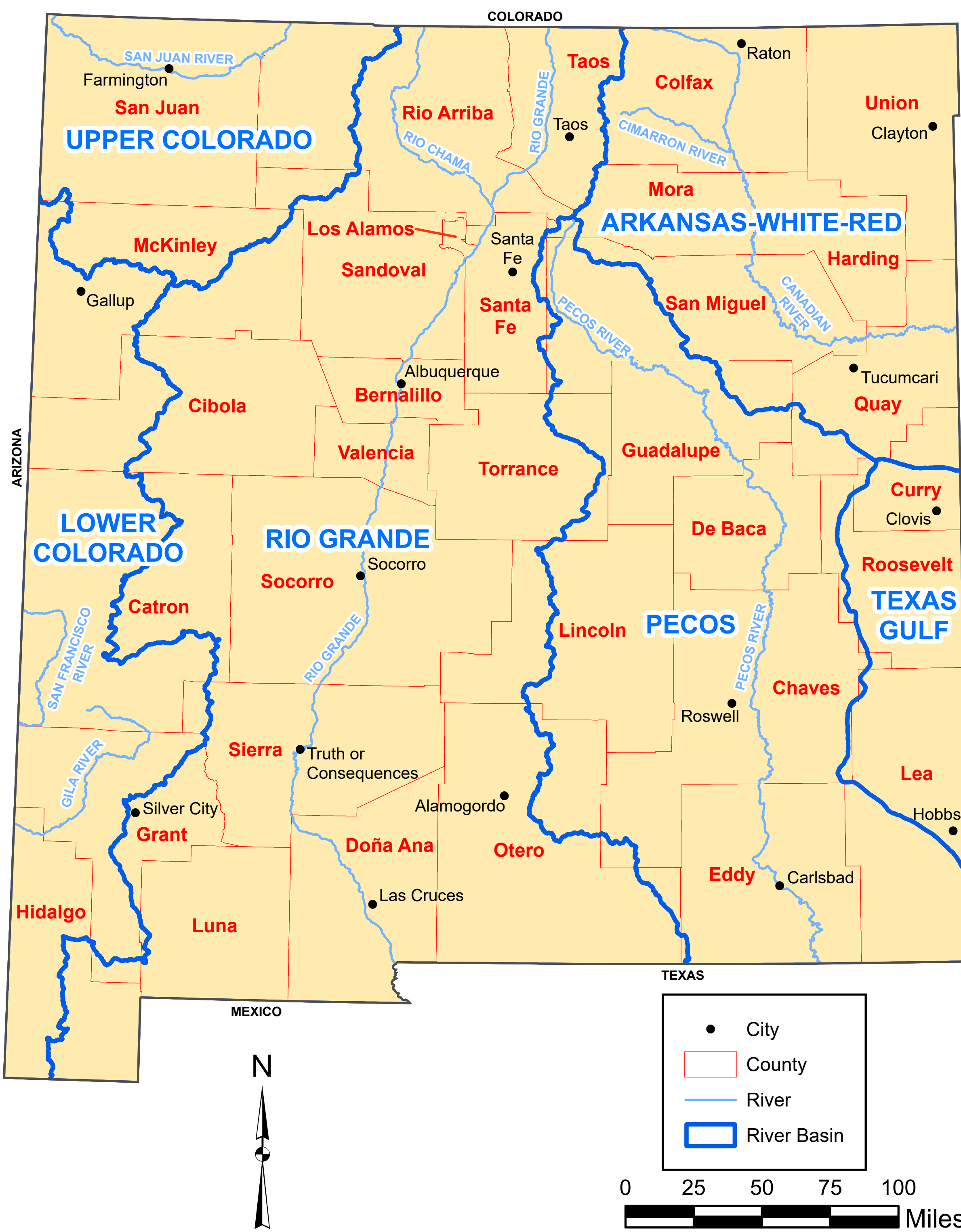
7 APPENDICES

7.1 APPENDIX A: COUNTY TABLE AND LOCALE MAPS

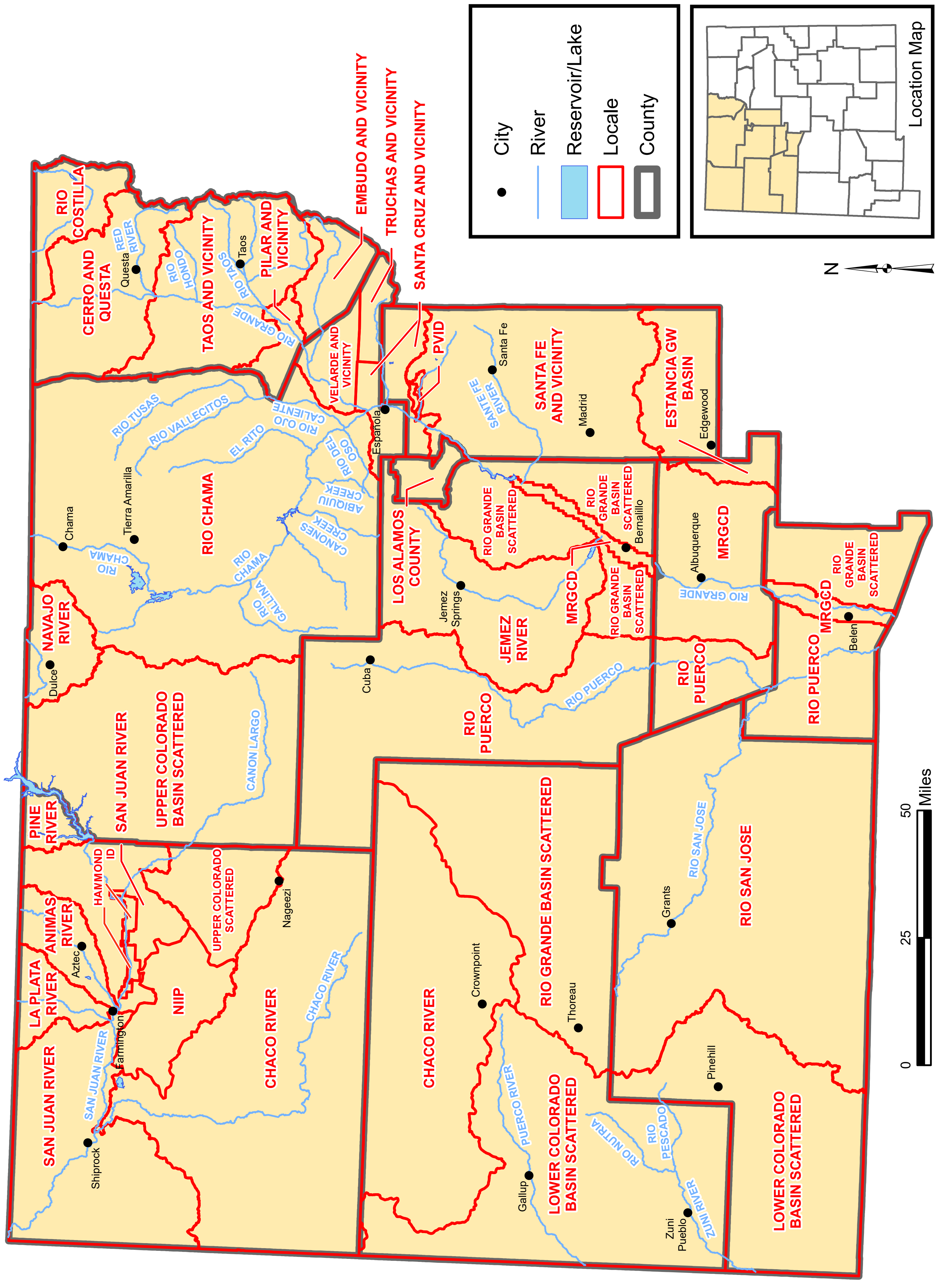
Table 1. Major river basins in each county. County code numbers (CN) are established by the National Bureau of Standards.

County Number (CN)	County Name	River Basin					
		Arkansas-White-Red (AWR)	Lower Colorado (LC)	Pecos (P)	Rio Grande (RG)	Texas Gulf (TG)	Upper Colorado (UC)
1	Bernalillo				X		
3	Catron		X		X		
5	Chaves			X			
6	Cibola		X		X		
7	Colfax	X					
9	Curry	X				X	
11	DeBaca			X			
13	Doña 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		
31	McKinley		X		X		X
33	Mora	X		X			
35	Otero			X	X		
37	Quay	X		X			
39	Rio Arriba				X		X
41	Roosevelt			X		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		

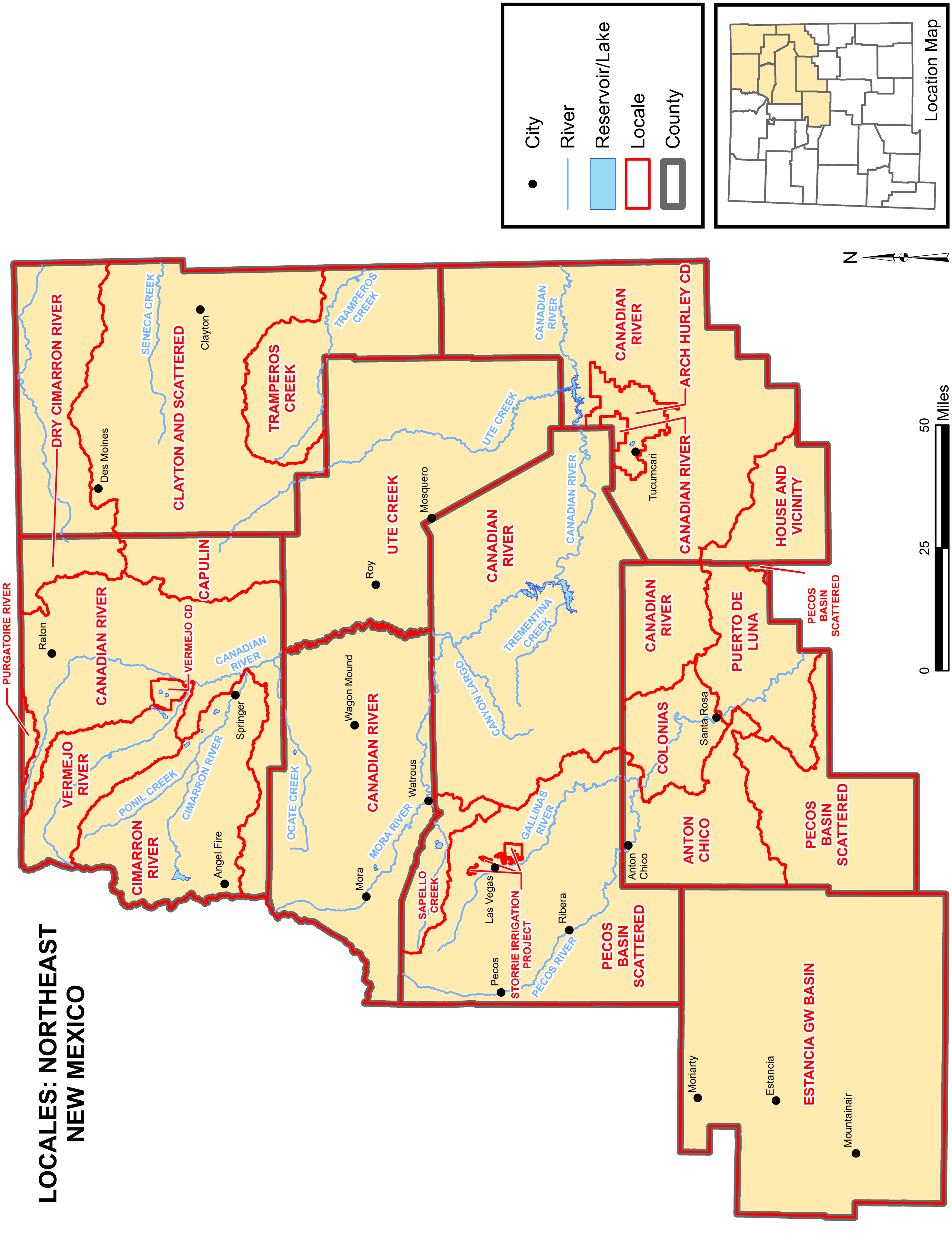
Major River Basins in New Mexico



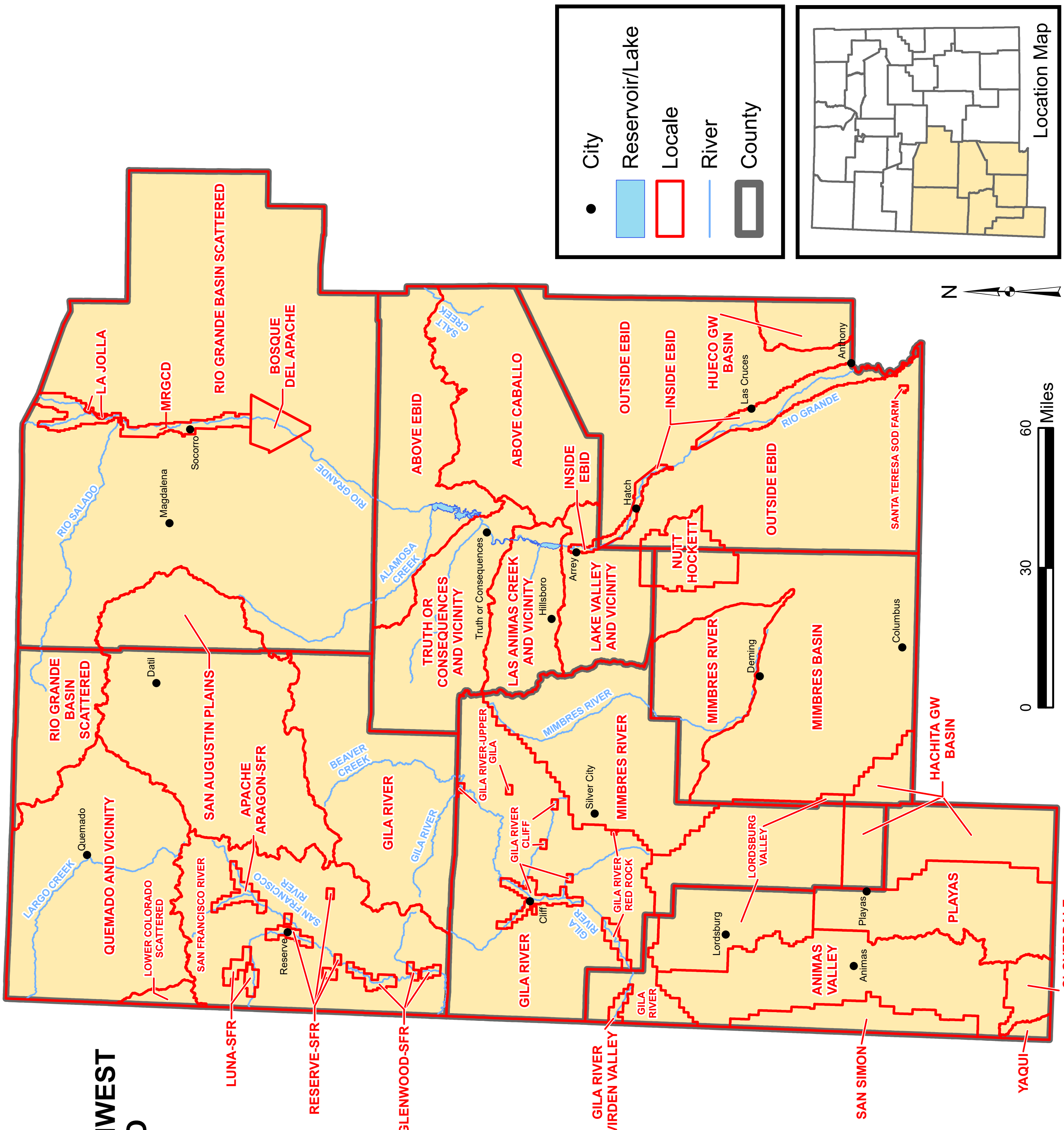
LOCALES: NORTHWEST NEW MEXICO

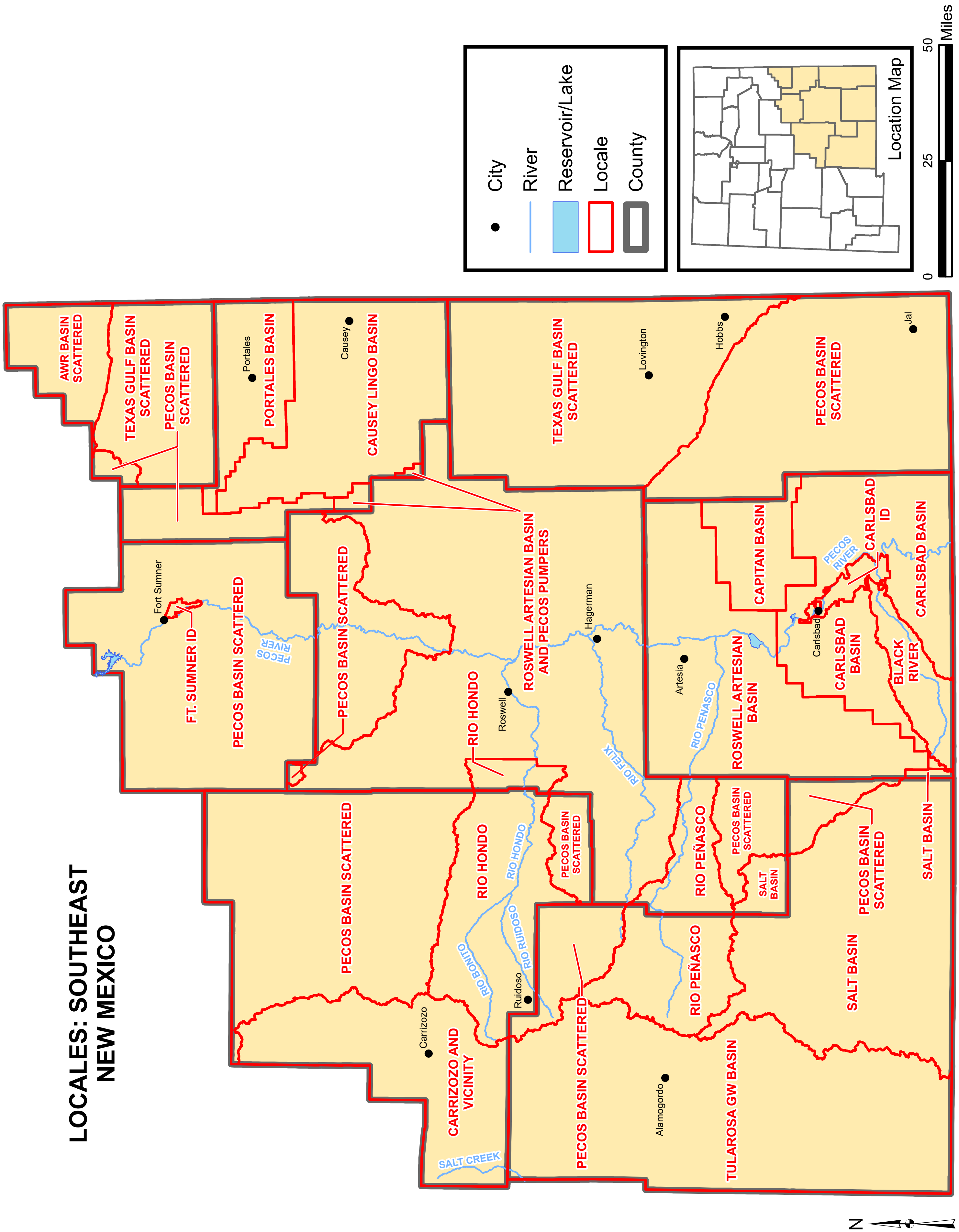


LOCALES: NORTHEAST NEW MEXICO



LOCALES: SOUTHWEST NEW MEXICO




LOCALES: SOUTHEAST NEW MEXICO
City
River
Reservoir/Lake
Locale
County
Location Map
0
25
50
Miles
N
AWR BASIN SCATTERED
TEXAS GULF BASIN SCATTERED
PECOS BASIN SCATTERED
PORTALES BASIN
CAUSEY LINGO BASIN
TEXAS GULF BASIN SCATTERED
PECOS BASIN SCATTERED
ROSWELL ARTESIAN BASIN AND PECOS PUMPERS
FT. SUMNER ID
PECOS BASIN SCATTERED
PECOS BASIN SCATTERED
RIO HONDO
CAPITAN BASIN
CARLSBAD ID
CARLSBAD BASIN
CARLSBAD BASIN
BLACK RIVER
ROSWELL ARTESIAN BASIN
PECOS BASIN SCATTERED
RIO HONDO
PECOS BASIN SCATTERED
RIO PEÑASCO
PECOS BASIN SCATTERED
SALT BASIN
PECOS BASIN SCATTERED
SALT BASIN
RIO PEÑASCO
SALT BASIN
CARRIZOZO AND VICINITY
PECOS BASIN SCATTERED
TULAROSA GW BASIN
Portales
Causey
Lovington
Hobbs
Jal
Fort Sumner
Roswell
Hagerman
Artesia
Carlsbad
Ruidoso
Carrizozo
Alamogordo
PECOS RIVER
RIO FELIX
RIO PENASCO
RIO HONDO
RIO RUIDOSO
RIO BONITO
SALT CREEK

7.2 APPENDIX B: 2020 POPULATION AND WATER USE TABLES

The water use tables summarize the data in the Report. This appendix contains the following 10 water use tables:

The equations listed below were used to compute the irrigation withdrawals shown in this appendix:

$$TFWSW=CIR(ASWO+ASWC)/EF$$

$$TPWSW=TFWSW/EC \text{ where } EC > 0$$

$$TPWGW=CIR(AGWO+AGWC)/EF$$

Results from these calculations are presented in **Tables 8, 9, and 10.** Listed below are descriptions of the acronyms used in these equations. These acronyms appear as column headings in **Tables 8, 9, and 10.**

AGWC	Groundwater component of acres irrigated with both surface water and groundwater (combined water)
AGWO	Acres irrigated with groundwater only
ASWC	Surface water component of acres irrigated with both surface water and groundwater (combined water)
ASWO	Acres irrigated with surface water only
CIR	Consumptive irrigation requirement
EF	On-farm irrigation efficiency
EC	Off-farm conveyance efficiency
TFWSW	Total farm withdrawal, surface water
TPWGW	Total project withdrawal, groundwater
TPWSW	Total project withdrawal, surface water

Table 1. Populations in New Mexico river basins, 2020.

River Basin	Category	Population	% Population
Arkansas-White-Red	Public Water Supply	27,418	1.29%
Arkansas-White-Red	Self-Supplied Domestic	4,089	0.19%
	River Basin Totals	31,507	1.49%
Lower Colorado	Public Water Supply	29,693	1.40%
Lower Colorado	Self-Supplied Domestic	35,844	1.69%
	River Basin Totals	65,537	3.09%
Pecos	Public Water Supply	170,661	8.06%
Pecos	Self-Supplied Domestic	23,343	1.10%
	River Basin Totals	194,004	9.16%
Rio Grande	Public Water Supply	1,354,359	63.96%
Rio Grande	Self-Supplied Domestic	209,782	9.91%
	River Basin Totals	1,564,141	73.87%
Texas Gulf	Public Water Supply	116,329	5.49%
Texas Gulf	Self-Supplied Domestic	17,126	0.81%
	River Basin Totals	133,455	6.30%
Upper Colorado	Public Water Supply	108,216	5.11%
Upper Colorado	Self-Supplied Domestic	20,662	0.98%
	River Basin Totals	128,878	6.09%
New Mexico	Public Water Supply	1,806,676	85.32%
New Mexico	Self-Supplied Domestic	310,846	14.68%
	State Totals	2,117,522	100.00%

Table 2. Summary of withdrawals (acre-feet) in New Mexico, 2020.

Category	WSW	WGW	TW
Public Water Supply	70,333	229,470	299,803
Domestic (self-supplied)	0	30,151	30,151
Irrigated Agriculture	1,467,442	1,499,256	2,966,697
Livestock (self-supplied)	3,147	35,371	38,519
Commercial (self-supplied)	26,101	30,526	56,627
Industrial (self-supplied)	0	8,586	8,586
Mining (self-supplied)	367	56,385	56,752
Power (self-supplied)	32,474	32,946	65,420
Reservoir Evaporation	282,522	0	282,522
State Totals	1,882,385	1,922,692	3,805,077

Key: WSW = withdrawal surface water; WGW = withdrawal groundwater; TW = total withdrawal.

Table 3. Withdrawals by category as a percent of state totals in New Mexico, 2020. Surface water and groundwater component of each category.

Category	% of State Withdrawal	% WSW	% WGW
Public Water Supply	7.88	23.46	76.54
Domestic (self-supplied)	0.79	0.00	100.00
Irrigated Agriculture	77.97	49.46	50.54
Livestock (self-supplied)	1.01	8.17	91.83
Commercial (self-supplied)	1.49	46.09	53.91
Industrial (self-supplied)	0.23	0.00	100.00
Mining (self-supplied)	1.49	0.65	99.35
Power (self-supplied)	1.72	49.64	50.36
Reservoir Evaporation	7.42	100.00	0.00
State Totals	100.00	49.47	50.53

Key: WSW = withdrawal surface water; WGW = withdrawal groundwater.

Table 4. Percent of withdrawals measured in each water use category in New Mexico, 2020.

Category	MSW	MGW	MTW
Public Water Supply	95	98	97
Domestic (self-supplied)	0	0	0
Irrigated Agriculture	62	35	48
Livestock (self-supplied)	0	4	4
Commercial (self-supplied)	100	95	97
Industrial (self-supplied)	0	100	100
Mining (self-supplied)	1	63	63
Power (self-supplied)	100	100	100
Reservoir Evaporation	76	0	76

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

Table 5. Summary of withdrawals (acre-feet) in New Mexico counties, 2020.

CN	County	Category	WSW	WGW	TW
1	Bernalillo	Public Water Supply	33,250	68,586	101,835
1	Bernalillo	Domestic (self-supplied)	0	1,738	1,738
1	Bernalillo	Irrigated Agriculture	39,564	2,722	42,286
1	Bernalillo	Livestock (self-supplied)	38	71	110
1	Bernalillo	Commercial (self-supplied)	0	6,317	6,317
1	Bernalillo	Industrial (self-supplied)	0	2,610	2,610
1	Bernalillo	Mining (self-supplied)	0	339	339
1	Bernalillo	Power (self-supplied)	0	302	302
1	Bernalillo	Reservoir Evaporation	0	0	0
		County Totals	**72,852**	**82,685**	**155,537**
3	Catron	Public Water Supply	0	145	145
3	Catron	Domestic (self-supplied)	0	172	172
3	Catron	Irrigated Agriculture	16,813	642	17,455
3	Catron	Livestock (self-supplied)	248	106	355
3	Catron	Commercial (self-supplied)	2,349	20	2,369
3	Catron	Industrial (self-supplied)	0	0	0
3	Catron	Mining (self-supplied)	0	0	0
3	Catron	Power (self-supplied)	0	0	0
3	Catron	Reservoir Evaporation	0	0	0
		County Totals	**19,410**	**1,085**	**20,495**
5	Chaves	Public Water Supply	0	17,160	17,160
5	Chaves	Domestic (self-supplied)	0	817	817
5	Chaves	Irrigated Agriculture	31,446	209,688	241,134
5	Chaves	Livestock (self-supplied)	224	7,145	7,369
5	Chaves	Commercial (self-supplied)	2,219	674	2,893
5	Chaves	Industrial (self-supplied)	0	0	0
5	Chaves	Mining (self-supplied)	0	24	24
5	Chaves	Power (self-supplied)	0	0	0
5	Chaves	Reservoir Evaporation	0	0	0
		County Totals	**33,889**	**235,509**	**269,398**
6	Cibola	Public Water Supply	0	2,585	2,585
6	Cibola	Domestic (self-supplied)	0	1,079	1,079
6	Cibola	Irrigated Agriculture	2,517	476	2,994
6	Cibola	Livestock (self-supplied)	22	97	119
6	Cibola	Commercial (self-supplied)	0	116	116
6	Cibola	Industrial (self-supplied)	0	393	393
6	Cibola	Mining (self-supplied)	0	250	250
6	Cibola	Power (self-supplied)	0	0	0
6	Cibola	Reservoir Evaporation	1,463	0	1,463
		County Totals	**4,003**	**4,996**	**8,999**
7	Colfax	Public Water Supply	1,287	769	2,056
7	Colfax	Domestic (self-supplied)	0	102	102
7	Colfax	Irrigated Agriculture	53,926	1,719	55,645
7	Colfax	Livestock (self-supplied)	336	353	689
7	Colfax	Commercial (self-supplied)	2	130	132
7	Colfax	Industrial (self-supplied)	0	0	0
7	Colfax	Mining (self-supplied)	0	6	6
7	Colfax	Power (self-supplied)	0	0	0

Key: CN = county, WSW= withdrawal surface water, WGW = withdrawal groundwater, TW= total withdrawal.

Table 5. Summary of withdrawals (acre-feet) in New Mexico counties, 2020.

CN	County	Category	WSW	WGW	TW
7	Colfax	Reservoir Evaporation	10,488	0	10,488
		County Totals	**66,039**	**3,079**	**69,118**
9	Curry	Public Water Supply	0	4,894	4,894
9	Curry	Domestic (self-supplied)	0	173	173
9	Curry	Irrigated Agriculture	0	188,286	188,286
9	Curry	Livestock (self-supplied)	270	6,936	7,206
9	Curry	Commercial (self-supplied)	0	1,034	1,034
9	Curry	Industrial (self-supplied)	0	0	0
9	Curry	Mining (self-supplied)	0	0	0
9	Curry	Power (self-supplied)	0	0	0
9	Curry	Reservoir Evaporation	0	0	0
		County Totals	**270**	**201,323**	**201,593**
11	De Baca	Public Water Supply	0	630	630
11	De Baca	Domestic (self-supplied)	0	23	23
11	De Baca	Irrigated Agriculture	42,542	10,343	52,885
11	De Baca	Livestock (self-supplied)	61	249	311
11	De Baca	Commercial (self-supplied)	0	91	91
11	De Baca	Industrial (self-supplied)	0	0	0
11	De Baca	Mining (self-supplied)	0	12	12
11	De Baca	Power (self-supplied)	0	0	0
11	De Baca	Reservoir Evaporation	7,727	0	7,727
		County Totals	**50,330**	**11,348**	**61,678**
13	Doña Ana	Public Water Supply	0	36,690	36,690
13	Doña Ana	Domestic (self-supplied)	0	1,207	1,207
13	Doña Ana	Irrigated Agriculture	191,447	218,660	410,108
13	Doña Ana	Livestock (self-supplied)	135	2,967	3,103
13	Doña Ana	Commercial (self-supplied)	0	6,597	6,597
13	Doña Ana	Industrial (self-supplied)	0	289	289
13	Doña Ana	Mining (self-supplied)	0	151	151
13	Doña Ana	Power (self-supplied)	0	1,846	1,846
13	Doña Ana	Reservoir Evaporation	0	0	0
		County Totals	**191,583**	**268,407**	**459,990**
15	Eddy	Public Water Supply	0	16,596	16,596
15	Eddy	Domestic (self-supplied)	0	423	423
15	Eddy	Irrigated Agriculture	69,614	115,028	184,642
15	Eddy	Livestock (self-supplied)	49	1,602	1,652
15	Eddy	Commercial (self-supplied)	0	802	802
15	Eddy	Industrial (self-supplied)	0	2,292	2,292
15	Eddy	Mining (self-supplied)	0	21,044	21,044
15	Eddy	Power (self-supplied)	0	0	0
15	Eddy	Reservoir Evaporation	21,131	0	21,131
		County Totals	**90,794**	**157,788**	**248,582**
17	Grant	Public Water Supply	0	2,978	2,978
17	Grant	Domestic (self-supplied)	0	289	289
17	Grant	Irrigated Agriculture	28,878	4,540	33,418
17	Grant	Livestock (self-supplied)	137	156	293
17	Grant	Commercial (self-supplied)	0	115	115
17	Grant	Industrial (self-supplied)	0	0	0

Key: CN = county, WSW= withdrawal surface water, WGW = withdrawal groundwater, TW= total withdrawal.

Table 5. Summary of withdrawals (acre-feet) in New Mexico counties, 2020.

CN	County	Category	WSW	WGW	TW
17	Grant	Mining (self-supplied)	0	15,612	15,612
17	Grant	Power (self-supplied)	0	0	0
17	Grant	Reservoir Evaporation	0	0	0
		County Totals	**29,015**	**23,690**	**52,705**
19	Guadalupe	Public Water Supply	40	637	677
19	Guadalupe	Domestic (self-supplied)	0	46	46
19	Guadalupe	Irrigated Agriculture	20,649	0	20,649
19	Guadalupe	Livestock (self-supplied)	61	245	306
19	Guadalupe	Commercial (self-supplied)	5,212	378	5,590
19	Guadalupe	Industrial (self-supplied)	0	0	0
19	Guadalupe	Mining (self-supplied)	0	6	6
19	Guadalupe	Power (self-supplied)	0	0	0
19	Guadalupe	Reservoir Evaporation	7,011	0	7,011
		County Totals	**32,973**	**1,312**	**34,285**
21	Harding	Public Water Supply	0	70	70
21	Harding	Domestic (self-supplied)	0	20	20
21	Harding	Irrigated Agriculture	0	5,503	5,503
21	Harding	Livestock (self-supplied)	69	282	352
21	Harding	Commercial (self-supplied)	0	0	0
21	Harding	Industrial (self-supplied)	0	0	0
21	Harding	Mining (self-supplied)	0	0	0
21	Harding	Power (self-supplied)	0	0	0
21	Harding	Reservoir Evaporation	0	0	0
		County Totals	**69**	**5,875**	**5,944**
23	Hidalgo	Public Water Supply	0	5,163	5,163
23	Hidalgo	Domestic (self-supplied)	0	100	100
23	Hidalgo	Irrigated Agriculture	9,785	67,287	77,072
23	Hidalgo	Livestock (self-supplied)	60	251	312
23	Hidalgo	Commercial (self-supplied)	0	224	224
23	Hidalgo	Industrial (self-supplied)	0	11	11
23	Hidalgo	Mining (self-supplied)	0	1	1
23	Hidalgo	Power (self-supplied)	0	60	60
23	Hidalgo	Reservoir Evaporation	0	0	0
		County Totals	**9,845**	**73,097**	**82,942**
25	Lea	Public Water Supply	0	10,015	10,015
25	Lea	Domestic (self-supplied)	0	1,857	1,857
25	Lea	Irrigated Agriculture	0	216,704	216,704
25	Lea	Livestock (self-supplied)	141	2,861	3,002
25	Lea	Commercial (self-supplied)	0	3,344	3,344
25	Lea	Industrial (self-supplied)	0	109	109
25	Lea	Mining (self-supplied)	0	17,118	17,118
25	Lea	Power (self-supplied)	0	28,255	28,255
25	Lea	Reservoir Evaporation	0	0	0
		County Totals	**141**	**280,262**	**280,403**
27	Lincoln	Public Water Supply	887	2,556	3,442
27	Lincoln	Domestic (self-supplied)	0	95	95
27	Lincoln	Irrigated Agriculture	9,739	3,964	13,703
27	Lincoln	Livestock (self-supplied)	169	189	359

Key: CN = county, WSW= withdrawal surface water, WGW = withdrawal groundwater, TW= total withdrawal.

Table 5. Summary of withdrawals (acre-feet) in New Mexico counties, 2020.

CN	County	Category	WSW	WGW	TW
27	Lincoln	Commercial (self-supplied)	0	1,334	1,334
27	Lincoln	Industrial (self-supplied)	0	48	48
27	Lincoln	Mining (self-supplied)	0	0	0
27	Lincoln	Power (self-supplied)	0	0	0
27	Lincoln	Reservoir Evaporation	0	0	0
		County Totals	**10,795**	**8,187**	**18,982**
28	Los Alamos	Public Water Supply	4	3,913	3,917
28	Los Alamos	Domestic (self-supplied)	0	0	0
28	Los Alamos	Irrigated Agriculture	0	0	0
28	Los Alamos	Livestock (self-supplied)	0	0	0
28	Los Alamos	Commercial (self-supplied)	0	0	0
28	Los Alamos	Industrial (self-supplied)	0	0	0
28	Los Alamos	Mining (self-supplied)	0	0	0
28	Los Alamos	Power (self-supplied)	0	0	0
28	Los Alamos	Reservoir Evaporation	0	0	0
		County Totals	**4**	**3,913**	**3,917**
29	Luna	Public Water Supply	0	4,828	4,828
29	Luna	Domestic (self-supplied)	0	961	961
29	Luna	Irrigated Agriculture	868	99,097	99,965
29	Luna	Livestock (self-supplied)	43	970	1,013
29	Luna	Commercial (self-supplied)	0	540	540
29	Luna	Industrial (self-supplied)	0	0	0
29	Luna	Mining (self-supplied)	0	223	223
29	Luna	Power (self-supplied)	0	255	255
29	Luna	Reservoir Evaporation	0	0	0
		County Totals	**910**	**106,874**	**107,785**
31	McKinley	Public Water Supply	0	3,060	3,060
31	McKinley	Domestic (self-supplied)	0	3,621	3,621
31	McKinley	Irrigated Agriculture	96	122	219
31	McKinley	Livestock (self-supplied)	16	68	84
31	McKinley	Commercial (self-supplied)	0	135	135
31	McKinley	Industrial (self-supplied)	0	3	3
31	McKinley	Mining (self-supplied)	0	117	117
31	McKinley	Power (self-supplied)	0	2,227	2,227
31	McKinley	Reservoir Evaporation	0	0	0
		County Totals	**113**	**9,353**	**9,466**
33	Mora	Public Water Supply	0	333	333
33	Mora	Domestic (self-supplied)	0	67	67
33	Mora	Irrigated Agriculture	30,902	0	30,902
33	Mora	Livestock (self-supplied)	142	172	314
33	Mora	Commercial (self-supplied)	461	9	469
33	Mora	Industrial (self-supplied)	0	0	0
33	Mora	Mining (self-supplied)	0	6	6
33	Mora	Power (self-supplied)	0	0	0
33	Mora	Reservoir Evaporation	0	0	0
		County Totals	**31,505**	**587**	**32,092**
35	Otero	Public Water Supply	3,852	5,702	9,553
35	Otero	Domestic (self-supplied)	0	1,000	1,000

Key: CN = county, WSW= withdrawal surface water, WGW = withdrawal groundwater, TW= total withdrawal.

Table 5. Summary of withdrawals (acre-feet) in New Mexico counties, 2020.

CN	County	Category	WSW	WGW	TW
35	Otero	Irrigated Agriculture	15,175	9,304	24,480
35	Otero	Livestock (self-supplied)	93	117	209
35	Otero	Commercial (self-supplied)	197	1,043	1,240
35	Otero	Industrial (self-supplied)	0	69	69
35	Otero	Mining (self-supplied)	360	262	622
35	Otero	Power (self-supplied)	0	0	0
35	Otero	Reservoir Evaporation	0	0	0
		County Totals	**19,677**	**17,497**	**37,174**
37	Quay	Public Water Supply	0	1,622	1,622
37	Quay	Domestic (self-supplied)	0	51	51
37	Quay	Irrigated Agriculture	64,349	27,934	92,282
37	Quay	Livestock (self-supplied)	46	427	474
37	Quay	Commercial (self-supplied)	0	55	55
37	Quay	Industrial (self-supplied)	0	0	0
37	Quay	Mining (self-supplied)	0	12	12
37	Quay	Power (self-supplied)	0	0	0
37	Quay	Reservoir Evaporation	32,527	0	32,527
		County Totals	**96,923**	**30,101**	**127,024**
39	Rio Arriba	Public Water Supply	198	1,360	1,558
39	Rio Arriba	Domestic (self-supplied)	0	1,791	1,791
39	Rio Arriba	Irrigated Agriculture	114,666	1,329	115,996
39	Rio Arriba	Livestock (self-supplied)	158	183	341
39	Rio Arriba	Commercial (self-supplied)	3,339	102	3,442
39	Rio Arriba	Industrial (self-supplied)	0	0	0
39	Rio Arriba	Mining (self-supplied)	5	25	30
39	Rio Arriba	Power (self-supplied)	0	0	0
39	Rio Arriba	Reservoir Evaporation	25,890	0	25,890
		County Totals	**144,257**	**4,790**	**149,047**
41	Roosevelt	Public Water Supply	0	2,903	2,903
41	Roosevelt	Domestic (self-supplied)	0	115	115
41	Roosevelt	Irrigated Agriculture	0	122,036	122,036
41	Roosevelt	Livestock (self-supplied)	113	4,941	5,054
41	Roosevelt	Commercial (self-supplied)	0	126	126
41	Roosevelt	Industrial (self-supplied)	0	0	0
41	Roosevelt	Mining (self-supplied)	0	6	6
41	Roosevelt	Power (self-supplied)	0	0	0
41	Roosevelt	Reservoir Evaporation	0	0	0
		County Totals	**113**	**130,127**	**130,241**
43	Sandoval	Public Water Supply	69	13,621	13,690
43	Sandoval	Domestic (self-supplied)	0	3,452	3,452
43	Sandoval	Irrigated Agriculture	49,737	750	50,486
43	Sandoval	Livestock (self-supplied)	40	54	94
43	Sandoval	Commercial (self-supplied)	585	2,082	2,667
43	Sandoval	Industrial (self-supplied)	0	2,760	2,760
43	Sandoval	Mining (self-supplied)	0	582	582
43	Sandoval	Power (self-supplied)	0	0	0
43	Sandoval	Reservoir Evaporation	5,557	0	5,557
		County Totals	**55,988**	**23,300**	**79,288**

Key: CN = county, WSW= withdrawal surface water, WGW = withdrawal groundwater, TW= total withdrawal.

Table 5. Summary of withdrawals (acre-feet) in New Mexico counties, 2020.

CN	County	Category	WSW	WGW	TW
46	San Juan	Public Water Supply	21,357	54	21,411
45	San Juan	Domestic (self-supplied)	0	1,074	1,074
45	San Juan	Irrigated Agriculture	330,370	0	330,370
45	San Juan	Livestock (self-supplied)	23	112	135
45	San Juan	Commercial (self-supplied)	913	0	913
45	San Juan	Industrial (self-supplied)	0	0	0
45	San Juan	Mining (self-supplied)	2	62	64
45	San Juan	Power (self-supplied)	32,474	0	32,474
45	San Juan	Reservoir Evaporation	27,174	0	27,174
		County Totals	**412,312**	**1,302**	**413,614**
47	San Miguel	Public Water Supply	2,142	444	2,585
47	San Miguel	Domestic (self-supplied)	0	573	573
47	San Miguel	Irrigated Agriculture	36,028	0	36,028
47	San Miguel	Livestock (self-supplied)	14	15	29
47	San Miguel	Commercial (self-supplied)	646	395	1,041
47	San Miguel	Industrial (self-supplied)	0	0	0
47	San Miguel	Mining (self-supplied)	0	18	18
47	San Miguel	Power (self-supplied)	0	0	0
47	San Miguel	Reservoir Evaporation	31,162	0	31,162
		County Totals	**69,992**	**1,445**	**71,437**
49	Santa Fe	Public Water Supply	7,185	6,989	14,174
49	Santa Fe	Domestic (self-supplied)	0	3,093	3,093
49	Santa Fe	Irrigated Agriculture	5,914	17,088	23,003
49	Santa Fe	Livestock (self-supplied)	40	60	101
49	Santa Fe	Commercial (self-supplied)	392	1,066	1,458
49	Santa Fe	Industrial (self-supplied)	0	0	0
49	Santa Fe	Mining (self-supplied)	0	22	22
49	Santa Fe	Power (self-supplied)	0	0	0
49	Santa Fe	Reservoir Evaporation	0	0	0
		County Totals	**13,532**	**28,319**	**41,852**
51	Sierra	Public Water Supply	0	1,893	1,893
51	Sierra	Domestic (self-supplied)	0	125	125
51	Sierra	Irrigated Agriculture	9,058	11,177	20,235
51	Sierra	Livestock (self-supplied)	44	339	384
51	Sierra	Commercial (self-supplied)	0	1,056	1,056
51	Sierra	Industrial (self-supplied)	0	0	0
51	Sierra	Mining (self-supplied)	0	14	14
51	Sierra	Power (self-supplied)	0	0	0
51	Sierra	Reservoir Evaporation	109,335	0	109,335
		County Totals	**118,437**	**14,605**	**133,042**
53	Socorro	Public Water Supply	1	2,338	2,339
53	Socorro	Domestic (self-supplied)	0	268	268
53	Socorro	Irrigated Agriculture	90,072	28,789	118,861
53	Socorro	Livestock (self-supplied)	6	918	924
53	Socorro	Commercial (self-supplied)	0	1,220	1,220
53	Socorro	Industrial (self-supplied)	0	0	0
53	Socorro	Mining (self-supplied)	0	41	41
53	Socorro	Power (self-supplied)	0	0	0

Key: CN = county, WSW= withdrawal surface water, WGW = withdrawal groundwater, TW= total withdrawal.

Table 5. Summary of withdrawals (acre-feet) in New Mexico counties, 2020.

CN	County	Category	WSW	WGW	TW
53	Socorro	Reservoir Evaporation	2,357	0	2,357
		County Totals	**92,436**	**33,574**	**126,010**
55	Taos	Public Water Supply	62	2,495	2,557
55	Taos	Domestic (self-supplied)	0	1,446	1,446
55	Taos	Irrigated Agriculture	65,380	3,917	69,297
55	Taos	Livestock (self-supplied)	35	51	86
55	Taos	Commercial (self-supplied)	9,772	606	10,379
55	Taos	Industrial (self-supplied)	0	0	0
55	Taos	Mining (self-supplied)	0	95	95
55	Taos	Power (self-supplied)	0	0	0
55	Taos	Reservoir Evaporation	442	0	442
		County Totals	**75,691**	**8,612**	**84,302**
57	Torrance	Public Water Supply	0	1,171	1,171
57	Torrance	Domestic (self-supplied)	0	550	550
57	Torrance	Irrigated Agriculture	0	32,981	32,981
57	Torrance	Livestock (self-supplied)	37	414	451
57	Torrance	Commercial (self-supplied)	0	200	200
57	Torrance	Industrial (self-supplied)	0	0	0
57	Torrance	Mining (self-supplied)	0	84	84
57	Torrance	Power (self-supplied)	0	0	0
57	Torrance	Reservoir Evaporation	0	0	0
		County Totals	**37**	**35,401**	**35,437**
59	Union	Public Water Supply	0	724	724
59	Union	Domestic (self-supplied)	0	98	98
59	Union	Irrigated Agriculture	0	90,171	90,171
59	Union	Livestock (self-supplied)	255	2,298	2,552
59	Union	Commercial (self-supplied)	0	116	116
59	Union	Industrial (self-supplied)	0	0	0
59	Union	Mining (self-supplied)	0	13	13
59	Union	Power (self-supplied)	0	0	0
59	Union	Reservoir Evaporation	258	0	258
		County Totals	**512**	**93,419**	**93,931**
61	Valencia	Public Water Supply	0	6,549	6,549
61	Valencia	Domestic (self-supplied)	0	3,724	3,724
61	Valencia	Irrigated Agriculture	137,904	8,997	146,901
61	Valencia	Livestock (self-supplied)	19	718	737
61	Valencia	Commercial (self-supplied)	13	598	611
61	Valencia	Industrial (self-supplied)	0	2	2
61	Valencia	Mining (self-supplied)	0	239	239
61	Valencia	Power (self-supplied)	0	2	2
61	Valencia	Reservoir Evaporation	0	0	0
		County Totals	**137,937**	**20,829**	**158,766**
		State Totals	**1,882,385**	**1,922,692**	**3,805,077**

Key: CN = county, WSW= withdrawal surface water, WGW = withdrawal groundwater, TW= total withdrawal.

Table 6. Summary of withdrawals (acre-feet) in New Mexico river basins, 2020.

RVB	Category	WSW	WGW	TW
AWR	Public Water Supply	1,348	3,578	4,926
AWR	Domestic (self-supplied)	0	372	372
AWR	Irrigated Agriculture	164,871	125,891	290,762
AWR	Livestock (self-supplied)	1,043	5,568	6,612
AWR	Commercial (self-supplied)	462	503	966
AWR	Industrial (self-supplied)	0	0	0
AWR	Mining (self-supplied)	0	37	37
AWR	Power (self-supplied)	0	0	0
AWR	Reservoir Evaporation	70,675	0	70,675
	River Basin Totals	**238,400**	**135,949**	**374,349**
LC	Public Water Supply	0	3,472	3,472
LC	Domestic (self-supplied)	0	2,844	2,844
LC	Irrigated Agriculture	54,603	55,525	110,128
LC	Livestock (self-supplied)	429	540	969
LC	Commercial (self-supplied)	2,349	479	2,828
LC	Industrial (self-supplied)	0	11	11
LC	Mining (self-supplied)	0	10,448	10,448
LC	Power (self-supplied)	0	0	0
LC	Reservoir Evaporation	0	0	0
	River Basin Totals	**57,381**	**73,319**	**130,700**
P	Public Water Supply	3,142	40,838	43,980
P	Domestic (self-supplied)	0	2,432	2,432
P	Irrigated Agriculture	196,175	349,406	545,581
P	Livestock (self-supplied)	698	11,019	11,717
P	Commercial (self-supplied)	8,079	5,340	13,418
P	Industrial (self-supplied)	0	2,416	2,416
P	Mining (self-supplied)	0	38,252	38,252
P	Power (self-supplied)	0	0	0
P	Reservoir Evaporation	39,629	0	39,629
	River Basin Totals	**247,722**	**449,703**	**697,426**
RG	Public Water Supply	44,473	166,055	210,529
RG	Domestic (self-supplied)	0	20,933	20,933
RG	Irrigated Agriculture	720,394	452,355	1,172,750
RG	Livestock (self-supplied)	693	6,805	7,498
RG	Commercial (self-supplied)	14,297	21,038	35,335
RG	Industrial (self-supplied)	0	6,127	6,127
RG	Mining (self-supplied)	365	7,554	7,919
RG	Power (self-supplied)	0	4,691	4,691
RG	Reservoir Evaporation	145,045	0	145,045
	River Basin Totals	**925,266**	**685,558**	**1,610,825**
TG	Public Water Supply	0	15,460	15,460
TG	Domestic (self-supplied)	0	1,918	1,918

Key: RVB = river basin; WSW = withdrawal surface water; WGW = withdrawal groundwater; TW = total withdrawal.

Table 6. Summary of withdrawals (acre-feet) in New Mexico river basins, 2020.

RVB	Category	WSW	WGW	TW
TG	Irrigated Agriculture	0	516,078	516,078
TG	Livestock (self-supplied)	207	11,252	11,460
TG	Commercial (self-supplied)	0	3,162	3,162
TG	Industrial (self-supplied)	0	32	32
TG	Mining (self-supplied)	0	13	13
TG	Power (self-supplied)	0	28,255	28,255
TG	Reservoir Evaporation	0	0	0
	River Basin Totals	**208**	**576,171**	**576,379**
UC	Public Water Supply	21,369	67	21,436
UC	Domestic (self-supplied)	0	1,652	1,652
UC	Irrigated Agriculture	331,398	0	331,398
UC	Livestock (self-supplied)	77	186	263
UC	Commercial (self-supplied)	914	4	918
UC	Industrial (self-supplied)	0	0	0
UC	Mining (self-supplied)	2	81	83
UC	Power (self-supplied)	32,474	0	32,474
UC	Reservoir Evaporation	27,174	0	27,174
	River Basin Totals	**413,408**	**1,990**	**415,398**
	State Totals	**1,882,385**	**1,922,692**	**3,805,077**

Key: RVB = river basin; WSW = withdrawal surface water; WGW = withdrawal groundwater; TW = total withdrawal.

Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
1	RG	ABCWUA	637,707	138	4	4	Y	Y	33,250	65,065
1	RG	Bakers Mobile Home Park	160	150				Y		27
1	RG	Barcelona Mobile Home Park	429	31				Y		15
1	RG	Bearcat Homeowners Assn.	60	72				Y		5
1	RG	Cedar Crest MDWC & SWC	50	133				Y		7
1	RG	Chamisa Mobile Home Park	58	66				Y		4
1	RG	Chilili Water Users Assn.	170	100		1				19
1	RG	Coronado Village Country Club	802	100		1				90
1	RG	Desert Palms Mobile Home Park	252	110				Y		31
1	RG	[1]Entranosa Water And Wastewater Co-op	5,517	172	1			Y		1,065
1	RG	Forest Park Property Owners Co-op	189	47		2				10
1	RG	Fox Hills Water Users Assn.	69	100		1				8
1	RG	Green Acres Mobile Home Village	200	97				Y		22
1	RG	Green Ridge MDWCA, Inc.	130	80		1				12
1	RG	Hamilton Mobile Home Park	91	100		1				10
1	RG	Homestead Mobile Home Community	185	42				Y		9
1	RG	Kirtland Air Force Base	2,000	160	3			Y		357
1	RG	La Mesa Villa Mobile Home Park, LLC	90	100		1				10
1	RG	Leisure Mountain Mobile Home Park	172	29				Y		6
1	RG	Mountain View Mobile Home Park	75	72		5				6
1	RG	North Court Mobile Home Park	151	56				Y		9
1	RG	Oakland Heights Homeowners Association	31	133				Y		5
1	RG	Old Sandia Park Service Co-op	200	100		1				22
1	RG	Paakweree Village Water Co-op Assn., Inc	178	100		1				20
1	RG	Quail Hollow MDWUA	28	100		1				3
1	RG	Sandia Knolls Water System	1,098	100		1				123
1	RG	Sandia Peak Utility	5,727	164				Y		1,054
1	RG	Sierra Vista Mutual Domestic Assn.	342	105				Y		40
1	RG	Sierra Vista South Water Co-op	128	75				Y		11
1	RG	South Hills Water Company	506	100		1				57
1	RG	Sunset Hills Estates HOA	76	200		3				17
1	RG	The Rincon Water Co-op	392	114				Y		50
1	RG	Tierra Monte Water Users Assn.	78	58				Y		5
1	RG	Tierra West Estates Mobile Home Park	1,730	126		2				245
1	RG	Tijeras (Village Of)	541	55				Y		34
1	RG	Tijeras Water Co-op	156	117				Y		20
1	RG	Tom's Mobile Home Park	39	81				Y		4
1	RG	Tranquillo Pines Water Users Co-op	670	35				Y		27
1	RG	Valle Grande Mobile Home Park	124	80		1				11
1	RG	Ventura Estates HOA	109	228				Y		28

Key: CN = county number; RVB = river basin; POP = population; GPCD = gallons per capita per day; WEC = water exchange code; WWC = water withdrawal code; MSW = measured surface water (Y = yes); MGW = measured groundwater (Y = yes); WSW = withdrawal surface water; WGW = withdrawal groundwater. [1]Water Supplier serves more than one county or riverbasin.

Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
1	RG	Vista Bonita Water Co-op	69	100		1				8
1	RG	Vista De Manana	63	100		1				7
1	RG	Western Terrace	87	100		1				10
1	RG	Self-Supplied Domestic	15,515	100						1,738
		County Totals	676,444						33,250	70,323
3	LC	Aragon MDWCA	59	25				Y		2
3	LC	Coyote Creek MDWUA	72	70		1				6
3	LC	Mogollon Community Water System	28	138				Y		4
3	LC	Pie Town MDWCA	164	70		1				13
3	LC	Quemado Lake Water Assn.	65	100		2		Y		7
3	LC	Quemado Mutual Water & SWA	232	70		1				18
3	LC	Rancho Grande Water Assn., Inc	215	27		5		Y		7
3	LC	Reserve Water Works	345	198				Y		77
3	LC	Spring Canyon Ranch	55	65		5		Y		4
3	LC	Self-Supplied Domestic	1,817	70						142
3	RG	Homestead Landowners Assn.	116	34				Y		4
3	RG	Mojave Academy	40	70		1				3
3	RG	Self-Supplied Domestic	372	70						29
		County Totals	3,579						0	316
5	P	Berrendo Co-op WUA	4,802	327				Y		1,759
5	P	Cumberland Co-op WUA	606	175		3				119
5	P	Dexter Municipal Water System	1,087	728				Y		886
5	P	Fambrough MDWCA	442	226				Y		112
5	P	Greenfield MDWCA	267	145		2				43
5	P	Hagerman Water System	1,170	290				Y		381
5	P	Lake Arthur Water Department	438	168				Y		83
5	P	Roswell Municipal Water System	49,050	251				Y		13,778
5	P	Self-Supplied Domestic	7,295	100						817
		County Totals	65,157						0	17,978
6	LC	Self-Supplied Domestic	3,581	70						281
6	RG	Bibo Mutual Domestic Water Assn.	154	70		1				12
6	RG	Bluewater Acres WUA	262	29				Y		8
6	RG	Bluewater Water And Sanitation District	420	64				Y		30
6	RG	Grants Domestic Water System	9,073	201				Y		2,045
6	RG	Milan Community Water System	2,268	158	4			Y		401
6	RG	Moquino Water System	59	70		1				5
6	RG	Plano Colorado Estates	28	70		1				2
6	RG	San Mateo MDWCA	152	23		5		Y		4
6	RG	San Rafael Water & Sanitation District	841	70		1				66
6	RG	Seboyeta Water System	153	70		1				12

Key: CN = county number; RVB = river basin; POP = population; GPCD = gallons per capita per day; WEC = water exchange code; WWC = water withdrawal code; MSW = measured surface water (Y = yes); MGW = measured groundwater (Y = yes); WSW = withdrawal surface water; WGW = withdrawal groundwater. [1]Water Supplier serves more than one county or riverbasin.

Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
6	RG	Self-Supplied Domestic	10,181	70						798
		County Totals	27,172						0	3,664
7	AWR	Angel Fire (Village of)	1,371	439		4				674
7	AWR	Angel Nest Apartments	60	44				Y		3
7	AWR	Cimarron Water System	811	76			Y		69	
7	AWR	City Of Raton/Raton Water Works	6,865	151	4	2			1,159	
7	AWR	Maxwell Co-op Water Users Assn.	148	80		1				13
7	AWR	Maxwell Water System	237	72				Y		19
7	AWR	Miami Water Users Assn.	84	167				Y		16
7	AWR	Springer Water System	1,289	41			Y		59	
7	AWR	Val Verde 5 Property Owners Assn.	55	80		1				5
7	AWR	Village Of Eagle Nest	324	109				Y		39
7	AWR	Self-Supplied Domestic	1,143	80						102
		County Totals	12,387						1,287	871
9	AWR	Grady Water System	109	220		2				27
9	AWR	Self-Supplied Domestic	232	100						26
9	TG	Cannon Air Force Base Water System	2,682	257	10	5		Y		773
9	TG	Clovis West LLC	78	100		1				9
9	TG	Desert Ranch MDWCA	948	100		1				106
9	TG	Desert Village RV & Mobile Home Park	56	100		1				6
9	TG	[1]Epcor Water New Mexico, Inc.	40,270	163	2			Y		3,675
9	TG	Longhorn Estates Water System	264	100		1				30
9	TG	Melrose Water System	1,083	96		2				117
9	TG	Texico Water System	1,229	95				Y		131
9	TG	Turquoise Estates Water Co-op	168	100		1				19
9	TG	Self-Supplied Domestic	1,311	100						147
		County Totals	48,430						0	5,066
11	P	Fort Sumner Municipal Water System	992	530	3			Y		589
11	P	Valley MDWCA	452	80	6	1				41
11	P	Self-Supplied Domestic	254	80						23
		County Totals	1,698						0	652
13	RG	Alameda Acres Mobile Home Park	285	82				Y		26
13	RG	Alto de las Flores MDWCA	800	166				Y		149
13	RG	Anthony W&SD	9,159	124				Y		1,273
13	RG	Camino Real Regional Utility Authority	19,766	112				Y		2,471
13	RG	CBG Water Company	1,229	99				Y		137
13	RG	Chamberino MDW&SA	509	124				Y		71
13	RG	Country Mobile Manor	220	102				Y		25
13	RG	Covered Wagon Mobile Home Manor	104	133				Y		16
13	RG	De La Te Mobile Manor	157	108				Y		19

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Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
13	RG	Desert Aire MDW and SWA	759	50				Y		43
13	RG	Dona Ana MDWCA	16,217	114				Y		2,072
13	RG	Dove Canyon LLC	329	64				Y		24
13	RG	El Patio Mobile Home Park #2	70	83				Y		7
13	RG	Erica's Mobile Home Park	13	121				Y		2
13	RG	[1]Garfield MDWCA	1,528	94				Y		161
13	RG	Hatch Water Supply System	2,388	169		5		Y		452
13	RG	Holly Garden Mobile Home Park	355	33				Y		13
13	RG	La Union MW&SA	938	114				Y		120
13	RG	[1]Lake Section Water Company	4,315	155				Y		750
13	RG	Las Cruces Mobile Home Park	174	96				Y		19
13	RG	Las Cruces Municipal Water System	111,746	174	3	4		Y		21,748
13	RG	Leasburg MDWCA	903	125				Y		126
13	RG	Lower Rio Grande Public WWA	15,972	92				Y		1,643
13	RG	Madrid Mobile Home Park	64	233				Y		17
13	RG	Mesilla Water System	2,153	159				Y		383
13	RG	Moongate Water System	13,610	207				Y		3,161
13	RG	Organ View Estates	83	119				Y		11
13	RG	Picacho MDWCA	1,000	428				Y		480
13	RG	Rancho Vista Mobile Home Park	69	16				Y		1
13	RG	Rincon Water Consumers Co-op	493	185	4			Y		102
13	RG	Silver Spur Mobile Home Courts	145	26				Y		4
13	RG	Sontera Acres Mobile Manor	171	69				Y		13
13	RG	St Johns Mobile Home Park	385	101				Y		44
13	RG	Summer Wind Mobile Home Park	367	96				Y		39
13	RG	Talavera MDWCA	173	117				Y		23
13	RG	Teresa Moreno Water System	64	69				Y		5
13	RG	Valverde Mobile Home Park	140	123				Y		19
13	RG	Villa Del Sol Mobile Home Park	455	115				Y		58
13	RG	Vista del Rey Estates MDWCA	49	291				Y		16
13	RG	Vista Real Mobile Home Park	110	176				Y		22
13	RG	White Sands Missile Range (Main Post)	1,159	702	10			Y		912
13	RG	Winterhaven MDWC & SWA	163	82				Y		15
13	RG	Self-Supplied Domestic	10,772	100						1,207
		County Totals	219,561						0	37,897
15	P	Artesia Municipal Water System	13,238	347				Y		5,145
15	P	Artesia Rural Water Co-op	1,941	175		2		Y		380
15	P	Caprock Water Company	200	497	6			Y		111
15	P	Carlsbad Municipal Water System	33,549	254		4		Y		9,552
15	P	Cottonwood Water MDWCA	1,344	165				Y		249

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Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
15	P	Happy Valley Co-op Water Works	638	100		1				71
15	P	Hope Water System	147	373				Y		61
15	P	Jewel Street Water Co-op	39	100		1				4
15	P	Loving Water System	1,523	80	3	3		Y		136
15	P	Malaga MDWC SWA	783	200	6	3		Y		175
15	P	Morningside Water Users Co-op	302	100	6	1				34
15	P	North Park MDWCA	222	100		1				25
15	P	Otis MDWCA	4,488	100		1		Y		503
15	P	Riverside MDWA	105	314		5		Y		37
15	P	Whites City Water System	19	5,168				Y		110
15	P	Self-Supplied Domestic	3,776	100						423
		County Totals	62,314						0	17,019
17	LC	Burro Mountain Homestead	302	80		1				27
17	LC	Heights Water Users Assn.	22	34				Y		1
17	LC	Lake Roberts Water Users Assn.	50	42				Y		2
17	LC	Trout Mountain Assn., Inc.	42	85				Y		4
17	LC	Self-Supplied Domestic	2,436	80						218
17	RG	Arenas Valley MDWCA	1,195	72	6			Y		96
17	RG	Bayard Municipal Water System	2,156	72		2				173
17	RG	Billings Trailer Park	27	187				Y		6
17	RG	Casas Adobes MDWCA	368	87		2				36
17	RG	Hachita MDWCA	64	85				Y		6
17	RG	Hanover MDWCA	187	65		5		Y		14
17	RG	North Hurley MDWCA	242	97	6	2				26
17	RG	Pinos Altos MDWCA	353	61	6	5		Y		24
17	RG	Rio de Arenas, LLC	195	80	7	1				17
17	RG	Rosedale MDWCA	225	72	3	5		Y		18
17	RG	Santa Clara Water System	1,729	94				Y		183
17	RG	Silver City Water System	15,645	119	3			Y		2,084
17	RG	Town Of Hurley	1,249	101	6	2		Y		142
17	RG	Tyrone MDWCA	70	80	6	1				6
17	RG	Tyrone Townsite	735	131		5		Y		108
17	RG	Whiskey Creek Properties, LLC	99	44				Y		5
17	RG	Self-Supplied Domestic	794	80						71
		County Totals	28,185						0	3,267
19	AWR	Self-Supplied Domestic	341	80						31
19	P	Puerto de Luna MDWCA	259	85	6	5				25
19	P	Riveras MDWUA	60	75	6	5				5
19	P	Sangre de Cristo Regional MDWCA	346	107				Y		42

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Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
19	P	Santa Rosa Water Supply	2,945	175	3	4	Y	Y	40	536
19	P	Vaughn Duran Water System	330	80		1				30
19	P	Self-Supplied Domestic	171	80						15
		County Totals	4,452						40	683
21	AWR	Mosquero Water System	101	83		5				9
21	AWR	Roy (Village Of)	332	162				Y		60
21	AWR	Self-Supplied Domestic	224	80						20
		County Totals	657						0	90
23	LC	Lordsburg Water Supply System	2,603	113				Y		331
23	LC	Rodeo MDW & MSWA	92	80		1				8
23	LC	Virden Water System	223	80		1				20
23	LC	Self-Supplied Domestic	568	80						51
23	RG	New Mexico Tech, Playas Facility	147	29,177				Y		4,804
23	RG	Self-Supplied Domestic	545	80						49
		County Totals	4,178						0	5,263
25	P	Eunice Water Supply System	3,475	422	5	4		Y		1,643
25	P	Jal Water Supply System	2,699	209		4		Y		632
25	P	Mescalero Ridge Water Co-op	48	163		5		Y		9
25	P	Monument MDWCA	267	135				Y		40
25	P	Self-Supplied Domestic	1,657	100						186
25	TG	Hobbs Municipal Water Supply	38,936	57				Y		2,497
25	TG	Lovington Municipal Water Supply	11,326	399				Y		5,061
25	TG	Rancho Dal Paso LLC DBA Adobe Village	75	100		1				8
25	TG	Tatum Municipal Water System	861	100		1				96
25	TG	Triple J Mobile Home Park	192	127				Y		27
25	TG	Self-Supplied Domestic	14,919	100						1,671
		County Totals	74,455						0	11,871
27	P	Alpine Village W&SD	120	80	9	1				11
27	P	Alto Lakes Water & Sanitation District	2,588	143				Y		413
27	P	Alto Mountain Village	231	69				Y		18
27	P	Alto North Water Co-op	116	69				Y		9
27	P	Apple Blossom & White Angel Mesa WUA	30	52				Y		2
27	P	Capitan Water System	1,400	133				Y		208
27	P	[1]CDS Rainmakers Utility LLC	895	218				Y		219
27	P	Cedar Creek Cabin Owners Assn.	536	32				Y		19
27	P	Copper Canyon Subdivision	25	153				Y		4
27	P	Corona Water System	178	252		5				50
27	P	Enchanted Forest Water Corporation	288	31		2		Y		10
27	P	Fawn Ridge Property Owners Assn.	145	63		5				10
27	P	Fort Stanton Facility	23	80	6	1				2

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Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
27	P	High Sierra Estates Water Assn.	117	80		1				10
27	P	Lincoln Hills Water Co-op	150	115				Y		20
27	P	Lincoln MDWCA	96	155				Y		17
27	P	Loma Grande Estates Water Assn.	90	61		2		Y		6
27	P	Ruidoso Downs Water System	2,739	98	9			Y	290	12
27	P	Ruidoso Water System	7,649	237	9	5	Y	Y	597	1,433
27	P	Safe Haven RV Park	59	80		1				5
27	P	Sun Valley Water & Sanitation District	380	30	9			Y		13
27	P	Tall Pines Water Assn.	42	33		5		Y		2
27	P	The Riverbend	91	80		1				8
27	P	Self-Supplied Domestic	638	80						57
27	RG	Carrizozo Water System	1,130	37				Y		47
27	RG	Nogal MDWCA	88	80		1				8
27	RG	Self-Supplied Domestic	425	80						38
		County Totals	20,269						887	2,651
28	RG	Los Alamos Municipal Water System	19,419	180	4	4		Y	4	3,913
		County Totals	19,419						4	3,913
29	RG	Columbus Water System	1,485	337				Y		561
29	RG	Deming Municipal Water System	14,806	253		4		Y		4,196
29	RG	Gunter Mobile Home Park	28	100		1				3
29	RG	Hidden Valley Ranch	330	100		1				37
29	RG	Pecan Park MDWCA	99	181				Y		20
29	RG	Peoples Water Co-op	80	100		1				9
29	RG	Pueblo De Luna Water System	17	100		1				2
29	RG	Self-Supplied Domestic	8,582	100						961
		County Totals	25,427						0	5,789
31	LC	Block A Well Co-op	56	70		1				4
31	LC	Cedar Ridge Trailer Park	58	80		1				5
31	LC	Coal Basin DWUA	87	70		1				7
31	LC	D & S Trailer Ranch	96	70		1				8
31	LC	Gallup Water System	23,070	108		4		Y		2,790
31	LC	Ramah Water & Sanitation District	499	70		1				39
31	LC	Rob Roy Trailer Park	95	70		1				7
31	LC	Sagebrush Water Co-op	54	70		1				4
31	LC	St Williams Mobile Home Park	50	70		1				4
31	LC	Whispering Cedars Water Assn.	317	64				Y		23
31	LC	White Cliffs MDWUA	250	42		5				12
31	LC	Yah Ta Hey W&SD	493	70		1				39
31	LC	Self-Supplied Domestic	27,443	70						2,152
31	RG	Bluewater Lake MDWCA	135	80		1				12

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Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
31	RG	Thoreau Water & Sanitation District	1,337	63				Y		95
31	RG	Top Of The World Water Assn. Corp.	125	86		5		Y		12
31	RG	Self-Supplied Domestic	14,624	70						1,147
31	UC	Self-Supplied Domestic	4,113	70						323
		County Totals	72,902						0	6,681
33	AWR	Agua Negra MDWCA	242	101		5				27
33	AWR	Agua Pura MDWCA	357	80		1				32
33	AWR	Buena Vista MDWCA	225	80		1				20
33	AWR	Cleveland MDWCA	233	80		1				21
33	AWR	Guadalupita MDWCA	90	55		2				6
33	AWR	Ledoux MDWCA	150	80		1				13
33	AWR	Mora MDWCA	1,100	80		1				99
33	AWR	North Cleveland MDWCA	82	80		1				7
33	AWR	Ojo Feliz MDWCA	51	80		1				5
33	AWR	Rainsville Water & Sanitation District	250	80		1				22
33	AWR	San Antonio de Cleveland MDWCA	103	66		5		Y		8
33	AWR	South Holman MDWCA	56	80		1				5
33	AWR	Upper Holman MDWCA	108	53		2				6
33	AWR	Wagon Mound Water System	300	159		2				53
33	AWR	Watrous MDWCA	99	80		1				9
33	AWR	Self-Supplied Domestic	744	80						67
		County Totals	4,189						0	400
35	P	Chippeway Park Water Assn.	210	100		1				24
35	P	Cloud Country Estates WUA	275	500		3			62	92
35	P	Cloud Country West Water System	323	379				Y		137
35	P	[1]Cloudcroft Water System	669	73	9		Y		55	
35	P	Mayhill Water Supply Company	114	80		1				10
35	P	Pete Ragan Memorial WUA	85	100		1		Y		10
35	P	Ponderosa Pines Property Owners	137	100		1				15
35	P	Robinhood Water Users Assn.	407	40		2	Y		18	
35	P	Silver Cloud Water Assn.	107	123				Y		15
35	P	Silver Springs Water System	46	100		1				5
35	P	Sixteen Springs Mnt Estates	18	100		1				2
35	P	Sky Country Estates MDWCA	71	100		1		Y		8
35	P	Twin Forks MDWCA	1,090	100		1				122
35	P	Waterfall Community WUA	295	100		1				33
35	P	Weed Water Users Assn.	73	100		1				8
35	P	Self-Supplied Domestic	2,322	100						260
35	RG	Alamo Heights WUA	50	105		5		Y		6
35	RG	Alamogordo Domestic Water System	31,963	140	3		Y	Y	3,348	1,679

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Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
35	RG	Boles Acres Water System	657	126				Y		93
35	RG	Canyon Hills Area WUA	53	150		3				9
35	RG	Cider Mill Farms MDWCA	40	100		1				4
35	RG	[1]Cloudcroft Water System	635	74			Y		52	
35	RG	Dog Canyon MDWCA	11	100		1				1
35	RG	Dungan MDWCA	42	94				Y		4
35	RG	Eileen Acres	208	142				Y		33
35	RG	Enchanted Valley WUA	44	303				Y		15
35	RG	Freemans Mobile Home Park	17	100		1				2
35	RG	High Rolls Community Water Users Co-op	340	68				Y		26
35	RG	Holloman Air Force Base	3,816	111	10			Y		474
35	RG	Juniper Mobile Park	73	100		1				8
35	RG	Karr Canyon Estates	102	98			Y		11	
35	RG	La Luz MDWCA	1,843	69		2	Y	Y	43	100
35	RG	Laborcita Water Users Assn.	70	791			Y		62	
35	RG	[1]Lake Section Water Company	10,709	155				Y		1,854
35	RG	Low Mesa WUA	27	271				Y		8
35	RG	Mountain Orchard MDWCA	102	99			Y		11	
35	RG	National Solar Observatory	22	399		5		Y		10
35	RG	Orogrande MDWCA	92	85	6	2				9
35	RG	Piney Woods Water Users Assn.	290	35		2		Y		12
35	RG	Pinon MDWCA	74	100		1				8
35	RG	Rolling Hills WUA	35	204			Y		8	
35	RG	Timberon W & SD	371	735			Y	Y	181	124
35	RG	Tularosa Water System	3,305	200				Y		740
35	RG	Self-Supplied Domestic	6,607	100						740
		County Totals	67,839						3,852	6,702
37	AWR	Hills Village Water System	118	103	6	5				14
37	AWR	Liberty MDWCA	180	217	6	5		Y		44
37	AWR	Logan Water System	1,903	192		2		Y		410
37	AWR	Nara Visa MDWCA	59	80		1				5
37	AWR	Rad Water Users Co-op	365	113	6	5				46
37	AWR	San Jon Water Supply	233	263		5		Y		69
37	AWR	Tucumcari Water System	5,240	174	4			Y		1,023
37	AWR	Self-Supplied Domestic	63	80						6
37	P	House Water System	77	128				Y		11
37	P	Self-Supplied Domestic	508	80						46
		County Totals	8,746						0	1,673
39	RG	Abiquiu MDWCA	218	80		5				20
39	RG	Agua Sana WUA	1,283	80		1				115

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Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
39	RG	Alcalde MDWCA	843	63				Y		59
39	RG	Ancones MDWCA	45	80		1				4
39	RG	Apodaca MDWCA	129	125		2				18
39	RG	Archuleta Mobile Home Park	32	80		1				3
39	RG	Arroyo Del Agua MDWCA	14	80		1				1
39	RG	Barranco MDWCA	49	52				Y		3
39	RG	Brazos MDWCA	310	40				Y		8
39	RG	Canjilon Water System	245	86				Y		24
39	RG	Canon Plaza MDWCA	60	80		1				5
39	RG	Canones MDWCA	80	60				Y		5
39	RG	Capulin MDWCA	203	80		1				18
39	RG	Cebolla MDWCA	71	80		1				6
39	RG	Chama Water System	1,224	133		2			183	
39	RG	Chama West Water Users Assn.	92	87		2				9
39	RG	Chamita MDWCA	1,020	51				Y		59
39	RG	Christ In The Desert Monastery	30	80		1			3	
39	RG	Cordova MDWCA	206	80		1				18
39	RG	Coyote MDWCA	45	80		1				4
39	RG	[1]Cuatro Villas MDWCA	15	70		1				1
39	RG	Dixon MDWCA	500	80		1				45
39	RG	Duranes Y Gavilan MDWCA	220	45				Y		11
39	RG	El Rito Regional W & WA	825	80		1				74
39	RG	Enchanted Mesa Mobile Home Park	145	79		2		Y		13
39	RG	Ensenada MDWCA	151	102				Y		17
39	RG	[1]Espanola Water System	8,092	61				Y		557
39	RG	Gallina Water System	75	80		1				7
39	RG	[1]Greater Chimayo MDWCA	670	35				Y		26
39	RG	La Asociacion De Agua De Los Brazos	28	63		5		Y		2
39	RG	La Jara Water Users Assn.	238	76				Y		20
39	RG	La Madera MDWCA	124	38		5				5
39	RG	Los Ojos MDWCA	153	100		1				17
39	RG	[1]Ojo Caliente MDWCA	251	52				Y		14
39	RG	Ojo Sarco MDWCA	225	36				Y		9
39	RG	Rio Embudo MDWCA	172	35		5		Y		7
39	RG	Rutheron Mutual Water Assn.	80	72		5				6
39	RG	Tierra Amarilla MDWCA	369	80		1				33
39	RG	[1]Tres Piedras MDWCA	119	55				Y		7
39	RG	Truchas MDWCA	522	45		2				26
39	RG	Vallecitos MDWCA	84	59				Y		6
39	RG	Valley Estates Water & Sewer Assn.	241	80		1				22

Key: CN = county number; RVB = river basin; POP = population; GPCD = gallons per capita per day; WEC = water exchange code; WWC = water withdrawal code; MSW = measured surface water (Y = yes); MGW = measured groundwater (Y = yes); WSW = withdrawal surface water; WGW = withdrawal groundwater. [1]Water Supplier serves more than one county or riverbasin.

Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
39	RG	Velarde MDWCA	583	56				Y		37
39	RG	Youngsville MDWCA	44	80		1				4
39	RG	Self-Supplied Domestic	19,386	80						1,737
39	UC	Lindrith Community Water Co-op, Inc.	51	88		5		Y		5
39	UC	Lumberton MDWCA	124	89		2			12	
39	UC	Lybrook MDWCA	83	80		1				7
39	UC	Self-Supplied Domestic	595	80						53
		County Totals	40,363						198	3,150
41	P	Self-Supplied Domestic	134	100						15
41	TG	Causey Water System	61	211		2				14
41	TG	Dora Water System	150	176		2		Y		30
41	TG	Elida Water System	354	196				Y		78
41	TG	[1]Epcor Water New Mexico, Inc.	38	78				Y		3
41	TG	Floyd WS (Village of)	109	100		1				12
41	TG	Portales Water System	14,247	135	6	4		Y		2,148
41	TG	Roosevelt County WUA	3,202	172	6			Y		618
41	TG	Self-Supplied Domestic	896	100						100
		County Totals	19,191						0	3,019
43	RG	Algodones WUA	435	76		5		Y		37
43	RG	Anasazi Trails Water Co-op	400	119				Y		53
43	RG	Bernalillo Water System	9,392	129				Y		1,355
43	RG	Canon MDWCA	320	46		5		Y		16
43	RG	Cedar Creek Water Co-op Inc	105	67				Y		8
43	RG	Cuba Water System	1,614	80		1				145
43	RG	Desert Sky Mountain Water Co-op	187	66				Y		14
43	RG	Hofheins/Marcel Thomas Assn. Co-op Inc	85	67		2		Y		6
43	RG	Homesteads North	23	105				Y		3
43	RG	Horseshoe Springs Assn.	94	80		1				8
43	RG	Jemez Springs DWUA	650	113				Y		82
43	RG	La Mesa Water Co-op	876	89				Y		87
43	RG	La Puerta HOA	32	160				Y		6
43	RG	Las Acequias De Placitas	380	80		1				34
43	RG	North Ranchos De Placitas W&SD	505	60				Y		34
43	RG	Orchard Estates FL MDWC&SW	40	139				Y		6
43	RG	Overlook Water Co-op, Inc.	115	101				Y		13
43	RG	Pena Blanca Water & Sanitation District	448	64				Y		32
43	RG	Placitas Trails Water Co-op	355	80		1				32
43	RG	Placitas West Water Co-op	110	97				Y		12
43	RG	Ponderosa MDWCA	378	116			Y		49	
43	RG	Pueblo Los Cerros	180	151		2		Y		30

Key: CN = county number; RVB = river basin; POP = population; GPCD = gallons per capita per day; WEC = water exchange code; WWC = water withdrawal code; MSW = measured surface water (Y = yes); MGW = measured groundwater (Y = yes); WSW = withdrawal surface water; WGW = withdrawal groundwater. [1]Water Supplier serves more than one county or riverbasin.

Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
43	RG	Puesta Del Sol Community Water System	17	97				Y		2
43	RG	Ranchos De Placitas Sanitation District	264	119				Y		35
43	RG	Regina MDWCA	155	144				Y	20	5
43	RG	[1]Rio Rancho Water & WW Services	99,703	102		4		Y		11,367
43	RG	San Luis Cabezon MDWCA	320	80		1				29
43	RG	San Ysidro Water Supply System	172	99				Y		19
43	RG	Sierra Los Pinos HOA	260	400				Y		117
43	RG	Sile MDWCA	87	280				Y		27
43	RG	Vista De Oro De Placitas WU Co-op	83	68				Y		6
43	RG	Self-Supplied Domestic	28,798	101						3,250
43	UC	Self-Supplied Domestic	2,251	80						202
		County Totals	148,834						69	17,073
45	UC	Animas Valley Land & Water	5,694	79		5	Y		503	
45	UC	Apple Orchard MDWCA	460	61	6		Y		31	
45	UC	Aztec Domestic Water System	7,774	196	3		Y		1,709	
45	UC	Blanco MDWCA	1,125	46	6		Y		58	
45	UC	Bloomfield Water Supply System	8,957	112		4	Y		1,119	
45	UC	Farmington Water System	46,035	256	3		Y		13,221	
45	UC	Flora Vista Mutual Domestic	4,124	56	7		Y		260	
45	UC	La Vida Mission Community WS	112	70		1				9
45	UC	Lee Acres Water Users Assn.	5,069	110			Y		623	
45	UC	Lower Valley Water Users Assn.	8,232	116	3	5	Y		1,071	
45	UC	Navajo Dam DWC, Inc.	538	53		2		Y		32
45	UC	Northstar MDWCA	3,967	65			Y		290	
45	UC	Pine River MDCA	38	70		1				3
45	UC	Rosa Joint Ventures Water System	139	70		1		Y		11
45	UC	Shiprock-NTUA	8,295	210	6		y		1,954	
45	UC	Southside Mutual Domestic Water	1,495	53	6		Y		89	
45	UC	Upper La Plata Water Users Assn.	2,762	60	6		Y		185	
45	UC	West Hammond MDWCA	3,142	69	6		Y		244	
45	UC	Self-Supplied Domestic	13,703	70						1,074
		County Totals	121,661						21,357	1,129
47	AWR	Big Mesa Water MDWCA	604	90		2			61	
47	AWR	Pendaries MDWCA	500	80		1				45
47	AWR	Self-Supplied Domestic	248	80						22
47	P	Benedictine Monastery	29	80	9	1				3
47	P	Campo Azul Mobile Home Park	49	80		1				4
47	P	Chapelle MDWCA	60	80		1				5
47	P	East Pecos MDWCA	450	60		5		Y		30
47	P	El Ancon MDWCA	102	28				Y		3

Key: CN = county number; RVB = river basin; POP = population; GPCD = gallons per capita per day; WEC = water exchange code; WWC = water withdrawal code; MSW = measured surface water (Y = yes); MGW = measured groundwater (Y = yes); WSW = withdrawal surface water; WGW = withdrawal groundwater. [1]Water Supplier serves more than one county or riverbasin.

Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
47	P	El Cerrito MDWCA	14	61				Y		1
47	P	El Coruco MDWCA	103	53				Y		6
47	P	El Creston MDWCA	25	55				Y		2
47	P	Gabaldon MDWCA	45	29				Y		1
47	P	Gonzales Ranch MDWCA	149	80		1				13
47	P	Ilfeld MDWCA	202	53				Y		12
47	P	La Cueva MDWCA	48	56				Y		3
47	P	La Pasada MDWCA	191	48				Y		10
47	P	Las Vegas (City Of)	14,530	128			Y		2,081	3
47	P	Lower Colonias MDWCA	34	16				Y		1
47	P	North San Ysidro MDWCA	124	80		1				11
47	P	Pecos Water System	2,198	72				Y		178
47	P	Ribera MDWCA	200	80		1				18
47	P	Rowe MDWCA	100	40		3		Y		4
47	P	San Jose MDWCA	110	80		1				10
47	P	San Juan MDWCA	142	61				Y		10
47	P	San Miguel Del Bado MDWCA	58	65				Y		4
47	P	Sena MDWCA	85	73		5		Y		7
47	P	South San Ysidro MDWCA	22	70				Y		2
47	P	Tecolote MDWCA	232	80		1				21
47	P	Tecolotito MDWCA	218	86				Y		21
47	P	Tres Lagunas Home Owners Assn.	52	60				Y		4
47	P	Villanueva MDWCA	130	72				Y		10
47	P	Self-Supplied Domestic	6,147	80						551
		County Totals	27,201						2,142	1,017
49	P	Glorieta Camps	609	114	11	2				78
49	P	Greater Glorieta Regional MDC	53	288				Y		17
49	P	Self-Supplied Domestic	319	80						29
49	RG	Agua Fria Water Assn.	611	62		2				43
49	RG	Asi La Mar Trailer Park	61	80		1				5
49	RG	Canada De Los Alamos MDWCA	54	30	6	3				2
49	RG	Canoncito At Apache Canyon	250	43				Y		12
49	RG	Chupadero MDWCA	131	63				Y		9
49	RG	Cielo Lindo	38	80		1				3
49	RG	City Of Santa Fe Water System	83,922	93	4	4	Y	Y	4,336	4,440
49	RG	Country Club Gardens Mobile Home Park	1,068	80		1				96
49	RG	[1]Cuatro Villas MDWCA	405	70	6	1				32
49	RG	Cundiyo MDWCA	58	80		1				5
49	RG	El Rancho Mobile Home Park Santa Fe	54	80		1				5
49	RG	El Vadito De Los Cerrillos Water Assn.	272	46				Y		14

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Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
49	RG	Eldorado Area W&S District	5,793	80				Y		518
49	RG	[1]Entranosa Water And Wastewater Co-op	2,148	172	2			Y		413
49	RG	[1]Epcor Water New Mexico, Inc.	6,062	83		5		Y		562
49	RG	[1]Espanola Water System	3,920	60				Y		262
49	RG	Galisteo MDWCA	172	71				Y		14
49	RG	Grant Mobile Home Park	35	80		1				3
49	RG	[1]Greater Chimayo MDWCA	167	35				Y		7
49	RG	Hyde Park Estates Water Users Assn.	178	80		1				16
49	RG	Juniper Hills Mobile Home Park	56	80		1				5
49	RG	Juniper Hills Ranch	65	80		1				6
49	RG	La Bajada MDWCA	26	80		1				2
49	RG	La Cienega MDWCA	525	47				Y		28
49	RG	La Vista Homeowners Assn.	40	126				Y		6
49	RG	Lamy Mutual Domestic Water Assn.	132	72		1		Y		11
49	RG	Las Campanas Water System	898	360	6		Y		362	
49	RG	Lone Star Trailer Ranch	77	80		1				7
49	RG	Madrid Water Co-op	219	46				Y		11
49	RG	Pojoaque Terraces Mobile Home Park	160	79				Y		14
49	RG	Ranchitos De Galisteo WUA	94	84				Y		9
49	RG	Rio Chiquito MDWCA	122	58				Y		8
49	RG	Rio En Medio MDWCA	130	80		1				12
49	RG	Santa Cruz Water Assn.	354	46				Y		18
49	RG	Santa Fe County Utilities	10,025	222	6		Y	Y	2,487	4
49	RG	Santa Fe West Mobile Home Park	200	80		1				18
49	RG	Shalom Mobile Home Park	72	129				Y		10
49	RG	Solacito MDWCA	35	80		1				3
49	RG	South Santa Fe Water Co-op	49	77				Y		4
49	RG	Sunlit Hills Water System	1,018	171				Y		195
49	RG	Tesuque MDWCA	258	66				Y		19
49	RG	Trailer Ranch Senior Mobile Home Com.	200	67				Y		15
49	RG	Village Mobile Home Park	109	50		5		Y		6
49	RG	Vista Redonda MDWCA	132	120		3		Y		18
49	RG	Wild And Wooley Trailer Ranch	59	80		1				5
49	RG	Self-Supplied Domestic	33,389	82						3,064
		County Totals	154,823						7,185	10,082
51	RG	Caballo Lake MDWA	48	36				Y		2
51	RG	City Of Elephant Butte	759	99				Y		84
51	RG	Desertaire Water Company	48	80		1				4
51	RG	Elephant Butte Water System	1,431	105				Y		169
51	RG	[1]Garfield MDWCA	979	94				Y		103

Key: CN = county number; RVB = river basin; POP = population; GPCD = gallons per capita per day; WEC = water exchange code; WWC = water withdrawal code; MSW = measured surface water (Y = yes); MGW = measured groundwater (Y = yes); WSW = withdrawal surface water; WGW = withdrawal groundwater. [1]Water Supplier serves more than one county or riverbasin.

Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
51	RG	Hillsboro MDWCA	185	61	6			Y		13
51	RG	Monticello Canyon DWCA	63	80		1				6
51	RG	Monticello Community Water System	125	92				Y		13
51	RG	Rosa Del Rio Mobile Home & RV Park	25	80		1				2
51	RG	Truth Or Consequences	6,521	205	4			Y		1,498
51	RG	Self-Supplied Domestic	1,392	80						125
		County Totals	11,576						0	2,018
53	RG	La Joya MDWCA	246	80		1				22
53	RG	Magdalena (Village Of)	896	80		1				80
53	RG	New Mexico Boys And Girls Ranch	42	80		1				4
53	RG	Polvadera MDWCA	1,840	105				Y		216
53	RG	San Acacia MDWCA	180	84				Y		17
53	RG	San Antonio MDWCA	1,239	113				Y		157
53	RG	Socorro Water System	9,157	180			Y	Y	1	1,842
53	RG	Self-Supplied Domestic	2,995	80						268
		County Totals	16,595						1	2,606
55	RG	Arroyo Seco MDWCA	444	80		1				40
55	RG	Bmg Trailer Park	67	80		1				6
55	RG	Canon MDWCA	322	80		1				29
55	RG	Cerro MDWC&SW	232	113				Y		29
55	RG	Chamisal MDWCA	314	70				Y		25
55	RG	Costilla MDWCA	205	80		1				18
55	RG	Eagle Rock Village	35	80		1				3
55	RG	El Prado Water & Sanitation District	1,076	88				Y		107
55	RG	El Rancho Mobile Home Park Taos	58	80		1				5
55	RG	El Salto MDWCA & SA	232	105				Y		27
55	RG	El Valle De Los Ranchos W & SD	44	80	6	1				4
55	RG	Enchanted Mobile Home Park	68	80		1				6
55	RG	La Lama MDWCA	20	88				Y		2
55	RG	La Lomita Trailer Park	63	58				Y		4
55	RG	Las Colonias Mobile Home Park	49	119				Y		7
55	RG	Las Haciendas Homeowners WUA	105	120				Y		14
55	RG	Llano Quemado MDWCA	752	46				Y		39
55	RG	Lower Arroyo Hondo MDWCA	180	81				Y		16
55	RG	Lower Des Montes MDWCA	364	49				Y		20
55	RG	[1]Ojo Caliente MDWCA	117	52				Y		7
55	RG	Penasco MDWCA	549	80		1				49
55	RG	Questa Water System	1,820	103				Y		210
55	RG	Ranchos De Taos MDWCA	750	80		1		Y		67
55	RG	Red River Water System	679	761	9		Y	Y	62	517

Key: CN = county number; RVB = river basin; POP = population; GPCD = gallons per capita per day; WEC = water exchange code; WWC = water withdrawal code; MSW = measured surface water (Y = yes); MGW = measured groundwater (Y = yes); WSW = withdrawal surface water; WGW = withdrawal groundwater. [1]Water Supplier serves more than one county or riverbasin.

Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
55	RG	Rio Lucio MDWCA	342	67				Y		26
55	RG	Rodarte MDWCA	149	80		1				13
55	RG	San Cristobal MDWCA	87	35		2		Y		3
55	RG	Sanchez Mobile Home Park	34	92				Y		4
55	RG	Talpa MDWCA	700	48				Y		38
55	RG	Taos Municipal Water System	6,390	140				Y		1,005
55	RG	Trampas MDWCA	91	80		1				8
55	RG	[1]Tres Piedras MDWCA_Taos	109	56				Y		7
55	RG	Union Del Llano	121	63				Y		9
55	RG	Upper Arroyo Hondo MDWCA	195	80		1				17
55	RG	Upper Des Montes MDWCA	192	80		1				17
55	RG	Upper Ojito MDWCA	19	80		1				2
55	RG	Upper Ranchitos MDWCASW	270	46				Y		14
55	RG	Vadito MDWCA	168	80		1				15
55	RG	Valdez MDWCA	100	72				Y		8
55	RG	Valle Escondido HOA	354	52				Y		21
55	RG	Vigils Trailer Park	105	104				Y		12
55	RG	Village Of Taos Ski Valley	265	80	9	1				24
55	RG	West Rim MDWUA	113	17		5		Y		2
55	RG	Self-Supplied Domestic	16,140	80						1,446
		County Totals	34,489						62	3,942
57	P	[1]Clines Corners Water System	39	80		1				3
57	P	Self-Supplied Domestic	123	80						11
57	RG	Carlos Lucero Subdivision	53	80		1				5
57	RG	Cassandra Water System	34	80		1				3
57	RG	Echo Valley Water Company	442	65				Y		32
57	RG	Edgewood Meadows Water Corp.	127	64				Y		9
57	RG	Encino Water System	185	74				Y		15
57	RG	[1]Epcor Water New Mexico, Inc.	1,337	82	4	5		Y		123
57	RG	Estancia Water System	1,160	192		2		Y		249
57	RG	Homestead Water Company	200	69				Y		16
57	RG	Indian Hills Water Company	704	83				Y		65
57	RG	Manzano MDWCA	62	80		1				6
57	RG	Melody Ranch Water Co.	234	57				Y		15
57	RG	Moriarty Water System	2,245	128				Y		321
57	RG	Mountainair Water System	1,116	177				Y		221
57	RG	Punta De Agua MDWCA	45	80		1				4
57	RG	Sunset Acres Water Company	247	80		1				22
57	RG	Tajique MDWCA	181	80		1				16
57	RG	Torreon MDWCA	284	78		2				25

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Table 7. Public Water Supply and Self-Supplied Domestic in New Mexico counties, 2020. Withdrawals in acre-feet.

CN	RVB	Water Supplier	POP	GPCD	WEC	WWC	MSW	MGW	WSW	WGW
57	RG	Willard (Village Of)	210	80		1				19
57	RG	Self-Supplied Domestic	6,016	80						539
		County Totals	15,045						0	1,721
59	AWR	Clayton Municipal Supply	2,822	224		5		Y		709
59	AWR	Des Moines Water System	141	80		1				13
59	AWR	Grenville Water System	22	80		1				2
59	AWR	Self-Supplied Domestic	1,094	80						98
		County Totals	4,079						0	822
61	RG	Belen Water System	8,385	142				Y		1,329
61	RG	Bosque Farms Water Supply System	4,168	77				Y		361
61	RG	Bosque Gardens MDWCA	138	100		1				15
61	RG	Correo Water Assn.	231	100		1				26
61	RG	Cypress Gardens Water Users Assn.	1,139	130				Y		166
61	RG	D & J Mobile Home Park	30	100		1				3
61	RG	El Shaddai Water Co-op	87	100		1				10
61	RG	Hi Mesa Estates Water Co-op	206	88				Y		20
61	RG	Highland Meadows Estates MDWCA	84	80		1				7
61	RG	JC Mobile Home Park	29	80		1				3
61	RG	Loma Escondida Water Assn.	89	100		1				10
61	RG	Los Lunas Water System	18,883	159		4		Y		3,355
61	RG	Meadow Lake Water System	2,656	65				Y		194
61	RG	Mesa Estates Community Water Assn.	88	41				Y		4
61	RG	Monterey Water Company, Inc.	1,208	71				Y		96
61	RG	Mountain View Mobile Home Park	111	100		1				12
61	RG	Rio Del Oro Water System	5,249	157				Y		923
61	RG	Santa Socorro Trailer Park	41	100		1				5
61	RG	Trails End Mobile Home Park	85	60		5				6
61	RG	Trinity Mobile Home Park	50	49				Y		3
61	RG	Self-Supplied Domestic	33,248	100						3,724
		County Totals	76,205						0	10,273
		State Totals	**2,117,522**						**70,333**	**259,621**

Key: CN = county number; RVB = river basin; POP = population; GPCD = gallons per capita per day; WEC = water exchange code; WWC = water withdrawal code; MSW = measured surface water (Y = yes); MGW = measured groundwater (Y = yes); WSW = withdrawal surface water; WGW = withdrawal groundwater. [1]Water Supplier serves more than one county or riverbasin.

Table 8. Irrigated Agriculture in New Mexico counties, 2020. CIR in feet and withdrawals in acre-feet.

County	RVB	Locale	T	CIR	ASWO	AGWO	ASWC	AGWC	TAI	EF	TFWSW	EC	TPWSW	TPWGW
Bernalillo	RG	MRGCD[1]	F	2.68	3,526	0	1,523	508	5,557	0.50	27,064	0.68	39,564	2,722
			County Totals		**3,526**	**0**	**1,523**	**508**	**5,557**		**27,064**		**39,564**	**2,722**
Catron	LC	Apache/Aragon - SFR	S	2.02	0	44	0	0	44	0.50	0	--	0	176
Catron	LC	Glenwood - SFR[1]	F	2.58	613	0	0	0	613	0.55	2,575	--	10,118	0
Catron	LC	Glenwood - SFR	S	2.58	0	65	0	0	65	0.55	0	--	0	304
Catron	LC	Luna - SFR[1]	F	1.71	114	0	0	0	114	0.40	416	--	1,942	0
Catron	LC	Reserve - SFR[1]	F	2.03	260	0	0	0	260	0.50	666	--	4,752	0
Catron	LC	Reserve - SFR	S	2.03	0	40	0	0	40	0.50	0	--	0	163
			County Totals		**987**	**149**	**0**	**0**	**1,136**		**3,657**		**16,813**	**642**
Chaves	P	RAB and Pecos Pumpers[1]	F	3.19	124	4,758	315	472	5,669	0.60	2,335	0.75	3,113	24,316
Chaves	P	RAB and Pecos Pumpers[1]	S	2.87	1,223	46,956	3,108	4,663	55,950	0.70	17,757	0.75	23,676	184,941
Chaves	P	Rio Hondo	F	2.66	377	0	0	0	377	0.55	1,822	0.70	2,603	0
Chaves	P	Rio Peñasco	F	2.86	11	17	266	66	360	0.55	1,437	0.70	2,054	431
			County Totals		**1,735**	**51,730**	**3,689**	**5,201**	**62,356**		**23,352**		**31,446**	**209,688**
Cibola	RG	Rio San Jose	F	1.89	385	84	128	55	652	0.55	1,762	0.70	2,517	476
			County Totals		**385**	**84**	**128**	**55**	**652**		**1,762**		**2,517**	**476**
Colfax	AWR	Canadian River	F	1.62	3,830	0	0	0	3,830	0.55	11,316	0.60	18,860	0
Colfax	AWR	Canadian River	S	1.54	100	0	0	0	100	0.65	237	0.60	395	0
Colfax	AWR	Capulin	F	1.35	0	50	0	0	50	0.55	0	--	0	123
Colfax	AWR	Cimarron River[1]	F	1.69	5,220	0	0	0	5,220	0.55	6,223	0.60	10,371	0
Colfax	AWR	Cimarron River[1]	S	1.32	2,740	0	0	0	2,740	0.65	2,159	0.60	3,598	0
Colfax	AWR	Dry Cimarron River	F	1.97	595	0	0	0	595	0.55	2,135	0.70	3,050	0
Colfax	AWR	Dry Cimarron River	S	1.77	0	496	0	0	496	0.55	0	--	0	1,596
Colfax	AWR	Vermejo CD	F	1.58	4,090	0	0	0	4,090	0.55	11,748	0.84	13,986	0
Colfax	AWR	Vermejo CD	S	1.54	1,100	0	0	0	1,100	0.55	3,080	0.84	3,667	0
			County Totals		**17,675**	**546**	**0**	**0**	**18,221**		**36,897**		**53,926**	**1,719**
Curry	AWR	AWR Basin Scattered	S	1.26	0	4,375	0	0	4,375	0.75	0	--	0	7,350
Curry	P	Pecos Basin Scattered	S	1.39	0	960	0	0	960	0.75	0	--	0	1,777
Curry	TG	Texas Gulf Basin Scattered	F	2.32	0	81	0	0	81	0.65	0	--	0	290
Curry	TG	Texas Gulf Basin Scattered	S	1.21	0	110,751	0	0	110,751	0.75	0	--	0	178,870
			County Totals		**0**	**116,167**	**0**	**0**	**116,167**		**0**		**0**	**188,286**
De Baca	P	Ft. Sumner ID[1]	F	2.62	5,773	0	0	0	5,773	0.55	27,537	0.70	42,542	0
De Baca	P	Pecos Basin Scattered	S	2.01	0	3,351	0	0	3,351	0.65	0	--	0	10,343
			County Totals		**5,773**	**3,351**	**0**	**0**	**9,124**		**27,537**		**42,542**	**10,343**

Key: RVB = river basin; T = type of irrigation system, drip (D), flood (F), or sprinkler (S); CIR = consumptive irrigation requirement; ASWO = acres irrigated with surface water only; AGWO = acres irrigated with groundwater only; ASWC = surface water component of acres irrigated with combined water; AGWC = groundwater component of acres irrigated with combined water; TAI = total acres irrigated; EF = on-farm irrigation efficiency; TFWSW = total farm withdrawal, surface water; EC = off-farm conveyence efficiency; TPWSW = total project withdrawal, surface water; TPWGW = total project withdrawal, groundwater. [1] = some or all withdrawal amounts metered rather than calculated. [2] = shortage supply factor applied.

Table 8. Irrigated Agriculture in New Mexico counties, 2020. CIR in feet and withdrawals in acre-feet.

County	RVB	Locale	T	CIR	ASWO	AGWO	ASWC	AGWC	TAI	EF	TFWSW	EC	TPWSW	TPWGW
Dona Ana	RG	Hueco GW Basin	D	3.60	0	186	0	0	186	0.85	0	--	0	787
Dona Ana	RG	Inside EBID[1]	F	2.85	960	0	19,875	49,691	70,526	0.60	88,425	0.46	191,447	210,894
Dona Ana	RG	Nutt-Hockett	F	3.79	0	246	0	0	246	0.60	0	--	0	1,553
Dona Ana	RG	Outside EBID	F	1.57	0	197	0	0	197	0.60	0	--	0	516
Dona Ana	RG	Outside EBID	S	4.04	0	378	0	0	378	0.65	0	--	0	2,348
Dona Ana	RG	Santa Teresa Sod	S	3.24	0	515	0	0	515	0.65	0	--	0	2,563
			County Totals		**960**	**1,522**	**19,875**	**49,691**	**72,048**		**88,425**		**191,447**	**218,660**
Eddy	P	Black River	F	3.51	70	0	0	0	70	0.55	447	0.80	559	0
Eddy	P	Carlsbad Basin	F	3.04	180	165	0	0	345	0.55	994	0.80	1,242	911
Eddy	P	Carlsbad ID[1]	F	3.28	1,892	0	7,051	4,000	12,944	0.60	48,930	0.74	67,813	21,884
Eddy	P	Rio Peñasco	S	2.46	0	427	0	0	427	0.65	0	--	0	1,617
Eddy	P	Roswell Artesian Basin[1]	F	2.95	0	16,353	0	0	16,353	0.60	0	--	0	70,377
Eddy	P	Roswell Artesian Basin[1]	S	2.58	0	6,277	0	0	6,277	0.70	0	--	0	20,239
			County Totals		**2,142**	**23,222**	**7,051**	**4,000**	**36,416**		**50,371**		**69,614**	**115,028**
Grant	LC	Gila River - Cliff Gila[1]	F	1.98	1,615	0	0	0	1,615	0.55	5,743	--	25,938	0
Grant	LC	Gila River - Cliff Gila	S	1.98	0	157	0	0	157	0.55	0	--	0	564
Grant	LC	Gila River - Redrock[1]	F	2.92	116	0	0	0	116	0.59	208	--	482	0
Grant	LC	Gila River - Redrock	S	2.92	0	13	0	0	13	0.59	0	--	0	63
Grant	LC	Gila River - Upper Gila[1]	F	1.70	48	0	0	0	48	0.45	182	--	1,488	0
Grant	LC	Gila River - Upper Gila	S	1.70	0	13	0	0	13	0.45	0	--	0	50
Grant	LC	Lordsburg Valley	F	2.75	0	173	0	0	173	0.55	0	--	0	863
Grant	LC	Lordsburg Valley	S	3.03	0	449	0	0	449	0.65	0	--	0	2,092
Grant	RG	Mimbres River	F	2.12	80	180	84	56	399	0.55	630	0.65	969	906
			County Totals		**1,859**	**985**	**84**	**56**	**2,983**		**6,763**		**28,878**	**4,540**
Guadalupe	P	Anton Chico	F	2.26	1,918	0	0	0	1,918	0.55	7,864	0.60	13,106	0
Guadalupe	P	Colonias	F	2.60	8	0	0	0	8	0.55	38	0.60	63	0
Guadalupe	P	Puerto de Luna[1]	F	2.90	374	0	0	0	374	0.55	1,973	0.60	6,868	0
Guadalupe	P	Puerto de Luna[1]	S	2.93	39	0	0	0	39	0.65	176	0.60	612	0
			County Totals		**2,339**	**0**	**0**	**0**	**2,339**		**10,050**		**20,649**	**0**
Harding	AWR	Ute Creek	S	1.45	0	2,469	0	0	2,469	0.65	0	--	0	5,503
			County Totals		**0**	**2,469**	**0**	**0**	**2,469**		**0**		**0**	**5,503**
Hidalgo	LC	Animas Valley	F	2.57	0	2,003	0	0	2,003	0.55	0	--	0	9,353
Hidalgo	LC	Animas Valley	S	2.81	0	3,878	0	0	3,878	0.65	0	--	0	16,779
Hidalgo	LC	Gila River - Virden Valley	D	2.48	0	315	0	0	315	0.55	0	--	0	1,418

Key: RVB = river basin; T = type of irrigation system, drip (D), flood (F), or sprinkler (S); CIR = consumptive irrigation requirement; ASWO = acres irrigated with surface water only; AGWO = acres irrigated with groundwater only; ASWC = surface water component of acres irrigated with combined water; AGWC = groundwater component of acres irrigated with combined water; TAI = total acres irrigated; EF = on-farm irrigation efficiency; TFWSW = total farm withdrawal, surface water; EC = off-farm conveyence efficiency; TPWSW = total project withdrawal, surface water; TPWGW = total project withdrawal, groundwater. [1] = some or all withdrawal amounts metered rather than calculated. [2] = shortage supply factor applied.

Table 8. Irrigated Agriculture in New Mexico counties, 2020. CIR in feet and withdrawals in acre-feet.

County	RVB	Locale	T	CIR	ASWO	AGWO	ASWC	AGWC	TAI	EF	TFWSW	EC	TPWSW	TPWGW
Hidalgo	LC	Gila River - Virden Valley	F	2.37	1,590	0	0	0	1,590	0.55	6,850	0.70	9,785	0
Hidalgo	LC	Gila River - Virden Valley	S	2.65	0	209	0	0	209	0.55	0	--	0	1,007
Hidalgo	LC	Lordsburg Valley	F	4.51	0	1,487	0	0	1,487	0.55	0	--	0	12,193
Hidalgo	LC	Lordsburg Valley	S	4.28	0	1,069	0	0	1,069	0.65	0	--	0	7,044
Hidalgo	LC	San Simon[1]	F	3.05	0	58	0	0	58	--	0	--	0	321
Hidalgo	LC	San Simon[1]	S	3.05	0	566	0	0	566	--	0	--	0	3,133
Hidalgo	RG	Playas	S	1.92	0	5,427	0	0	5,427	0.65	0	--	0	16,038
			County Totals		**1,590**	**15,012**	**0**	**0**	**16,602**		**6,850**		**9,785**	**67,287**
Lea	P	Pecos Basin Scattered	S	2.91	0	183	0	0	183	0.70	0	--	0	760
Lea	TG	Texas Gulf Basin Scattered	S	2.18	0	69,242	0	0	69,242	0.70	0	--	0	215,944
			County Totals		**0**	**69,425**	**0**	**0**	**69,425**		**0**		**0**	216,704
Lincoln	P	Rio Hondo	F	2.67	720	349	584	250	1,904	0.51	6,818	0.70	9,739	3,135
Lincoln	P	Rio Hondo	S	2.70	0	200	0	0	200	0.65	0	--	0	829
			County Totals		**720**	**549**	**584**	**250**	**2,104**		**6,818**		**9,739**	**3,964**
Luna	RG	Mimbres Basin	D	2.49	0	10,167	0	0	10,167	0.85	0	--	0	29,796
Luna	RG	Mimbres Basin	F	2.23	22	4,005	66	66	4,159	0.55	358	0.65	551	16,517
Luna	RG	Mimbres Basin	S	3.09	0	2,634	0	0	2,634	0.65	0	--	0	12,538
Luna	RG	Mimbres River	F	2.50	11	2,054	34	34	2,133	0.55	206	0.65	317	9,498
Luna	RG	Mimbres River	S	1.92	0	312	0	0	312	0.65	0	--	0	924
Luna	RG	Nutt-Hockett	D	2.73	0	5,539	0	0	5,539	0.85	0	--	0	17,804
Luna	RG	Nutt-Hockett	F	2.72	0	1,022	0	0	1,022	0.60	0	--	0	4,631
Luna	RG	Nutt-Hockett	S	3.36	0	1,430	0	0	1,430	0.65	0	--	0	7,389
			County Totals		**33**	**27,162**	**100**	**100**	**27,396**		**564**		**868**	**99,097**
McKinley	LC	Lower Colorado Basin Scattered	F	1.95	19	0	0	0	19	0.55	67	0.70	96	0
McKinley	RG	Rio Grande Basin Scattered	S	1.69	0	47	0	0	47	0.65	0	--	0	122
			County Totals		**19**	**47**	**0**	**0**	**66**		**67**		**96**	**122**
Mora	AWR	Canadian River	F	1.34	7,680	0	0	0	7,680	0.55	18,733	0.70	26,761	0
Mora	AWR	Canadian River	S	1.12	1,676	0	0	0	1,676	0.65	2,899	0.70	4,141	0
			County Totals		**9,356**	**0**	**0**	**0**	**9,356**		**21,632**		**30,902**	**0**
Otero	P	Rio Peñasco	F	1.91	373	0	0	0	373	0.55	1,295	0.70	1,850	0
Otero	RG	Salt Basin	S	2.23	0	1,334	0	0	1,334	0.65	0	--	0	4,575
Otero	RG	Tularosa GW Basin	D	1.95	0	60	0	0	60	0.85	0	--	0	138
Otero	RG	Tularosa GW Basin	F	2.96	588	0	1,305	407	2,300	0.60	9,328	0.70	13,326	2,003
Otero	RG	Tularosa GW Basin	S	2.87	0	587	0	0	587	0.65	0	--	0	2,589
			County Totals		**961**	**1,981**	**1,305**	**407**	**4,654**		**10,623**		**15,175**	**9,304**

Key: RVB = river basin; T = type of irrigation system, drip (D), flood (F), or sprinkler (S); CIR = consumptive irrigation requirement; ASWO = acres irrigated with surface water only; AGWO = acres irrigated with groundwater only; ASWC = surface water component of acres irrigated with combined water; AGWC = groundwater component of acres irrigated with combined water; TAI = total acres irrigated; EF = on-farm irrigation efficiency; TFWSW = total farm withdrawal, surface water; EC = off-farm conveyence efficiency; TPWSW = total project withdrawal, surface water; TPWGW = total project withdrawal, groundwater. [1] = some or all withdrawal amounts metered rather than calculated. [2] = shortage supply factor applied.

Table 8. Irrigated Agriculture in New Mexico counties, 2020. CIR in feet and withdrawals in acre-feet.

County	RVB	Locale	T	CIR	ASWO	AGWO	ASWC	AGWC	TAI	EF	TFWSW	EC	TPWSW	TPWGW
Quay	AWR	Arch Hurley CD	F	1.74	6,361	0	0	0	6,361	0.60	18,458	0.40	46,145	0
Quay	AWR	Arch Hurley CD	S	1.59	2,980	0	0	0	2,980	0.65	7,281	0.40	18,204	0
Quay	AWR	Canadian River	F	1.57	0	680	0	0	680	0.60	0	--	0	1,774
Quay	AWR	Canadian River	S	1.76	0	7,150	0	0	7,150	0.65	0	--	0	19,376
Quay	P	House and Vicinity	S	1.45	0	3,050	0	0	3,050	0.65	0	--	0	6,784
			County Totals		**9,341**	**10,880**	**0**	**0**	**20,221**		**25,740**		**64,349**	**27,934**
Rio Arriba	RG	Rio Chama	F	1.43	19,378	409	172	57	20,016	0.50	55,788	0.60	92,979	1,329
Rio Arriba	RG	Santa Cruz and Vicinity	F	1.99	1,052	0	0	0	1,052	0.55	3,809	0.70	5,442	0
Rio Arriba	RG	Truchas and Vicinity	F	2.28	875	0	0	0	875	0.40	4,982	0.70	7,117	0
Rio Arriba	RG	Velarde and Vicinity	F	2.01	1,411	0	0	0	1,411	0.50	5,670	0.70	8,100	0
Rio Arriba	UC	Navajo River	F	1.45	206	0	0	0	206	0.50	596	0.70	852	0
Rio Arriba	UC	Navajo River	S	1.54	52	0	0	0	52	0.65	124	0.70	176	0
			County Totals		**22,974**	**409**	**172**	**57**	**23,612**		**70,968**		**114,666**	**1,329**
Roosevelt	P	Pecos Basin Scattered	S	1.85	0	402	0	0	402	0.70	0	--	0	1,062
Roosevelt	TG	Causey Lingo Basin	S	1.47	0	10,272	0	0	10,272	0.70	0	--	0	21,583
Roosevelt	TG	Portales Basin	S	1.55	0	45,025	0	0	45,025	0.70	0	--	0	99,392
			County Totals		**0**	**55,699**	**0**	**0**	**55,699**		**0**		**0**	122,036
Sandoval	RG	Jemez River	F	2.64	436	0	0	0	436	0.50	2,298	0.70	3,282	0
Sandoval	RG	MRGCD[1]	F	2.67	4,580	0	421	140	5,142	0.50	26,709	0.68	39,045	750
Sandoval	RG	Rio Puerco	F	2.05	1,268	0	0	0	1,268	0.50	5,186	0.70	7,409	0
			County Totals		**6,284**	**0**	**421**	**140**	**6,846**		**34,193**		**49,737**	**750**
San Juan	UC	Animas River	F	2.34	3,327	0	0	0	3,327	0.55	14,155	0.70	20,221	0
San Juan	UC	Animas River	S	2.34	1,243	0	0	0	1,243	0.65	4,475	0.70	6,393	0
San Juan	UC	Chaco River[2]	F	2.22	457	0	0	0	457	0.45	450	0.70	643	0
San Juan	UC	Hammond ID	F	2.47	131	0	0	0	131	0.55	587	0.72	815	0
San Juan	UC	Hammond ID	S	2.47	2,840	0	0	0	2,840	0.65	10,793	0.72	14,990	0
San Juan	UC	La Plata River[2]	F	2.36	1,281	0	0	0	1,281	0.55	2,195	0.70	3,135	0
San Juan	UC	La Plata River[2]	S	2.36	315	0	0	0	315	0.65	457	0.70	653	0
San Juan	UC	NIIP[1]	S	2.64	66,301	0	0	0	66,301	0.88	200,436	0.87	231,683	0
San Juan	UC	Pine River	F	2.43	345	0	0	0	345	0.55	1,525	0.75	2,033	0
San Juan	UC	Pine River	S	2.43	61	0	0	0	61	0.65	228	0.75	304	0
San Juan	UC	San Juan River	D	2.46	266	0	0	0	266	0.85	772	0.70	1,102	0
San Juan	UC	San Juan River	F	2.46	6,257	0	0	0	6,257	0.55	28,006	0.70	40,008	0
San Juan	UC	San Juan River	S	2.46	1,550	0	0	0	1,550	0.65	5,872	0.70	8,388	0
			County Totals		**84,374**	**0**	**0**	**0**	**84,374**		**269,949**		**330,370**	**0**

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Table 8. Irrigated Agriculture in New Mexico counties, 2020. CIR in feet and withdrawals in acre-feet.

County	RVB	Locale	T	CIR	ASWO	AGWO	ASWC	AGWC	TAI	EF	TFWSW	EC	TPWSW	TPWGW
San Miguel	AWR	Canadian River	S	1.97	668	0	0	0	668	0.65	2,023	0.70	2,890	0
San Miguel	AWR	Sapello Creek	F	1.74	2,324	0	0	0	2,324	0.45	8,963	0.70	12,804	0
San Miguel	P	Pecos Basin Scattered	F	1.88	2,516	0	0	0	2,516	0.50	9,468	0.60	15,780	0
San Miguel	P	Storrie Irrigation Project	F	1.65	333	0	0	0	333	0.50	1,101	0.60	1,834	0
San Miguel	P	Storrie Irrigation Project	S	1.49	714	0	0	0	714	0.65	1,632	0.60	2,720	0
			County Totals		**6,555**	**0**	**0**	**0**	**6,555**		**23,186**		**36,028**	**0**
Santa Fe	RG	Estancia GW Basin	S	1.44	0	7,499	0	0	7,499	0.65	0	--	0	16,661
Santa Fe	RG	Pojoaque Valley ID	F	2.02	495	0	54	23	572	0.55	2,014	0.75	2,685	84
Santa Fe	RG	Santa Cruz and Vicinity	F	1.99	412	0	0	0	412	0.55	1,488	0.70	2,126	0
Santa Fe	RG	Santa Fe and Vicinity	F	1.86	169	0	39	39	247	0.50	772	0.70	1,104	144
Santa Fe	RG	Santa Fe and Vicinity	S	1.90	0	68	0	0	68	0.65	0	--	0	199
			County Totals		**1,077**	**7,567**	**92**	**62**	**8,798**		**4,274**		**5,914**	**17,088**
Sierra	RG	Above EBID	F	3.18	131	89	65	22	307	0.60	1,040	0.70	1,485	589
Sierra	RG	Inside EBID[1]	F	2.25	0	0	918	2,190	3,108	0.60	3,076	0.46	6,661	7,337
Sierra	RG	Lake Valley and Vicinity	F	1.61	0	749	0	0	749	0.55	0	--	0	2,189
Sierra	RG	Las Animas Creek and Vicinity	F	3.39	0	28	42	14	84	0.55	259	0.70	370	259
Sierra	RG	Nutt-Hockett	F	2.74	0	94	0	0	94	0.60	0	--	0	430
Sierra	RG	T or C and Vicinity	F	1.31	0	113	174	58	345	0.60	380	0.70	542	373
			County Totals		**131**	**1,073**	**1,199**	**2,284**	**4,687**		**4,755**		**9,058**	**11,177**
Socorro	RG	Bosque del Apache	F	2.66	1,024	0	0	0	1,024	0.55	4,959	0.70	7,084	0
Socorro	RG	La Joya	F	2.82	8	11	276	184	479	0.55	1,456	0.70	2,080	999
Socorro	RG	MRGCD[1]	F	2.58	2,996	0	7,730	5,153	15,879	0.50	55,345	0.68	80,908	26,590
Socorro	RG	San Agustin Plains	S	1.55	0	504	0	0	504	0.65	0	--	0	1,200
			County Totals		**4,028**	**515**	**8,006**	**5,337**	**17,886**		**61,760**		**90,072**	**28,789**
Taos	RG	Cerro and Questa	F	1.32	2,297	0	0	0	2,297	0.50	6,053	0.60	10,089	0
Taos	RG	Cerro and Questa	S	1.31	0	1,705	0	0	1,705	0.65	0	--	0	3,443
Taos	RG	Embudo and Vicinity	F	1.94	3,638	0	0	0	3,638	0.50	14,145	0.70	20,207	0
Taos	RG	Pilar and Vicinity	F	2.04	35	0	0	0	35	0.50	143	0.70	204	0
Taos	RG	Rio Costilla	F	1.32	927	0	0	0	927	0.50	2,451	0.60	4,085	0
Taos	RG	Rio Costilla	S	1.31	0	235	0	0	235	0.65	0	--	0	475
Taos	RG	Taos and Vicinity	F	1.50	7,184	0	0	0	7,184	0.50	21,556	0.70	30,794	0
			County Totals		**14,081**	**1,940**	**0**	**0**	**16,021**		**44,348**		**65,380**	**3,917**
Torrance	RG	Estancia GW Basin	S	1.25	0	17,114	0	0	17,114	0.65	0	--	0	32,981
			County Totals		**0**	**17,114**	**0**	**0**	**17,114**		**0**		**0**	**32,981**

Key: RVB = river basin; T = type of irrigation system, drip (D), flood (F), or sprinkler (S); CIR = consumptive irrigation requirement; ASWO = acres irrigated with surface water only; AGWO = acres irrigated with groundwater only; ASWC = surface water component of acres irrigated with combined water; AGWC = groundwater component of acres irrigated with combined water; TAI = total acres irrigated; EF = on-farm irrigation efficiency; TFWSW = total farm withdrawal, surface water; EC = off-farm conveyence efficiency; TPWSW = total project withdrawal, surface water; TPWGW = total project withdrawal, groundwater. [1] = some or all withdrawal amounts metered rather than calculated. [2] = shortage supply factor applied.

Table 8. Irrigated Agriculture in New Mexico counties, 2020. CIR in feet and withdrawals in acre-feet.

County	RVB	Locale	T	CIR	ASWO	AGWO	ASWC	AGWC	TAI	EF	TFWSW	EC	TPWSW	TPWGW
Union	AWR	Clayton and Scattered	S	1.27	0	30,791	0	0	30,791	0.65	0	--	0	60,229
Union	AWR	Dry Cimarron River	S	1.55	0	628	0	0	628	0.65	0	--	0	1,496
Union	AWR	Tramperos Creek	S	1.34	0	13,848	0	0	13,848	0.65	0	--	0	28,446
			County Totals		**0**	**45,267**	**0**	**0**	**45,267**		**0**		**0**	**90,171**
Valencia	RG	MRGCD[1]	F	2.58	13,271	0	5,011	1,670	19,952	0.50	94,333	0.68	137,904	8,619
Valencia	RG	Rio Grande Basin Scattered	S	2.76	0	89	0	0	89	0.65	0	--	0	378
			County Totals		**13,271**	**89**	**5,011**	**1,670**	**20,041**		**94,333**		**137,904**	**8,997**
			State Totals		**212,177**	**454,954**	**49,242**	**69,819**	**786,192**		**955,937**		**1,467,442**	**1,499,256**

Key: RVB = river basin; T = type of irrigation system, drip (D), flood (F), or sprinkler (S); CIR = consumptive irrigation requirement; ASWO = acres irrigated with surface water only; AGWO = acres irrigated with groundwater only; ASWC = surface water component of acres irrigated with combined water; AGWC = groundwater component of acres irrigated with combined water; TAI = total acres irrigated; EF = on-farm irrigation efficiency; TFWSW = total farm withdrawal, surface water; EC = off-farm conveyence efficiency; TPWSW = total project withdrawal, surface water; TPWGW = total project withdrawal, groundwater. [1] = some or all withdrawal amounts metered rather than calculated. [2] = shortage supply factor applied.

Table 9. Acres irrigated by water source and by irrigation method, withdrawals by water source in acre-feet, in New Mexico counties, 2020.

County	ASWO	AGWO	ACW	TDA	TFA	TSA	TAI	TPWSW	TPWGW	TPW
Bernalillo	3,526	0	2,031	0	5,557	0	5,557	39,564	2,722	42,286
Catron	987	149	0	0	987	149	1,136	16,813	642	17,455
Chaves	1,735	51,730	8,891	0	6,406	55,950	62,356	31,446	209,688	241,134
Cibola	385	84	183	0	652	0	652	2,517	476	2,994
Colfax	17,675	546	0	0	13,785	4,436	18,221	53,926	1,719	55,645
Curry	0	116,167	0	0	81	116,086	116,167	0	188,286	188,286
De Baca	5,773	3,351	0	0	5,773	3,351	9,124	42,542	10,343	52,885
Dona Ana	960	1,522	69,566	186	70,969	893	72,048	191,447	218,660	410,108
Eddy	2,142	23,222	11,052	0	29,712	6,704	36,416	69,614	115,028	184,642
Grant	1,859	985	140	0	2,351	632	2,983	28,878	4,540	33,418
Guadalupe	2,339	0	0	0	2,300	39	2,339	20,649	0	20,649
Harding	0	2,469	0	0	0	2,469	2,469	0	5,503	5,503
Hidalgo	1,590	15,012	0	315	5,138	11,149	16,602	9,785	67,287	77,072
Lea	0	69,425	0	0	0	69,425	69,425	0	216,704	216,704
Lincoln	720	549	835	0	1,904	200	2,104	9,739	3,964	13,703
Los Alamos	0	0	0	0	0	0	0	0	0	0
Luna	33	27,162	200	15,706	7,314	4,376	27,396	868	99,097	99,965
McKinley	19	47	0	0	19	47	66	96	122	219
Mora	9,356	0	0	0	7,680	1,676	9,356	30,902	0	30,902
Otero	961	1,981	1,712	60	2,673	1,921	4,654	15,175	9,304	24,480
Quay	9,341	10,880	0	0	7,041	13,180	20,221	64,349	27,934	92,282
Rio Arriba	22,974	409	229	0	23,560	52	23,612	114,666	1,329	115,996
Roosevelt	0	55,699	0	0	0	55,699	55,699	0	122,036	122,036
Sandoval	6,284	0	562	0	6,846	0	6,846	49,737	750	50,486
San Juan	84,374	0	0	266	11,798	72,310	84,374	330,370	0	330,370
San Miguel	6,555	0	0	0	5,173	1,382	6,555	36,028	0	36,028
Santa Fe	1,077	7,567	154	0	1,231	7,567	8,798	5,914	17,088	23,003
Sierra	131	1,073	3,483	0	4,687	0	4,687	9,058	11,177	20,235
Socorro	4,028	515	13,343	0	17,382	504	17,886	90,072	28,789	118,861
Taos	14,081	1,940	0	0	14,081	1,940	16,021	65,380	3,917	69,297
Torrance	0	17,114	0	0	0	17,114	17,114	0	32,981	32,981
Union	0	45,267	0	0	0	45,267	45,267	0	90,171	90,171
Valencia	13,271	89	6,681	0	19,952	89	20,041	137,904	8,997	146,901
State Totals	**212,177**	**454,954**	**119,061**	**16,533**	**275,052**	**494,607**	**786,192**	**1,467,442**	**1,499,256**	**2,966,697**

Key: ASWO = acres irrigated with surface water only; AGWO = acres irrigated with groundwater only; ACW = acres irrigated with combined surface water and groundwater; TDA = total drip irrigated acres; TFA = total flood irrigated acres; TSA = total sprinkler irrigated acres; TAI = total acres irrigated; TPWSW = total project withdrawal, surface water; TPWGW = total project withdrawal, groundwater; TPW = total project withdrawal.

Table 10. Acres irrigated by water source and by irrigation method, withdrawals by water source in acre-feet, in New Mexico river basins, 2020.

RVB	ASWO	AGWO	ACW	TDA	TFA	TSA	TAI	TPWSW	TPWGW	TPW
AWR	39,364	60,487	0	0	30,830	69,021	99,851	164,871	125,891	290,762
LC	4,375	10,539	0	315	8,096	6,503	14,914	54,603	55,525	110,128
P	16,646	83,447	20,777	0	49,317	71,553	120,870	196,175	349,406	545,581
RG	67,161	65,110	98,284	15,952	174,724	39,878	230,554	720,394	452,355	1,172,750
TG	0	235,371	0	0	81	235,290	235,371	0	516,078	516,078
UC	84,632	0	0	266	12,004	72,362	84,632	331,398	0	331,398
State Totals	**212,177**	**454,954**	**119,061**	**16,533**	**275,052**	**494,607**	**786,192**	**1,467,442**	**1,499,256**	**2,966,697**

Key: RVB = river basin; ASWO = acres irrigated with surface water only; AGWO = acres irrigated with groundwater only; ACW = acres irrigated with combined surface water and groundwater; TDA = total drip irrigated acres; TFA = total flood irrigated acres; TSA = total sprinkler irrigated acres; TAI = total acres irrigated; TPWSW = total project withdrawal, surface water; TPWGW = total project withdrawal, groundwater; TPW = total project withdrawal.

7.3 APPENDIX C: GLOSSARY

Acre-foot (AF)

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 one acre-foot of water.

Aquifer

A saturated underground formation of permeable rock or unconsolidated materials, such as gravel, silt, or clay, capable of storing water and transmitting it to wells, springs, or streams.

Combined water

The combination of groundwater and surface water used on-site for the same purpose, such as crop irrigation.

Consumptive irrigation requirement (CIR)

The quantity of irrigation water expressed as a depth or volume per unit area, 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 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 the consumptive use.

Consumptive use (U, u_m) 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.

Crop distribution ratio (CDR)

A ratio computed by dividing the acreage planted in a specific crop by the total acreage for all crops included in the cropping pattern.

Cropping pattern

The distribution of individual crop types within the total irrigated acreage.

Diversion

The quantity of calculated, metered, or estimated water taken from a surface water or groundwater source.

(See withdrawal)

Drip irrigation

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(s). This may also be referred to as trickle irrigation.

Effective rainfall (R_e, r_e)

Rainfall that occurs during the growing period of a crop that becomes available to meet its consumptive irrigation requirements. It does not include rain that is intercepted by the plant canopy, 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 that 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.

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.

Gallons per capita per day (GPCD)

The average quantity (gallons) of water used per person, or per head of livestock, per day.

Groundwater

Water stored in the zone of saturation of an aquifer.

Idle and fallow

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

Instream use

Water use that occurs within a stream channel. Instream use is not dependent on withdrawal or diversion from groundwater or surface water sources; it is usually classified as a flow use. Examples of flow uses that depend on water running freely in a channel are hydroelectric power generation, recreation, fish propagation, and water quality improvement.

Irrigable acreage

The sum of irrigated crop acreage and idle and fallow acreage. Such acreage is developed for farming and irrigation works to apply water to the land. It does not include farmstead, feedlots, road areas, ditches, and the like.

Irrigated acreage (net)

Includes agricultural land to which water was artificially applied by controlled means during the calendar year. It includes pre-plant, partial, supplemental, and semi-irrigation applications. Land flooded during high water periods is included as irrigation only if the water was diverted to agricultural land by dams, canals, or other works. It is equal to the sum of all irrigated crop acreage 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 from an off-farm source 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

A system that conveys diverted water to locations on the farm. On-farm distribution systems may consist of a series of ditches or pipes.

On-farm irrigation efficiency (E_f)

The ratio, expressed as a percentage, of the 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. The on-farm irrigation efficiency reflects the efficiency of the on-farm distribution and application system, and includes deep percolation losses necessary as a beneficial use for leaching excess salts from the root zone. The on-farm irrigation efficiency is used to calculate the farm delivery requirement.

Pre-plant irrigation

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

Project diversion requirement or off-farm diversion requirement (PDR)

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 calculated by dividing the farm delivery requirement by the off-farm conveyance efficiency, expressed as a decimal.

Project or system irrigation efficiency (E_i)

The combined efficiency of the entire irrigation system, from the original diversion point to the crop root zone. It is the product of the on-farm efficiency (E_f) and the off-farm conveyance efficiency (E_c) and is expressed as a percentage. When the irrigation source originates on-farm, such as from a well or spring, the off-farm conveyance efficiency does not apply. In that case, the project or system efficiency is the same as the on-farm irrigation efficiency.

River basin (RVB)

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.

Self-supplied
Water users who withdraw water directly from a groundwater or surface water source for individual use.

Sprinkler irrigation
A method of applying irrigation water (similar to rainfall) to farm crops, golf courses, and residential yards and gardens. On a farm, the water is distributed through a system of pipes, by a pump, and is sprayed through the air. Sprinkler irrigation systems can be divided into periodic move systems that remain at a fixed position while irrigating, and continuous move systems that move in either a circular or straight path while irrigating.

Surface water
Water stored in ponds, lakes, rivers, and streams.

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

Weighted consumptive irrigation requirement (WCIR)
The CIR for a crop multiplied by the crop distribution ratio for that crop. Summing the WCIR for all the crops in a cropping pattern equals a WCIR for that cropping pattern.

Withdrawal
The quantity of calculated, metered, or estimated water taken from a surface water or groundwater source.

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