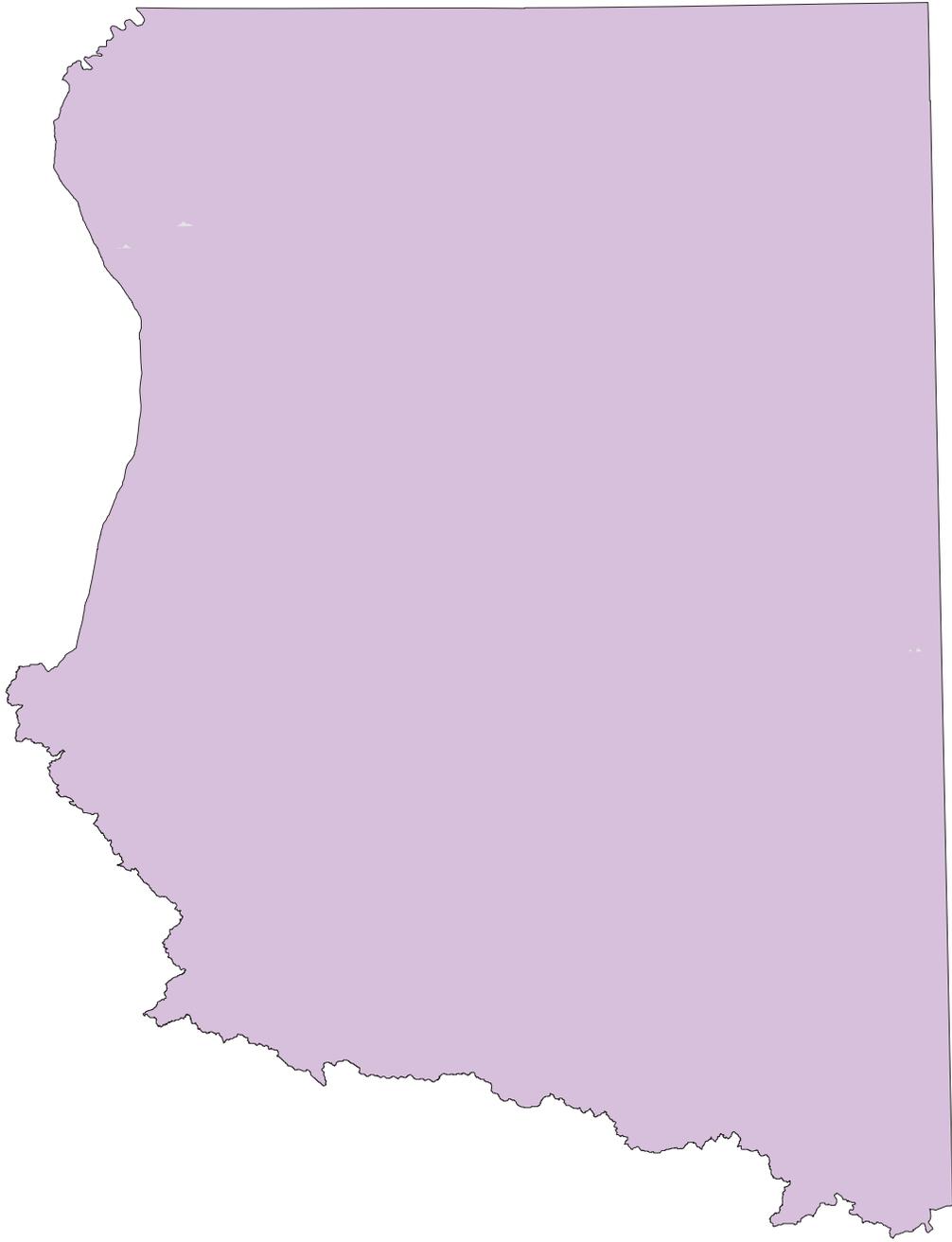


# Section 2.1

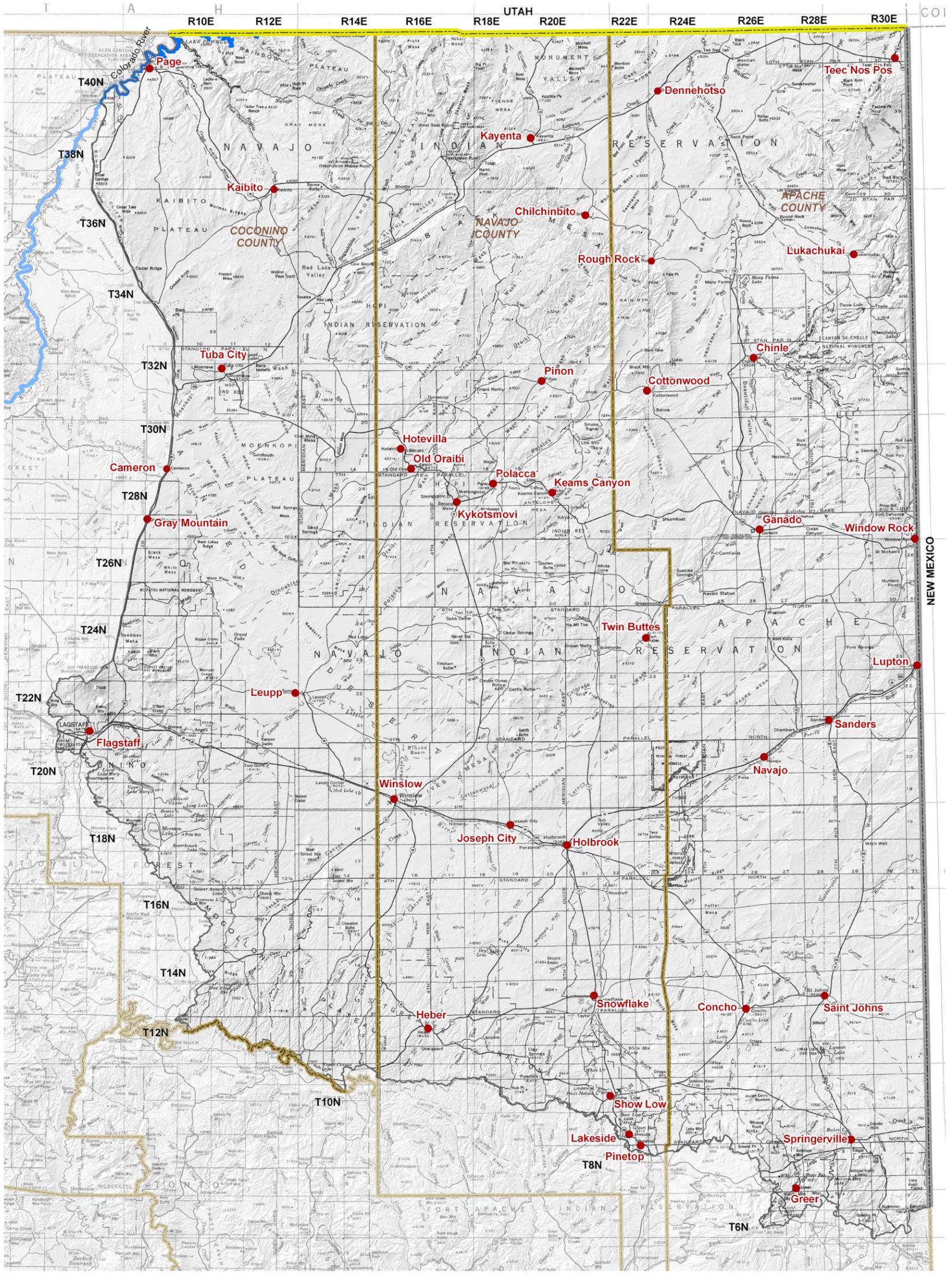
## Little Colorado River Plateau Basin



### 2.1.1 Geography of the Little Colorado River Plateau Basin

The Little Colorado River Plateau Basin, at 26,700 square miles in area, is the largest groundwater basin in the state. Geographic features and principal communities are shown on Figure 2.1-1. Located at the southern end of the Colorado Plateau, it is characterized by relatively high elevation, semi-arid mesas and several high elevation mountain ranges. Elevations generally increase from north to south. Vegetation types are primarily Great Basin conifer woodland, plains and Great Basin grasslands and Great Basin desertscrub. At higher elevations vegetation types include subalpine grassland, Rocky Mountain subalpine conifer forest and Rocky Mountain and madrean montane conifer forests (see Figure 2.0-11). Riparian vegetation is found along streams including: conifer oak, wet meadow, mixed broadleaf, Russian olive and wet meadow along Tsalie Creek, Kinlechee Creek and Canyon de Chelly; tamarisk on Chinle Creek and Silver Creek; and mixed broadleaf, wet meadow and conifer oak on the Little Colorado River east of Springerville.

- Principal geographic features shown on Figure 2.1-1 are:
  - Monument Valley north of Kayenta
  - Kaibito Plateau south of Page
  - Painted Desert, located between Gray Mountain and Winslow
  - Defiance Plateau, running north/south near Window Rock
  - Black Mesa in the vicinity of Chilchinbito
  - Canyon de Chelly, near Chinle
  - First, Second and Third Mesas on the Hopi Reservation
  - Petrified Forest located between Holbrook and Navajo
  - Mogollon Plateau or Mogollon Rim stretching 200 miles from Flagstaff to the White Mountains
  - Lukachukai and Chuska Mountains near Lukachukai
  - Little Colorado River, which flows to the Colorado River from the headwaters near Greer, and exits the basin at Cameron
  - San Francisco Peaks north of Flagstaff with Humphreys Peak, the highest point in Arizona at 12,633 feet
  - White Mountains along the southeastern boundary of the basin, that rise to over 11,000 feet at Mt. Baldy
  - Navajo Mountain, an isolated peak that straddles the Arizona-Utah border east of Page; rising to over 10,400 feet it is a prominent visual feature of the basin
  - The lowest point at 1,300 feet where the Little Colorado River exits the basin



Base Map: USGS 1:500,000, 1981



**COUNTY**  
 New Mexico State Boundary  
 Utah State Boundary  
 City, Town or Place



**Figure 2.1-1**  
**Little Colorado River Plateau Basin**  
**Geographic Features**

## 2.1.2 Land Ownership in the Little Colorado River Plateau Basin

Land ownership, including the percentage of ownership by category is shown in Figure 2.1-2. Principal features of land ownership are the large amount of tribal lands, the continuous band of national forest lands along the southern and southwestern boundary of the basin, and the “checkerboard” pattern of land ownership south of the reservation lands. This distribution of land ownership has implications for land management and water development and use. A description of land ownership data sources and methods is found in Volume 1, Appendix A. More detailed information on National Parks, Monuments and Wilderness Areas is found in Section 2.0.4. Land ownership categories are discussed below in the order of percentage from largest to smallest in the basin.

### Indian Reservations

- 63.9% of the land is under tribal ownership.
- Of the 27,000 square miles of Navajo Nation lands in Arizona, New Mexico and Utah, more than 14,600 square miles are in Arizona.
- The Hopi Reservation encompasses about 2,500 square miles (1.5 million acres) in parts of Navajo and Coconino counties.
- The Hopi Reservation is primarily comprised of three mesas and tribal communities at Lower and Upper Moenkopi east of Tuba City. There are areas north of Joseph City under Hopi and Navajo ownership.
- Other tribal lands include those of the Zuni (about 16 square miles) north of Concho and Fort Apache lands (about 4.5 square miles) southwest of Greer. The Zuni tribal lands in Arizona, “Zuni Heaven”, were formally recognized in 2004. The Zuni also hold large, non-reservation ranch holdings in and around their reservation.
- The Hopi Tribe holds large, non-reservation ranch holdings in the checkerboard lands area including deeded land, state leased property and Forest Service lands.
- The community of Willow Springs is home to a small community of San Juan Southern Paiute through an agreement with the Navajo.
- Primary land uses are grazing, mining and farming.

### Private

- 14.8% of land ownership in the basin is private.
- Private lands are primarily located in areas surrounding non-Indian communities and in the area between Winslow and the New Mexico border south of the Navajo Reservation and north of National Forest lands.
- Private land in-holdings are located within National Forest lands in the Nutrioso area southeast of Springerville and in other areas as shown.
- Primary land uses are domestic, industrial and commercial.

### National Forest

- 10.5% of land is federally owned and managed as National Forest.
- Forest lands are part of the Coconino and Apache-Sitgreaves National Forests.
- Forest lands contain the headwaters of most of the major streams and of the only major river in the basin.
- Primary land uses are grazing, recreation and logging.

### **State Trust Land**

- 8.0% of lands are held in trust for public schools and 13 other beneficiaries under the State Trust Land system.
- There is a large amount of contiguous state land ownership between Springerville and Saint Johns and another contiguous area adjacent to national forest lands southeast of Flagstaff.
- Primary land use is livestock grazing.

### **National Park Service (NPS)**

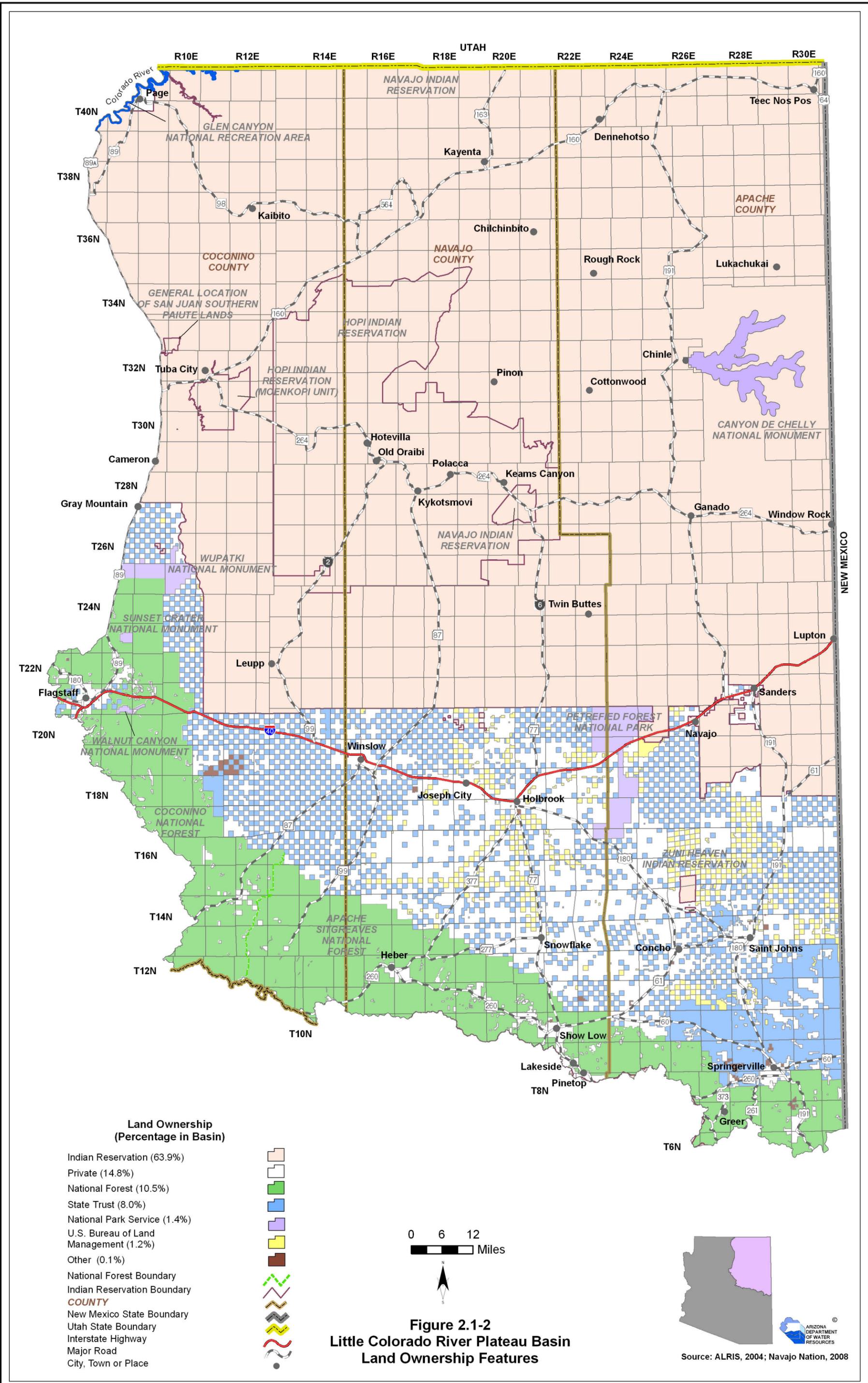
- 1.4% of lands are under federal ownership as parks, monuments and other sites.
- Sites identified on Figure 2.1-2 include a small portion of the Glen Canyon National Recreation Area, Canyon De Chelly National Monument, Wupatki National Monument, Petrified Forest National Park, Sunset Crater National Monument and Walnut Canyon National Monument.
- Primary land use is for recreational purposes.

### **U.S. Bureau of Land Management (BLM)**

- 1.2% of lands are under federal ownership by the Bureau of Land Management.
- All lands are included in the checkerboard pattern of land ownership in Navajo and Apache counties.
- Primary land uses are for livestock grazing.

### **Other (Arizona Game and Fish, County and Bureau of Reclamation Lands)**

- 0.1% is held by other landowners.
- These lands are located in the vicinity of Springerville, southeast of Flagstaff and there are a few sections scattered in the checkerboard lands.
- Primary land uses on Arizona Game and Fish lands is for wildlife conservation.



### 2.1.3 Climate of the Little Colorado River Plateau Basin

Climate data from NOAA/NWS Co-op Network, Evaporation Pan, AZMET and SNOTEL/Snowcourse stations are compiled in Table 2.1-1 and the locations are shown on Figure 2.1-3. Figure 2.1-3 also shows precipitation contour data from the Spatial Climate Analysis Service (SCAS) at Oregon State University. More detailed information on climate is found in Section 2.0.3. A description of the climate data sources and methods is found in Volume 1, Appendix A.

#### NOAA/NWS Co-op Network

- Refer to Table 2.1-1A
- The 46 NOAA/NWS Co-op network climate stations are widely dispersed throughout the basin. The average monthly maximum temperature ranges from 61.5°F at Greer to 82.2°F at Cameron and the average monthly minimum temperature ranges from 27.0°F at Fort Valley to 36.5°F at Cameron 1 NNE.
- The highest seasonal rainfall occurs at most stations in the summer (July-September). For the period of record used, the highest average annual precipitation is 28.46 inches at McNary 2 N and the lowest is 4.09 inches at Monument Valley.
- On average, the driest season is spring (April-June).
- Altitude is a factor in precipitation, however, the rain shadow effect results in greater precipitation on the windward side as storms move northeastward. Blue Ridge Ranger Station at 6,880 feet received an average of 20.6 inches of rainfall a year while Betatakin, at 7,290 feet received only 12.81 inches.

#### Evaporation Pan

- Refer to Table 2.1-1B
- There are three sites in the basin at Flagstaff, Page and Winslow. Elevation at the stations range from 4,890 feet to 7,010 feet and the corresponding annual average evaporation ranges from 84.7 inches to 54.0 inches.

#### AZMET

- Refer to Table 2.1-1C
- There is one AZMET station in the basin, located at Flagstaff at an elevation of 6,747 feet. Average annual reference evaporation is 56.79 inches and is similar to that at the Flagstaff evaporation pan site.

#### SNOTEL/Snowcourse

- Refer to Table 2.1-1D
- There are data from 20 snow measurement sites in the basin, more than any basin in the state. Four sites have been discontinued.
- Elevations at current sites range from 6,930 feet at Lake Mary to 11,200 feet at Snow Bowl #2.
- High elevation sites (>8,000 feet) in the vicinity of Flagstaff typically continue to accumulate snowpack into April.
- High elevation sites (>8,000 feet) in the Beaver Springs and Tsaile Canyon areas report highest average snowpack in March.

- Sites <8,000 feet generally show highest snowpack in March/February.
- Highest average snowpack is found at three stations near Flagstaff and a station at Mount Baldy (Baldy #2). In general, there is a correlation between elevation and the average snowpack, however the location of the site, even those in close proximity to each other, and the period of record affect snowpack accumulation averages.

### **SCAS Precipitation Data**

- See Figure 2.1-3
- Additional precipitation data shows rainfall as high as 40 inches at sites along the Mogollon Rim and near Flagstaff and as low as 4 inches in the vicinity of Cameron.

Table 2-1.1 Climate Data for the Little Colorado River Plateau Basin

A. NOAA/NWS Co-op Network:

Station Name	Elevation (in feet)	Period of Record Used for Averages	Average Temperature Range (in F)		Average Precipitation (in inches)				
			Max/Month	Min/Month	Winter	Spring	Summer	Fall	Annual
Betatakin	7290	1971-2000	71.9/Jul	29.8/Jan	3.24	1.71	4.25	3.61	12.81
Blue Ridge Ranger Station	6880	1971-2000	68.0/Jul	30.2/Jan	5.88	2.17	7.31	5.24	20.60
Burrus Ranch	6800	1948-1968	69.4/Jul	29.3/Jan	4.21	2.14	6.63	4.22	17.20
Cameron 1 NNE	4160	1971-2000	82.2/Jul	36.5/Dec	1.34	0.70	2.12	1.40	5.56
Canyon de Chelly	5610	1971-2000	77.2/Jul	32.0/Jan	2.18	1.48	3.34	2.53	9.53
Chevelon Ranger Station	7010	1971-2000	68.4/Jul	30.5/Jan	4.58	2.02	7.95	4.64	19.19
Chinle	5540	1908-1970	75.0/Jul	28.9/Jan	1.70	1.28	4.01	2.17	9.17
Clay Springs	6320	1971-1987 <sup>1</sup>	70.4/Jul	32.0/Jan	4.53	2.06	6.47	4.95	18.00
Copper Mine Trading Post	6380	1948-1976 <sup>1</sup>	75.4/Jul	30.3/Jan	1.46	0.99	1.84	2.34	6.62
Cottonwood Indian School	6050	NA <sup>2</sup>	Insufficient Data		No Data				
Flagstaff Airport	7000	1971-2000	66.1/Jul	29.7/Jan	7.36	2.52	7.41	5.62	22.91
Fort Valley	7350	1971-2000	62.1/Jul	27.0/Jan	7.18	2.55	7.66	4.71	22.10
Ganado	6340	1971-2000	72.0/Jul	29.2/Jan	2.61	1.57	4.37	3.04	11.59
Greer	8490	1971-2000	61.5/Jul	28.6/Jan	4.44	2.75	10.71	5.29	23.19
Heber Ranger Station	6590	1971-2000	68.3/Jul	32.7/Jan	4.75	1.82	7.94	4.66	19.17
Holbrook	5070	1971-2000	77.6/Jul	35.8/Jan	2.09	0.95	3.86	2.30	9.20
Kayenta	5710	1915-1978 <sup>1</sup>	75.7/Jul	29.3/Jan	0.61	0.52	2.30	2.27	5.69
Keams Canyon	6210	1971-2000	72.6/Jul	30.5/Jan	2.77	1.17	3.65	2.57	10.16
Klagetoh 12 WNW	6500	1971-2000	73.7/Jul	32.6/Jan	2.29	1.17	3.27	2.61	9.34
Leupp	4700	1948-1981 <sup>1</sup>	77.1/Jul	31.4/Jan	1.57	0.98	2.85	2.00	7.39
Lukachukai	6520	1971-2000	72.5/Jul	28.9/Jan	1.89	1.12	3.84	2.57	9.42
Many Farms School	5320	1951-1975 <sup>1</sup>	75.9/Jul	30.4/Dec	0.89	0.48	1.58	1.86	4.80
McNary 2 N	7340	1971-2000	64.7/Jul	31.0/Jan	8.33	3.03	9.75	7.35	28.46
Monument Valley	5560	1971-2000	79.1/Jul	31.2/Jan	0.44	0.70	1.88	1.07	4.09
Navajo	5580	1961-1976 <sup>1</sup>	74.1/Jul	28.5/Jan	2.14	0.86	3.43	3.02	9.45
Page	4270	1971-2000	81.7/Jul	34.7/Jan	1.74	1.04	1.93	2.03	6.74
Painted Desert National Park	5760	1973-2005 <sup>1</sup>	76.0/Jul	35.5/Jan	2.58	1.32	3.97	2.96	10.83
Petrified Forest National Park	5450	1971-2000	76.0/Jul	34.9/Jan	2.04	1.23	4.40	2.77	10.44
Pinedale	6510	1912-1968	69.4/Jul	29.2/Jan	3.99	2.02	7.52	4.79	18.31
Pinetop	6960	1980-1997 <sup>1</sup>	67.2/Jul	32.8/Jan	5.53	2.43	9.13	5.51	22.60
Saint Johns	5790	1971-2000	73.8/Jul	34.0/Dec	2.07	1.40	5.47	2.53	11.47
Sanders	5850	1971-2000	73.4/Jul	32.2/Jan	3.02	1.55	4.39	3.17	12.13
Sanders 11 ESE	6250	1961-1986 <sup>1</sup>	71.2/Jul	29.3/Jan	4.20	1.79	4.14	3.59	13.71
Show Low Airport	6410	1971-2000	73.2/Jul	35.1/Jan	4.14	1.86	7.26	4.87	18.13
Snowflake	5640	1971-2000	73.1/Jul	34.1/Jan	2.46	1.34	5.83	3.07	12.70
Snowflake 15 W	6080	1965-1998 <sup>1</sup>	72.6/Jul	32.3/Jan	2.22	1.50	5.78	3.03	12.52
Springerville	7060	1971-2000	66.4/Jul	32.3/Dec	1.49	1.25	7.12	2.13	11.99
St. Michaels 6 WNW	7640	1906-1927	69.3/Jul	27.6/Jan	2.85	1.33	6.35	2.89	13.42
Sunset Crater National Monument	6980	1971-2000	65.8/Jul	27.5/Jan	3.87	2.00	7.15	4.04	17.06
Teec Nos Pos	5290	1971-2000	78.4/Jul	31.4/Jan	1.81	1.30	2.80	2.17	8.08
Tonalea	5520	NA <sup>3</sup>	Insufficient Data		No Data				
Tuba City	5030	1971-2000	78.0/Jul	33.8/Jan, Dec	1.66	0.76	2.33	1.60	6.35

Table 2-1.1 Climate Data for the Little Colorado River Plateau Basin (Cont)

**A. NOAA/NWS Co-op Network:**

Station Name	Elevation (in feet)	Period of Record Used for Averages	Average Temperature Range (in F)		Average Precipitation (in inches)				
			Max/Month	Min/Month	Winter	Spring	Summer	Fall	Annual
Wallace Ranger Station	7010	1916-1959	67.2/Jul	30.2/Jan	4.37	2.12	8.06	3.73	18.28
Window Rock 4 SW	6900	1971-2000	69.4/Jul	28.5/Jan	2.31	1.49	4.44	3.07	11.31
Winslow Airport	4890	1971-2000	77.5/Jul	34.1/Dec	1.60	0.93	3.51	1.99	8.03
Wupatki National Monument	4910	1971-2000	80.1/Jul	35.6/Dec	1.78	1.10	4.02	2.07	8.97

Source: WRCC, 2005a.

<sup>1</sup> Average temperature for period of record shown; average precipitation from 1971-2000

<sup>2</sup> Not available -Period of Record 1956-1958

<sup>3</sup> Not available -Period of Record 1948-1949

**B. Evaporation Pan:**

Station Name	Elevation (in feet)	Period of Record Used for Averages	Avg. Annual Evap (in inches)
Flagstaff WB AP	7,010	1968 - 1978	54.00
Page	4,270	1957 - 2002	80.57
Winslow AP	4,890	1990 - 1999	84.7

Source: WRCC, 2005a.

**C. AZMET:**

Station Name	Elevation (in feet)	Period of Record	Average Annual Reference Evapotranspiration, in inches (Number of years to calculate average)
Flagstaff	6,747	2003 - current	56.79 (4)

Source: Arizona Meteorological Network, 2005

**D. SNOTEL/Snowcourse:**

Station Name	Elevation (in feet)	Period of Record Used for Averages	Average Snowpack at Beginning of Month, as Inches Snow Water Content (Number of measurements to calculate average)					
			Jan.	Feb.	March	April	May	June
Arbabs Forest	7,680	1985 - current	1.1 (21)	2.2 (22)	1.8 (21)	0.2 (22)	0 (0)	2.4 (1)
Baldy #1	9,125	1950 - 1999 (discontinued)	3.7 (28)	5.7 (49)	7.3 (50)	6.4 (49)	3.3 (2)	0 (0)
Baldy #2	9,750	1963 - 1997	0 (0)	12.3 (2)	0 (0)	19.1 (9)	25.2 (1)	0 (0)
Baldy (SNOTEL)	9,125	1950 - current	3.5 (35)	5.9 (56)	7.7 (57)	6.5 (57)	0.3 (21)	0 (19)
Beaver Spring	9,220	1986 - current	3.7 (18)	6.9 (19)	8.7 (18)	7.4 (20)	0 (0)	0 (0)
Cheese Springs	8,700	1969 - current	2.4 (28)	4.1 (38)	5.6 (38)	3.9 (38)	0 (1)	0 (0)
Fluted Rock	7,800	1985 - current	1.3 (21)	2.7 (22)	3.1 (21)	0.6 (22)	0 (0)	0 (0)
Forestdale Alt.	6,580	1984 - 1989 (discontinued)	0.5 (6)	1.0 (6)	0.6 (6)	0 (6)	0 (0)	0 (0)
Fort Apache	9,160	1951 - current	3.5 (27)	6.0 (54)	7.7 (56)	7.0 (56)	0 (0)	0 (0)
Fort Valley	7,350	1947 - current	1.2 (32)	2.2 (60)	2.4 (60)	1.0 (59)	0 (1)	0 (0)
Heber	7,640	1950 - 1999 (discontinued)	1.8 (23)	3.5 (49)	3.6 (49)	2.1 (46)	1.0 (2)	0 (0)
Heber (SNOTEL)	7,640	1950 - current	2.1 (31)	4.4 (56)	4.5 (56)	2.3 (52)	0 (24)	0 (24)
Lake Mary	6,930	1975 - current	1.2 (27)	2.5 (32)	2.9 (32)	0.4 (32)	0 (0)	0 (0)
Mormon Mountain	7,500	1950 - 1999 (discontinued)	2.8 (30)	4.8 (49)	5.8 (50)	4.2 (47)	5.1 (3)	0 (0)
Mormon Mountain (SNOTEL)	7,500	1950 - current	2.4 (37)	4.5 (56)	5.7 (57)	4.2 (54)	1.0 (27)	0 (24)
Mormon Mountain Summit #2	8,470	1975 - current	3.6 (16)	7.5 (22)	11.6 (24)	13.0 (29)	0 (0)	0 (0)
Snow Bowl #1 Alt.	9,920	1984 - current	5.6 (22)	8.1 (23)	11.9 (23)	12.9 (22)	0 (0)	0 (0)
Snow Bowl #2	11,200	1965 - current	7.6 (29)	11.9 (41)	16.7 (41)	21.4 (40)	0 (0)	0 (0)
Tsaile Canyon #1	8,160	1985 - current	2.5 (21)	4.9 (22)	5.7 (21)	3.4 (22)	0 (0)	0 (0)
Tsaile Canyon #3	8,920	1986 - current	3.5 (20)	6.6 (21)	8.2 (20)	6.8 (21)	0 (0)	0 (0)

Source: Natural Resources Conservation Service, 2005

**Notes:**

WB = Weather Bureau

AP = Airport

Alt = Alternate

Current = December 2008



## 2.1.4 Surface Water Conditions of the Little Colorado River Plateau Basin

Streamflow data, including average seasonal flow, average annual flow and other information are shown in Table 2.1-2. Flood ALERT equipment in the basin is shown in Table 2.1-3. Reservoir and stockpond data, including maximum storage or maximum surface area, are shown in Table 2.1-4. The location of streamflow gages identified by USGS number, flood ALERT equipment, USGS runoff contours and large reservoirs are shown on Figure 2.1-5. Descriptions of stream, reservoir and stockpond data sources and methods are found in Volume 1, Appendix A.

### Streamflow Data

- Refer to Table 2.1-2
- Data from 50 stations, including 28 discontinued stations, are shown in the table and on Figure 2.1-5. All but one of the active stations are real-time stations. Three additional stations were installed in 2008.
- The average seasonal flow is highest in the Spring (April-June) from winter snowmelt and spring rains and in the Summer (July-September) from high intensity monsoon storms.
- High summer season flow was noted at many gages on the Navajo and Hopi reservations. High winter flow (January-March) was recorded at gages near Lakeside, Show Low and Snowflake.
- The largest annual flow recorded in the basin is 20.3 million acre-feet (maf) in 1984 at the Colorado River at Lees Ferry gage, located downstream of Glen Canyon Dam. Mean flow at this gage is 10.8 maf. Maximum flow on the Little Colorado River is 587,869 acre-feet at Grand Falls measured in 1941. (see Figure 2.1-4 for a stream hydrograph for the Little Colorado River)

### Flood ALERT Equipment

- Refer to Table 2.1-3
- There were 32 stations in the basin as of October 2005, most located along the Little Colorado River, and in the vicinity of Heber, Snowflake, Show Low and Pinetop-Lakeside.

### Reservoirs and Stockponds

- Refer to Table 2.1-4
- The basin contains 94 large reservoirs. The largest, Lake Powell, has a maximum storage of 20.3 maf. Most of this storage is not in the basin.
- Thirty-three large reservoirs are intermittent or dry, particularly those listed in Table 2.1-3B.
- The most common use of large reservoirs is for recreation (46), followed by fire protection, stock or farm use (33) and for irrigation (30). Other reservoir uses include hydroelectric power generation, navigation and water supply.
- Capacity information was available for 416 small reservoirs, which have a combined maximum storage capacity of 13,343 acre-feet.
- There are 269 small reservoirs for which only surface area data are available with a total surface area of 3,907 acres.
- There are 6,113 registered stockponds in the basin.

### Runoff Contour

- Refer to Figure 2.1-5.
- Average annual runoff varies from 5 inches per year, or 265 acre-feet per square mile at higher elevations along the Mogollon Rim and near Greer to 0.1 inches, or five acre-feet per square mile, near the Little Colorado River and along a contour stretching from near Sanders, through Polacca to the northwest corner of the basin.

**Figure 2.1-4 Annual flows (acre-feet) at Little Colorado River at Holbrook, water years 1930-2008 (Station #9397000)**

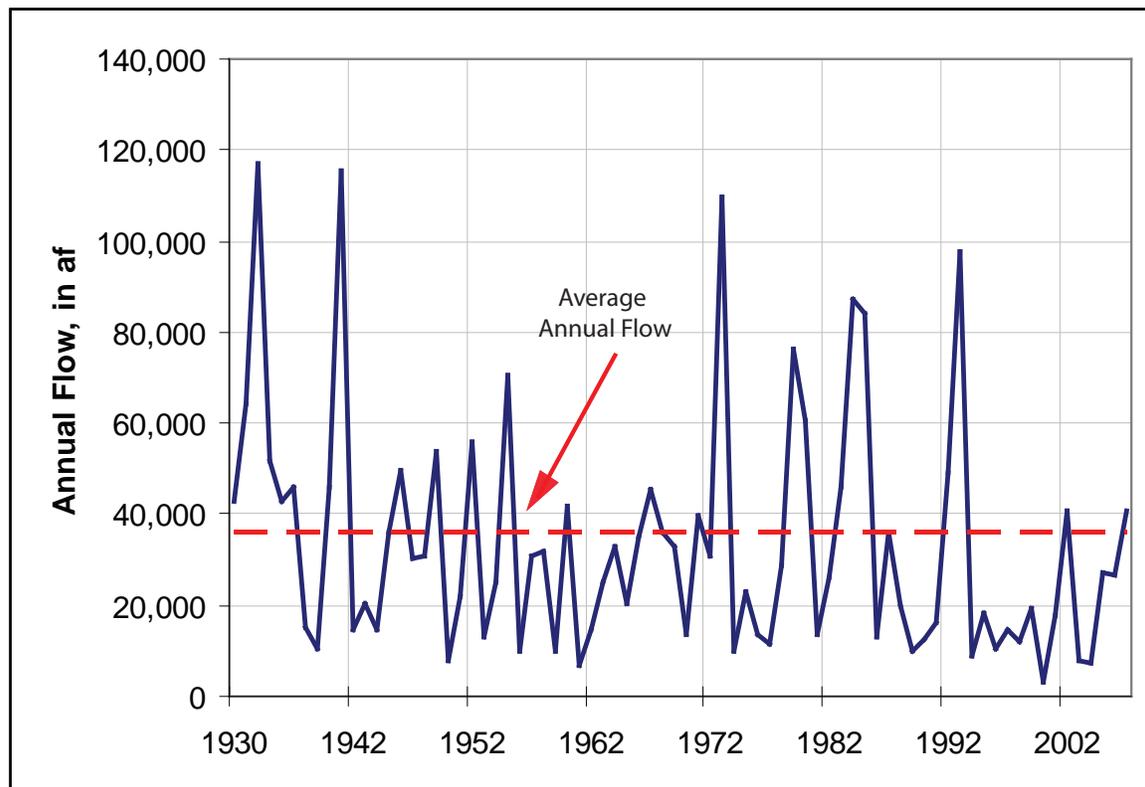


Table 2.1-2 Streamflow Data for the Little Colorado River Plateau Basin

Station Number	USGS Station Name	Drainage Area (in mi <sup>2</sup> )	Gage Elevation (in feet)	Period of Record	Average Seasonal Flow (% of Annual Flow)				Annual Flow in Acre-Feet (Year)				Years of Annual Flow Record
					Winter	Spring	Summer	Fall	Minimum	Median	Mean	Maximum	
9379025	Chinle Creek at Chinle	639	5,500	11/1999-7/2006 (discontinued)	49	42	6	2	905 (2002)	6,624	6,258	10,860 (2004)	5
9379050	Lukachukai Creek near Lukachukai	NA	5,750	8/2000-8/2006 (discontinued)	28	37	22	13	796 (2002)	1,947	1,781	2,172 (2003)	5
9379180	Laguna Creek at Dennehotso	414	4,985	7/1996-12/2005 (discontinued)	13	4	61	22	1,694 (2004)	3,826	4,408	8,760 (1997)	6
9379200	Chinle Creek near Mexican Water	3,650	4,720	10/1964-current (real time)	19	32	36	13	3,062 (1994)	15,457	20,429	67,692 (1982)	40
9379910	Colorado River below Glen Canyon Dam	111,700	3,100	10/1989-8/2004 (discontinued)	23	28	27	22	7,847,916 (2002)	8,166,466	8,382,855	9,252,432 (1971)	9
9380000	Colorado River at Lees Ferry	111,800	3,106	10/1921-current (real time)	16	44	24	16	1,383,521 (1963)	9,375,509	10,885,307	20,322,048 (1984)	83
9383000	Colorado River at Compact Point near Lees Ferry	112,000	NA	10/1980-9/2007	24	25	28	22	7,833,437 (1988)	8,383,659	9,876,067	18,699,615 (1986)	20
9383200	Lee Valley Creek above Lee Valley Reservoir near Greer	1.3	NA	10/1966-9/1972 (discontinued)	7	43	26	24	261 (1970)	398	405	543 (1969)	5
9383220	Lee Valley Creek Tributary near Greer	0.5	NA	10/1966-9/1972 (discontinued)	9	47	30	13	11 (1969)	94	79	130 (1969)	5
9383250	Lee Valley Creek below Lee Valley Reservoir near Greer	1.9	NA	10/1966-9/1972 (discontinued)	17	29	30	24	116 (1967)	188	191	239 (1970)	5
9383400	Little Colorado River at Greer	29.1	8,283	8/1960-9/1982 (reactivated, real time)	12	59	20	9	5,198 (1961)	8,688	11,437	25,267 (1973)	21
9383430	Little Colorado River at Springerville	NA	6,950	new as of 6/2008 (real time)	No statistics run, less than 3 years data							<1	
9383500	Nutriso Creek above Nelson Reservoir near Springerville	83.3	7,421	6/1967-9/1982 (reactivated, real time)	21	63	6	10	485 (1977)	2,729	4,517	16,507 (1973)	14
9383550	Nutriso Creek below Nelson Reservoir near Springerville	86.8	7,364	7/1967-9/1982 (discontinued)	19	69	4	8	290 (1977)	2,237	4,235	17,013 (1973)	14
9383570	Nutriso Creek at Springerville	NA	6,965	new as of 10/2008 (real time)	No statistics run, less than 3 years data							<1	
9383595	Little Colorado near Wenima	NA	6,740	new as of 10/2008 (real time)	No statistics run, less than 3 years data							<1	
9384000	Little Colorado River above Lyman Lake near St. Johns	706	6,010	4/1940-current (real time)	20	52	17	10	2,259 (1996)	11,113	15,588	51,258 (1941)	64



Table 2.1-2 Streamflow Data for the Little Colorado River Plateau Basin (Cont)

Station Number	USGS Station Name	Drainage Area (in mi <sup>2</sup> )	Gage Elevation (in feet)	Period of Record	Average Seasonal Flow (% of Annual Flow)				Annual Flow in Acre-Feet (Year)				Years of Annual Flow Record
					Winter	Spring	Summer	Fall	Minimum	Median	Mean	Maximum	
9385500	Little Colorado River below Lyman Reservoir near St. Johns <sup>1</sup>	790	6,480	4/1941-12/1986 (discontinued)	21	63	6	10	478 (1963)	1,509	2,722	19,547 (1973)	34
9385700	Little Colorado River below Salado Springs	845	5,785	3/1985-current (real time)	No statistics run, less than 3 years data								2
9386000	Little Colorado River at St. Johns	964	NA	4/1906-4/1940 (discontinued)	24	33	27	16	2,013 (1939)	3,895	10,309	45,538 (1909)	8
9386030	Little Colorado River above Zion Reservoir near St. Johns	1,007	5,560	10/1975-current (real time)	29	31	16	24	94 (2004)	3,453	5,149	18,823 (1985)	29
9386250	Carrizo Wash near St. Johns	NA	5,610	8/1998-current (real time)	0	0	99	1	65 (2004)	1,596	2,082	5,169 (2002)	5
9386300	Little Colorado River below Zion Reservoir near St. Johns	NA	5,530	9/1998-current (real time)	1	<1	97	2	80 (2003)	116	2,684	11,798 (2002)	6
9386500	Little Colorado River above Zuni Reservoir near Hunt	3,741	5,399	3/1940-9/1972 (discontinued)	16	10	60	14	8 (1961)	2,266	3,778	22,009 (1955)	31
9388000	Little Colorado River near Hunt	6,383	5,372	5/1929-9/1972 (discontinued)	14	12	64	10	239 (1962)	5,046	10,424	58,424 (1941)	34
9390000	Silver Creek near Shumway	172	5,913	10/1944-6/1955 (discontinued)	12	44	38	6	5,575 (1951)	7,891	8,466	13,683 (1952)	10
9390500	Show Low Creek near Lakeside	69	6,610	5/1953-current (real time)	53	19	9	19	970 (2002)	6,863	9,692	31,493 (1978)	51
9392000	Show Low Creek below Jaques Dam near Show Low	73	6,530	10/1955-2/2006 (discontinued)	47	25	13	14	1,405 (1990)	3,033	6,391	28,090 (1993)	49
9392500	Show Low Creek at Show Low	90.2	6,309	10/1944-6/1955 (discontinued)	65	12	12	11	1,086 (1953)	4,156	6,519	24,832 (1952)	10
9393400	Cottonwood Wash at Snowflake	262	5,580	10/1981-8/1984 (discontinued)	No statistics run, less than 3 years data								2
9393500	Silver Creek near Snowflake	925	5,204	10/1950-9/1995 (discontinued)	45	8	28	19	2,020 (1990)	10,461	13,830	59,583 (1993)	44
9394000	Silver Creek near Woodruff	966	NA	4/1929-9/1952 (discontinued)	51	4	36	9	4,293 (1942)	14,914	17,902	58,642 (1932)	15
9394500	Little Colorado River at Woodruff	8,072	5,130	3/1905-current (real time)	27	12	46	15	5,524 (2000)	26,860	35,839	165,791 (1919)	74
9396500	Puerco River near Adamana	2,654	5,312	4/1940-9/1949 (discontinued)	24	13	47	16	9,557 (1944)	26,642	46,732	167,963 (1941)	8
9397000	Little Colorado River at Holbrook	11,462	5,063	3/1905-current (real time)	19	10	55	16	13,973 (1950)	82,533	91,138	197,646 (1968)	26

Table 2.1-2 Streamflow Data for the Little Colorado River Plateau Basin (Cont)

Station Number	USGS Station Name	Drainage Area (in mi <sup>2</sup> )	Gage Elevation (in feet)	Period of Record	Average Seasonal Flow (% of Annual Flow)				Annual Flow in Acre-Feet (Year)				Years of Annual Flow Record
					Winter	Spring	Summer	Fall	Minimum	Median	Mean	Maximum	
9397500	Chevelon Fork below Wildcat Canyon near Winslow	271	5,905	5/1947-current (real time)	57	28	5	10	0 (1996, 2002)	22,950	30,032	97,737 (1965)	30
9398000	Chevelon Creek near Winslow <sup>1</sup>	785	4,899	1/1906-12/2006 (discontinued)	49	33	6	11	10,715 (1956)	32,651	38,756	99,909 (1952)	44
9398500	Cleak Creek below Willow Creek near Winslow	317	5,957	6/1948-10/1993 (discontinued)	41	45	3	11	4,127 (1990)	36,633	59,275	168,963 (1973)	43
9399000	Clear Creek near Winslow	621	4,861	6/1906-9/2007 (discontinued)	39	49	2	9	3,852 (1967)	46,697	60,719	183,890 (1978)	51
9400350	Little Colorado River near Winslow	16,192	4,863	12/2001-current (real time)	52	9	23	16	54,009 (2003)	69,140	73,870	98,461 (2004)	3
9400562	Oraibi Wash near Tolani Lake	635	5,025	7/1995-current (real time)	1	0	72	19	434 (1996)	1,998	1,980	4,177 (1997)	9
9400568	Polacca Wash near Second Mesa	905	5,240	4/1994-current (real time)	5	1	73	21	195 (1995)	2,125	2,117	3,678 (1997)	8
9400583	Jeddito Wash near Jeddito	147	5,440	9/1993-9/2005 (discontinued)	0	1	88	11	14 (1998)	145	298	1,426 (2003)	11
9401000	Little Colorado River at Grand Falls	21,068	4,439	11/1925-7/1995 (discontinued)	39	24	30	7	18,461 (1956)	162,171	198,406	587,869 (1941)	24
9401110	Dinnebito Wash near Sand Springs	473	5,160	6/1993-current (real time)	5	3	78	14	311 (1994)	2,085	2,680	6,682 (2004)	11
9401226	Coal Mine Wash Tributary near Kayenta	0.6	NA	10/1977-9/1981 (discontinued)	2	4	90	4	0 (1979)	3		70 (1980)	3
9401239	Coal Mine Wash near Mouth near Shonto	NA	NA	5/1978-10/1982 (discontinued)	20	11	48	21	434 (1979)	775	857	1,361 (1980)	3
9401260	Moenkopi Wash at Moenkopi	1,629	4,610	7/1976-current (real time)	13	4	64	18	1,376 (1994)	7,457	7,083	14,769 (2001)	28
9401280	Moenkopi Wash near Tuba City	1,904	NA	7/1926-9/1940 (discontinued)	8	2	81	9	5,408 (1928)	9,774	16,334	45,828 (1930)	13
9401400	Moenkopi Wash near Tuba City	2,492	4,309	10/1940-9/1978 (discontinued)	8	2	58	33	2,179 (1944)	8,833	11,158	44,452 (1972)	25

Source: USGS (NWIS) 2005 & 2008

**Notes:**

NA = Not available

Statistics based on Calendar Year

Average Seasonal Flow statistics based on monthly values

Summation of Average Annual Flows may not equal 100 due to rounding

Period of Record may not equal Years of Annual Flow Record used for annual Flow/Year statistics due to only using years with a 12 month record

In Period of Record, current equals November 2008

Seasonal and annual flow data used for the statistics was retrieved in 2005

<sup>1</sup>Station operated by SRP after 1985 and table statistics do not include the SRP data



**Table 2.1-3 Flood ALERT Equipment in the Little Colorado River Plateau Basin**

Station ID	Station Name	Station Type	Install Date	Responsibility
1701	Little Colorado River @ Hunt	Precipitation/Stage	NA	Navajo County FCD
1715	Black Canyon Lake	Precipitation/Stage	NA	Navajo County FCD
1720	Oklahoma Flat	Precipitation	NA	Navajo County FCD
1722	Stermer Ridge	Precipitation	NA	Navajo County FCD
1724	Bunger Point	Precipitation	NA	Navajo County FCD
1725	Dreamy Draw	Precipitation/Stage	3/1/2004	Navajo County FCD
1729	Little Colorado River @ Winslow @I-40	Precipitation/Stage	10/27/1995	Navajo County FCD
1739	Cottonwood Wash - Winslow	Stage	NA	Navajo County FCD
1743	Obed Bridge over Little Colorado River @ Joseph City	Precipitation/Stage	9/5/1995	Navajo County FCD
1750	Leroux Wash	Precipitation/Stage	11/2/1995	Navajo County FCD
1764	Little Colorado River @ Holbrook	Precipitation/Stage	NA	Navajo County FCD
1771	Joseph City @ SR 66	Precipitation/Stage	NA	Navajo County FCD
1778	Pinedale Ridge	Precipitation	8/1/2001	Navajo County FCD
1785	Silver Creek at Snowflake	Precipitation/Stage	8/1/2001	Navajo County FCD
1795	Lone Pine Dam	Precipitation/Stage	8/1/2001	Navajo County FCD
1800	Chevelon Butte 20 mi. SW of Winslow	Repeater/Precipitation	7/18/1995	Navajo County FCD
1804	Porter Mountain	Repeater/Precipitation	1/18/1995	Navajo County FCD
1808	Buckskin Wash	Precipitation/Stage	NA	Navajo County FCD
1815	Schoens Dam	Precipitation/Stage	8/1/2001	Navajo County FCD
1822	White Mountain Lake	Precipitation/Stage	NA	Navajo County FCD
1829	Cottonwood Wash - Taylor	Precipitation/Stage	10/6/1995	Navajo County FCD
1843	Dutch Joe	Precipitation	8/1/2001	Navajo County FCD
1850	Morgan Wash	Precipitation/Stage	11/22/1995	Navajo County FCD
1857	Holbrook Base Station	Precipitation	NA	Navajo County FCD
1864	South County Complex	Precipitation	NA	Navajo County FCD
1871	Heber Repeater	Repeater/Precipitation	NA	Navajo County FCD
1881	Black Canyon Wash	Stage	NA	Navajo County FCD
1885	Heber SNOTEL	Precipitation	NA	Navajo County FCD
1892	Show Low Lake	Precipitation	NA	Navajo County FCD
1893	Phoenix Park Wash	Precipitation/Stage	NA	Navajo County FCD
3300	Newman Canyon	Precipitation/Stage	NA	City of Flagstaff
3310	Rio de Flag	Precipitation/Stage	NA	City of Flagstaff

Source: ADWR 2005a

**Notes:**

FCD = Flood Control District  
NA = Not available to ADWR

**Table 2.1-4 Reservoirs and Stockponds in the Little Colorado River Plateau Basin**  
**A. Large Reservoirs (500 acre-feet capacity or greater)**

MAP KEY	RESERVOIR/LAKE NAME (Name of dam, if different)	OWNER/OPERATOR	MAXIMUM STORAGE (AF)	USE <sup>1</sup>	JURISDICTION
1	Powell (Glen Canyon Dam)	Bureau of Reclamation	20,325,000	H,I,O,R,S	Federal
2	Schoens	Navajo County	62,000	C	State
3	Lyman	Lyman Water Co	44,500	I,R	State
4	Many Farms	Navajo Nation	32,500	I,R	Tribal
5	Upper Lake Mary	City of Flagstaff	21,041	S,R	State
6	Red <sup>2</sup>	Navajo Nation	15,517	F,I,R	Tribal
7	Blue Ridge/C.C. Cragin	Bureau of Reclamation/Salt River Project	15,000	H,S,R	State
8	Mormon	Coconino NF	15,000	F,R	Federal
9	Lone Pine <sup>3</sup>	Navajo County	14,700	C	State
10	White Mountain (Daggs Dam)	Silver Creek Irrigation District	13,750	I,R	State
11	Tremaine (Hay Lake Dam)	Bar T Bar Ranch	9,000	I	State
12	Chevelon Canyon	AZ Game & Fish	8,542	R	State
13	Show Low (Jacques Dam)	City of Show Low	8,160	O,R	State
14	Tsaile	Navajo Nation	8,100	I,R	Tribal
15	Wheatfields	Navajo Nation	5,700	I,R	Tribal
16	Fool's Hollow	AZ Game & Fish	5,617	R	State
17	Canyon Diablo Reservoir	Navajo Nation	4,700	I,R	Tribal
18	Mill Pond	Abitibi	4,400	I	State
19	Willow Springs	AZ Game & Fish	4,230	R	State
20	Ashurst	AZ Game & Fish	4,164	R	State
21	Alejandro	Private	4,111	U	State
22	Ganado Reservoir	Navajo Nation	3,750	I,R	Tribal
23	Twin Lakes	Abitibi	3,700 <sup>4</sup>	O	State
24	Hay <sup>3</sup>	Bar T Bar Ranch	3,530	U	State
25	River Reservoir	Round Valley Water Users	3,195	I,R	State
26	Kinnikinick	AZ Game & Fish	3,124	R	State
27	Ortega + Little Ortega (Ortega Lake Retention)	Silver Creek Flood Control	2,500	C,R	State
28	White Mountain	Round Valley Water Users	2,391 <sup>4</sup>	I,R	State
29	Lower Lake Mary	Coconino NF	2,240	R,S	Federal
30	Rainbow (Lakeside Dam)	Show Low Irrigation	2,226	I,R	State
31	Cholla	Arizona Public Service	2,200 <sup>4</sup>	F,O,R	State
32	Millett Swale	Silver Creek Flood Control	2,104	C	State
33	Black Canyon	AZ Game & Fish	1,900	R	State
34	Blue Canyon	Navajo Nation	1,900	S	Tribal
35	Soldier Annex	Coconino NF	1,886	F,I,P,R	Federal
36	Knoll	AZ Game & Fish	1,774	R	State
37	Scott Reservoir	Show Low Irrigation	1,740	I,R	State
38	Bear Canyon	AZ Game & Fish	1,638	R	State
39	Concho	Concho Water Co	1,560	I,R	State
40	Unnamed (Twin Dams)	Hopi Tribe	1,500	C	Tribal
41	Little Mormon	Apache Sitgreaves NF	1,400	F,R	Federal
42	Becker	Apache Sitgreaves NF	1,338	I,F,R	Federal
43	Woods Canyon	AZ Game & Fish	1,232	R	State
44	Little	St. John's Irrigation	1,200 <sup>4</sup>	I,R	State
45	Long <sup>3</sup>	Apache Sitgreaves NF	1,200	F,R	Federal
46	Mexican <sup>3</sup>	Apache Sitgreaves NF	1,100	C,F,I	Federal
47	Round Rock	Navajo Nation	1,070	I,R	Tribal
48	Hog Wallow	Lyman Water Co	1,000	I	State
49	Pool Corral	Lyman Water Co	993	I	State
50	Nelson	AZ Game & Fish	900	R	State
51	Slade	Private	898	I	State
52	Broken Tank	AZ State Land Dept.	851 <sup>4</sup>	P	State
53	Mexican Hay	Lyman Water Co	821	I,R	State
54	Clear Creek (Clear Creek #2)	City of Winslow	750	I,R	State
55	Colter	Lyman Water Co	732	I	State
56	Tunnel	Apache Sitgreaves NF	694	I,R	Federal
57	Norton <sup>3</sup>	Town of Springerville	680	I	State
58	Haumont Tank <sup>3</sup>	AZ State Land Dept./Rancho Allegra	674	I	State
59	Lee Valley	AZ Game & Fish	640	I,R	State
60	Soldiers	Coconino NF	550	R	Federal
61	Patterson	AZ Land Dept	534 <sup>4</sup>	P	State
62	Bunch	Round Valley Water Users	512	I,R	State

**Table 2.1-4 Reservoirs and Stockponds in the Little Colorado River Plateau Basin (Cont)**

**B. Other Large Reservoirs (50 acre surface area or greater)**

MAP KEY	RESERVOIR/LAKE NAME	OWNER/OPERATOR	MAXIMUM SURFACE AREA (acres)	USE <sup>1</sup>	JURISDICTION
63	Unnamed <sup>6</sup>	Navajo Nation	2,642	P	Tribal
64	Dry <sup>6</sup>	AZ State Land Dept./Private	1,817	P	Landowner
65	Dry	Private	1,674	P	Landowner
66	Red <sup>6</sup>	Navajo Nation	502	P	Tribal
67	Ortega Sink <sup>6</sup>	Bureau of Land Management/Private	405	P	Federal
68	Long <sup>3</sup>	Coconino NF	323	F,P,R	Federal
69	Long	Coconino NF	271	F,P	Federal
70	Greasewood <sup>6</sup>	Navajo Nation	269	P	Tribal
71	Unnamed <sup>6</sup>	AZ State Land Dept./Private	215	P	Landowner
72	Marshall	Coconino NF	213	F	Federal
73	Tolani <sup>3</sup>	Navajo Nation	129	P	Tribal
74	Toh De Niihe <sup>3</sup>	Navajo Nation	121	P	Tribal
75	Unnamed <sup>6</sup>	Navajo Nation	112	P	Landowner
76	Mud Flats <sup>6</sup>	Navajo Nation	110	P	Landowner
77	Mud Lake & Tank <sup>3</sup>	Coconino NF	106	F,P	Landowner
78	Breezy <sup>3</sup>	Coconino NF	101	P,R	Landowner
79	Yaeger Lake & Tank <sup>3</sup>	Coconino NF	96	P	Landowner
80	Unnamed <sup>6</sup>	Navajo Nation	95	P	Landowner
81	Unnamed Lake & Windy Tank <sup>6</sup>	Navajo Nation	92	P	Landowner
82	Unnamed <sup>6</sup>	Bureau of Land Management	90	P	Landowner
83	Vail	Coconino NF	88	P	Federal
84	Grass Flat Tank <sup>3</sup>	Coconino NF	88	P	Federal
85	Unnamed	Navajo Nation	87	P	Tribal
86	Horse Lake & Tank <sup>3</sup>	Coconino NF	84	P	Federal
87	Unnamed <sup>3</sup>	Private	81	P	Landowner
88	Whipple <sup>3</sup>	Apache Sitgreaves NF	75	F,P,R	Federal
89	McDermitt <sup>3</sup>	Private	72	P	Landowner
90	Pine Lake & Tank <sup>3</sup>	Coconino NF	70	P	Federal
91	Tobenayoli Pond <sup>3</sup>	Navajo Nation	65	P	Tribal
92	Deep <sup>3</sup>	Coconino NF	62	F	Federal
93	Indian <sup>3</sup>	Coconino NF	60	P	Federal
94	To Kla Dua Aakee	Navajo Nation	54	P	Tribal

Source: Compilation of databases from ADWR & others

**C. Small Reservoirs (greater than 15 acre-feet and less than 500 acre-feet)**

Total number: 416

Total maximum storage: 13,343 acre-feet

**D. Other Small Reservoirs (between 5 and 50 acres surface area)<sup>5</sup>**

Total number: 269

Total surface area: 3,907 acres

**E. Stockponds (up to 15 acre-feet)**

Total number: 6,113 (estimate based on water right filings)

**Notes:**

NF = National Forest

<sup>1</sup>C=flood control; F=fish & wildlife pond;  
H=hydroelectric; I=irrigation; N= navigation;  
O=other; P=fire protection, stock or farm  
pond; R=recreation; S=water supply;  
U=unknown

<sup>2</sup>Dam is in New Mexico as is most of the lake

<sup>3</sup>Intermittent Lake

<sup>4</sup>Normal capacity < 500 acre-feet

<sup>5</sup>Capacity data not available to ADWR

<sup>6</sup>Dry Lake



**Figure 2.1-5**  
**Little Colorado River Plateau Basin**  
**Surface Water Conditions**

Stream Data Source: ALRIS, 2005b

- USGS Annual Runoff Contour for 1951-1980 (in inches) —
- Stream Channel (width of line reflects stream order) —
- Large Reservoir ▲
- USGS Gage and Station ID ●
- Flood ALERT Equip. & Station ID ●
- COUNTY**
- New Mexico State Boundary —
- Utah State Boundary —
- Interstate Highway —
- Major Road —
- City, Town or Place ●

## 2.1.5 Perennial/Intermittent Streams and Major Springs in the Little Colorado River Plateau Basin

Major and minor springs with discharge rates and date of measurement, and the total number of springs in the basin are shown in Table 2.1-5. The location of major springs is shown on Figure 2.1-6, keyed to Table 2.1-5A. Descriptions of data sources and methods for intermittent and perennial reaches and springs are found in Volume 1, Appendix A.

- Perennial streams are found at higher elevations in the basin. The Little Colorado River, the major drainage in the basin, flows perennially only in areas near the headwaters and below Silver Creek.
- On tribal lands data were insufficient to determine if streams are intermittent or perennial.
- There are 70 major springs with a measured discharge of 10 gallons per minute (gpm) or greater at any time.
- Listed discharge rates may not be indicative of current conditions. Many of the measurements were taken prior to 1990. Only 14 major and 13 minor spring measurements post-date 1990.
- Greatest discharge rates were measured in the far southeastern corner of the basin at the headwaters of Silver Creek (Silver Springs, 3,648 gpm), south of Saint Johns (Salado, 1,730 gpm), east of Pinetop (Big, 1,211 gpm) and near Concho (Concho, 1,120 gpm). Most of the other major springs are located in this area. A cluster of major springs is also located in the vicinity of Tuba City and the Hopi community of Moenkopi.
- More than three quarters of the major springs discharge less than 100 gpm.
- Springs with measured discharge of 1 to 10 gpm are not mapped but coordinates are given in Table 2.1-5B. 160 minor springs have been identified in the basin.
- The total number of springs identified by the USGS varies between 1,222 to 1,305, depending on the database reference.

**Table 2.1-5 Springs in the Little Colorado River Plateau Basin**

**A. Major Springs (10 gpm or greater):**

Map Key	Name	Location		Discharge (in gpm) <sup>1</sup>	Date Discharge Measured
		Latitude	Longitude		
1	Silver (multiple)	341951	1095527	3648	6/1990
2	Salado	342604	1092352	1730	6/12/1990
3	Big (multiple)	340814	1095804	1211	11/30/1990
4	Concho	342551	1093745	1120	12/6/1951
5	Unnamed <sup>2</sup>	364025	1104828	700	7/27/1954
6	Pinetop	340724	1095454	673	11/20/1990
7	Coal Canyon Mine Wash	360631	1110031	450	2/16/1955
8	Carnero	340609	1093212	400	9/24/1974
9	Adair	340825	1095727	276	11/30/1990
10	Walnut	340749	1095723	225	6/23/1952
11	Unnamed	342240	1092318	200	8/15/1985
12	Porter/Paige	341047	1095622	145	7/1/1971
13	Moenave	360840	1112005	118	2/25/1948
14	Unnamed	360845	1112003	118	8/9/1954
15	Bourdon Ranch <sup>2</sup>	342039	1095612	100	6/25/1952
16	Wiltbank	341629	1092359	100	1/6/1975
17	Unnamed	362712	1102307	89 <sup>3</sup>	10/19/1983
18	Coon	340346	1092212	70	NA
19	Big Hollow Wash (multiple)	343215	1092520	67	9/17/1975
20	Dodson Upper	360830	1111441	66	7/26/1954
21	Sheep	340316	1093358	60	5/22/1952
22	Unnamed	362952	1101836	60 <sup>3</sup>	11/14/2003
23	Eagle Nest, Talakwava	361056	1111147	50	NA
24	Shonto-2	363536	1103834	50	3/20/1951
25	Unnamed (multiple) <sup>2</sup>	343135	1092553	50	2/12/1975
26	Unnamed	354919	1100851	50	NA
27	Sawmill	345014	1112234	40	7/12/1975
28	Whitcom	340845	1095217	40	6/11/1952
29	Unnamed	363237	1102318	40 <sup>3</sup>	11/13/2003
30	Danstone	340921	1094749	38	6/13/1952
31	Unnamed	360813	1111908	38	8/10/1954
32	Unnamed	342251	1092251	37	8/15/1985
33	Willow	361049	1112242	35	4/5/1952
34	Unnamed	342247	1092254	31	8/15/1985
35	Pasture Canyon <sup>4</sup>	361021	1111159	31	4/26/2004
36	Unnamed (multiple) <sup>2</sup>	364851	1103221	30	NA
37	Davis <sup>2</sup>	342932	1091634	29	1/1/1957
38	Unnamed	362539	1102412	27 <sup>3</sup>	4/3/2007
39	Big Leroux	351736	1114327	25	9/26/1949
40	Los Burros <sup>2</sup>	340829	1094634	25	6/11/1952
41	24 Ranch	341723	1092445	20	1/6/1975
42	Bitter	361411	1105403	20	NA
43	Oak	351438	1113521	20	9/20/1962
44	Thompson	340752	1095358	20	6/11/1952
45	Unnamed	365113	1105546	20	NA
46	Unnamed <sup>2</sup>	363747	1103749	20	6/11/1966
47	Dodson Lower	360828	1111441	19	7/26/1954
48	Stinking	343729	1093435	18 <sup>5</sup>	NA
49	Charlie Day	360833	1111412	16	6/10/1988
50	Coyote, Isva	353905	1103349	15	During or prior to 2005

**Table 2.1-5 Springs in the Little Colorado River Plateau Basin (Cont)**

**A. Major Springs (10 gpm or greater):**

Map Key	Name	Location		Discharge (in gpm) <sup>1</sup>	Date Discharge Measured
		Latitude	Longitude		
51	Hoxworth	350225	1113427	15	4/1/1996
52	Muddy Water	360651	1105709	15	2/16/1955
53	Unnamed	360625	1111311	15	During or prior to 2005
54	Unnamed	365215	1094857	15	2/16/1955
55	Wide Reeds Ruins - Right	354237	1093312	15	11/9/2004
56	Unnamed Near Dennehotso	364656	1094254	13	4/1/2004
57	Moenkopi School Spring	360632	1111311	12	3/29/2004
58	Wide Reed Ruins - Left	354237	1093312	11	11/9/2004
59	2 Sheep, Many Fast Drips	361204	1104335	10	During or prior to 2005
60	Cliff Dwelling	364736	1094232	10	10/6/1954
61	Jack Homer	361056	1112244	10	7/16/1954
62	Mineral	340939	1093645	10	11/20/1974
63	Schuster	342859	1093002	10	2/6/1975
64	Sweet Water	361403	1103521	10	During or prior to 2005
65	Unnamed	354812	1101046	10	During or prior to 2005
66	Unnamed	360636	1111321	10	During or prior to 2005
67	Unnamed	365539	1094419	10	2/16/1955
68	Unnamed <sup>2</sup>	364545	1104327	10	NA
69	Unnamed	365221	1103835	10	NA
70	Unnamed	365144	1103838	10	NA

**B. Minor Springs (1 to 10 gpm):**

Name	Location		Discharge (in gpm) <sup>1</sup>	Date Discharge Measured
	Latitude	Longitude		
Unnamed	354860	1100939	8.5	10/30/1951
Atascacita	341007	1093100	8	9/24/1974
Little Giant	341027	1093417	8	9/24/1974
Neilson	341753	1092124	8	1/17/1975
Unnamed	360631	1111315	8	NA
Unnamed	364226	1103004	8	9/25/1965
Huse	354218	1144836	7	2/10/1976
Tse Chizzi	355434	1100117	7	6/18/1954
Unnamed	361554	1103613	7	4/30/1952
Cc Hall	340715	1093737	6	6/23/1952
Government	361110	1115225	6	6/24/1954
Unnamed	362022	1100501	6	10/7/1954
Willow	360645	1104703	6	NA
Unnamed	360824	1111912	6	4/4/1952
Keams Canyon	354847	1101003	5.5 <sup>6</sup>	10/31/1950
Cow	355734	1095504	5	6/18/1954
Halleck	340730	1095513	5	6/1/1952
Kalbito #1	353113	1102538	5	NA
Mcintosh	343048	1091740	5	7/1/1946
Mud	342154	1092847	5	1/7/1975
Navajo	350605	1092938	5	11/18/1975
Nee De Miso Bito	361409	1105926	5	6/24/1954
Ortega	342657	1093555	5	1/15/1975
Unnamed	351823	1114243	5	8/23/1979
Unnamed	354835	1101001	5	NA
Unnamed	364225	1103004	5	8/25/1965
Unnamed	360821	1101333	5	4/5/1952

**Table 2.1-5 Springs in the Little Colorado River Plateau Basin (Cont)**

**B. Minor Springs (1 to 10 gpm):**

Name	Location		Discharge (in gpm) <sup>1</sup>	Date Discharge Measured
	Latitude	Longitude		
Unnamed	364221	1093352	5	12/2/1954
Walker Wash	361056	1141732	5	3/12/1980
Kydestea	361947	1104019	4.5	4/21/1987
Heiser	353021	1112114	4 <sup>6</sup>	6/25/1925
Chipmunk	340830	1095218	4	6/11/1952
Kai Si Kato	361811	1104805	4	NA
Sueiva	354846	1103143	4	NA
Unnamed	354728	1101601	4	NA
Unnamed	354632	1101637	4	4/21/1955
Unnamed	361953	1094052	4	2/27/1950
Unnamed	362601	1101812	4 <sup>6</sup>	3/3/2004
Unnamed	365149	1103127	4	NA
Unnamed	362629	1102419	4 <sup>6</sup>	9/26/1995
Malpais	342428	1093325	4	1/15/1975
Oak	355524	1095730	4	6/17/1954
Ashurst	350131	1112949	3	7/26/1978
Bitter, Toh De Koinish	363930	1113845	3	4/30/1952
Chili, Tsilvasa	354822	1101119	3	NA
Coal Slurry	361736	1104016	3	8/11/1954
Hall	341624	1092055	3	1/16/1975
Hoecevi	354944	1102948	3	7/10/1952
Little Burro, Matovia	354036	1103413	3	NA
Red Bluff, South	362740	1141512	3	3/11/1980
Sand	354306	1105546	3	5/13/1954
Sand 2	354259	1105545	3	NA
Siwukva	355405	1104050	3	NA
Tonali	360002	1111434	3	7/7/1954
Unnamed	340913	1092742	3	12/24/1974
Unnamed	360642	1111325	3	NA
Unnamed	355358	1104028	3	4/21/1955
Unnamed	355812	1103306	3	4/15/1955
Unnamed	364813	1101039	3	10/1/1954
Unnamed	360651	1111551	3	6/25/1954
Betakin	364049	1103218	3	8/28/2002
Wepo South	355325	1102203	3	8/17/1993
Bluebird	354714	1101430	3	4/21/1955
Hotevilla	355544	1104024	3	8/16/1993
Laguna Salada	342018	1094324	3	1/15/1975
Awat ovi	354325	1101645	2	NA
Babbit	350401	1113216	2	3/27/2004
CC Fireman Cabin	340653	1093737	2	9/24/1974
Hock	355103	1105424	2	NA
Lemova	354818	1102900	2	NA
Maynard	361544	1141818	2	3/11/1980
Nee De Miso Bito	361358	1105925	2	6/24/1954
Onion	355946	1102908	2	NA
Red Willow	361952	1103249	2	NA
Rock Ledge, Phillips Farm	354011	1103315	2	NA
Sand	361004	1105546	2	NA
Shonto	354032	1104439	2	8/6/1954
Sweetwater	354538	1105635	2	4/13/1954
Talahogan	354406	1101635	2	NA
Telephone	340842	1094837	2	6/13/1952
Unnamed	350659	1103153	2	7/2/1972

**Table 2.1-5 Springs in the Little Colorado River Plateau Basin (Cont)**

**B. Minor Springs (1 to 10 gpm):**

Name	Location		Discharge (in gpm) <sup>1</sup>	Date Discharge Measured
	Latitude	Longitude		
Unnamed	354434	1105616	2	NA
Unnamed	355141	1100909	2	NA
Unnamed	360936	1105330	2	6/25/1954
Unnamed	360534	1111021	2	7/7/1954
Unnamed	362412	1102318	2	10/8/1954
Unnamed	354519	1102402	2	NA
Unnamed	355905	1102945	2	4/14/1955
Unnamed	362812	1105902	2	7/8/1954
Unnamed	360644	1111447	2	8/10/1954
Unnamed	364856	1102149	2	10/14/1954
Unnamed	354851	1101214	2	NA
Wolf Pass	353125	1101952	2	NA
Salt Water	361301	1100153	2	10/6/1954
Unnamed	363153	1101837	2 <sup>5</sup>	12/8/1987
Unnamed	364128	1103606	2	8/7/1954
Big Willow	354804	1095611	2	6/16/1954
Chief, Monwisva	354533	1101638	2	NA
Franey	340718	1093744	2	9/24/1974
Hawk Nest	365002	1103611	2	7/28/1954
Shonto	363625	1103822	2	8/6/1954
Trickle, Yatcakpa	354347	1101653	2	NA
Unnamed	342448	1093109	2	1/15/1975
Unnamed	354902	1100936	2	NA
Unnamed	363632	1103822	2	8/6/1954
Unnamed	361633	1094330	2	2/27/1950
Wepo North, Wipho, Cattail, Reed	355330	1102159	2	8/17/1993
Youngs	350517	1112838	2	7/24/1978
Unnamed	362208	1094113	1.5 <sup>6</sup>	11/1/1929
Unnamed	363238	1102241	1	4/18/2007
Unnamed	362537	1102407	1	6/25/2007
Unnamed	362537	1102406	1	6/25/2007
Bell Butte	353338	1102045	1	NA
Scott	361542	1094119	1	8/4/1954
Aqwpa	354917	1102941	1	NA
Beehive	340404	1093239	1	9/23/1974
Bryan Adams, Fadairs	355123	1100849	1	NA
Buhu Va	354720	1101802	1	NA
Campbell	344453	1112947	1	8/6/2002
Cane	363346	1100706	1	10/13/1954
Clark	350402	1113444	1	3/27/2004
Cottonwood, White cave	360216	1103902	1	NA
Coyote	351358	1113934	1	8/27/1979
Flower, Wuko'kwan tu kwi, Siipa	355039	1102238	1	NA
Gopher	362103	1110326	1	7/7/1954
Grooming, Naftakinva	354821	1103128	1	NA
Hard Rocks	360134	1103008	1	NA
Horse	361106	1103437	1	NA
Hummingbird	364941	1094155	1	11/10/1954
Lee	353947	1111811	1	2/3/1954
Lukai	353113	1102050	1	NA

**Table 2.1-5 Springs in the Little Colorado River Plateau Basin (Cont)**

**B. Minor Springs (1 to 10 gpm):**

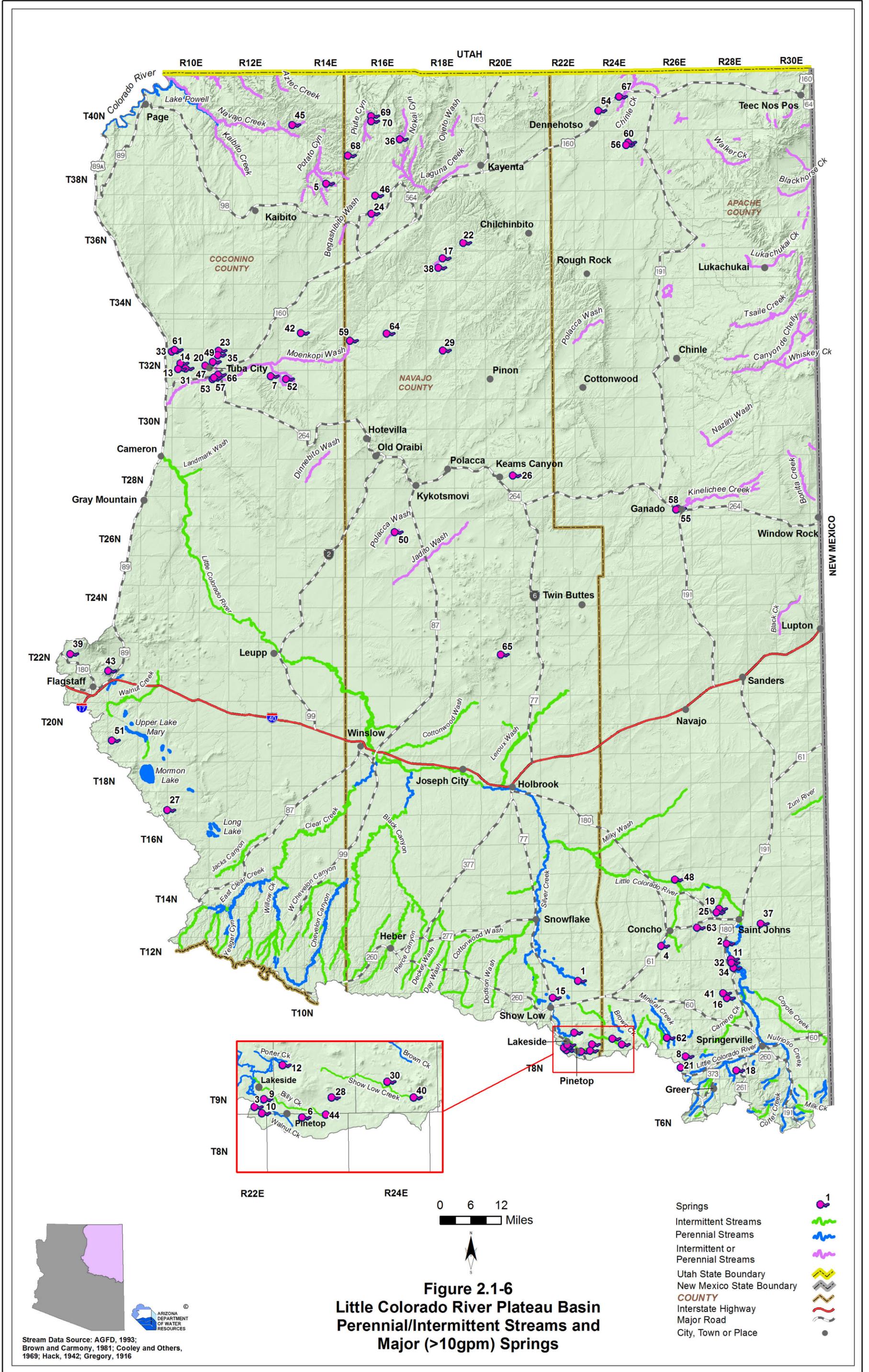
Name	Location		Discharge (in gpm) <sup>1</sup>	Date Discharge Measured
	Latitude	Longitude		
Many Fast Drip	361153	1104406	1	6/25/1954
Mccormick	340853	1094623	1	6/13/1952
Red Bluff, North	362744	1141505	1	3/11/1980
Salt Seeps	350625	1092706	1	11/18/1975
Sand	365025	1094206	1	11/10/1954
Seba Delkai	353453	1102414	1	NA
Setsiltso	364323	1094014	1	112/1/1954
Sherwood	341715	1092115	1	1/16/1975
Shonto-hi, Shontah	353250	1101732	1	NA
Spring on a Rock	355740	1111425	1	7/7/1954
Tis Ya Toh	360428	1104325	1	10/8/1954
Tonahakaad	354643	1111259	1	7/14/1954
Trough	341937	1102448	1	11/7/1952
Unnamed <sup>2,7</sup>	351521	1113544	1	8/27/1949
Unnamed	354840	1104004	1	NA
Unnamed	361556	1105911	1	6/24/1954
Unnamed	361121	1103742	1	10/28/1954
Unnamed	354120	1105301	1	5/13/1954
Unnamed	354848	1101024	1	7/9/1950
Unnamed	353755	1102650	1	NA
Unnamed	361603	1105911	1	6/24/1954
Unnamed	364618	1102142	1	10/14/1954
Unnamed	364626	1093645	1	12/1/1954
Unnamed (multiple)	364632	1094136	1	10/6/1954
Unnamed (multiple)	364449	1094036	1	10/6/1954
Unnamed	362422	1095214	1 <sup>6</sup>	8/4/1994
Unnamed	363212	1102339	1 <sup>6</sup>	2/3/2005
Nasjo Toh	363504	1100937	1 <sup>6</sup>	10/13/1954
Wupatki	353118	1112231	1 <sup>6</sup>	8/23/1950

Source: Compilation of databases from ADWR & others

**C. Total number of springs, regardless of discharge, identified by USGS  
(see ALRIS, 2005a and USGS, 2006a): 1,222 to 1,305**

**Notes:**

- <sup>1</sup>Most current discharge measurement
- <sup>2</sup>Spring not on current topographic map
- <sup>3</sup>Most current discharge <10gpm
- <sup>4</sup>One of 21 springs in a 1 mile section of the canyon.  
This representative spring is the only one measured.
- <sup>5</sup>Spring is now dry
- <sup>6</sup>Most current discharge <1gpm
- <sup>7</sup>Location approximated by ADWR



**Figure 2.1-6**  
**Little Colorado River Plateau Basin**  
**Perennial/Intermittent Streams and**  
**Major (>10gpm) Springs**



Stream Data Source: AGFD, 1993;  
 Brown and Carmony, 1981; Cooley and Others,  
 1969; Hack, 1942; Gregory, 1916



- 1 Springs
- Intermittent Streams
- Perennial Streams
- Intermittent or Perennial Streams
- Utah State Boundary
- New Mexico State Boundary
- COUNTY
- Interstate Highway
- Major Road
- City, Town or Place

## 2.1.6 Groundwater Conditions of the Little Colorado River Plateau Basin

Major aquifers, well yields, estimated natural recharge, estimated water in storage, number of index wells and date of last water-level sweep are shown in Table 2.1-6. Figure 2.1-7 shows aquifer boundaries, aquifer flow direction and water-level change between 1990-1991 and 2003-2004. Figure 2.1-8 contains hydrographs for selected wells shown on Figure 2.1-7. Figure 2.1-9 shows well yields in five yield categories. A description of aquifer data sources and methods as well as well data sources and methods, including water-level changes and well yields are found in Volume 1, Appendix A.

### Major Aquifers

- Refer to Table 2.1-6 and Figure 2.1-7.
- Recent stream alluvium aquifers include alluvial deposits along washes and stream channels, including along the Little Colorado River and its tributaries.
- Volcanic aquifers include the Lakeside-Pinetop aquifer and a smaller aquifer inside the caldera of the San Francisco Peaks, known as the “Inner Basin”.
- The large regional aquifers are located in sedimentary formations of sandstone and limestone that are stacked on top of one another and are generally separated by impermeable shales and siltstones. In descending order, the regional aquifers are the D-, N-, and C-aquifers.
- The Bidahochi formation forms a local aquifer in the central part of Apache and Navajo counties and near Saint Johns.
- Undifferentiated sandstones west of Show Low along the Mogollon Rim and in the Springerville-Eagar area form local aquifers, known as the White Mountain and Springerville aquifers, respectively.
- Flow directions are shown in Figure 2.1-7. Flow directions in the D-aquifer are generally from east to west. Flow in the N-aquifer varies as shown on the map. Flow direction in the C-aquifer is south to north in the southern part of the basin and generally from east to west in the northern part of the basin. The Bidahochi aquifer flows are not mapped in the area south of Keams Canyon. Flows in the Volcanic aquifer are generally toward the north.

### Well Yields

- Refer to Table 2.1-6 and Figure 2.1-9.
- Well yields vary greatly in the basin. In general, well yields are greatest along the Little Colorado River and in alluvial areas north of Springerville and in the vicinity of Concho, Saint Johns and Snowflake. Areas of lower yield are found in the northern part of the basin and in the volcanic aquifers around Flagstaff and Greer.
- One source of well yield information, based on 386 reported wells, indicates that the median yield from is 500 gpm. An estimate that includes USGS and Navajo Tribal Utility Authority data found a median well yield of 95 gpm.

### Natural Recharge

- Refer to Table 2.1-6
- Estimated natural recharge to the major regional aquifers is 319,000 AFA to the C-aquifer (areal extent 21,655 square miles), 5,392 AFA to the D-aquifer (areal extent 3,125 square miles) and between 2,600 acre-feet to 20,248 acre-feet with a median of 13,000 AFA to the

N-aquifer (areal extent 6,250 square miles). Main recharge areas are along the southern and eastern periphery of the basin.

- Recharge rates to other basin aquifers is unknown.

### **Water in Storage**

- Refer to Table 2.1-6
- Storage volumes are based on rough estimates and additional aquifer studies are needed.
- The only storage estimate for the entire basin is 508 maf from a 1989 ADWR study.

### **Water Level**

- Refer to Figure 2.1-7. Water levels are shown for wells measured in 2003-2004.
- The Department annually measures 57 index wells in the basin. Hydrographs for 10 index wells, including one automated telemetry site, and other wells (Hydrograph #AZ), are shown in Figure 2.1-8.
- Deep water levels are found in areas near Flagstaff where water levels as deep as 1,572 feet below land surface (bls) were measured, and near Cottonwood and Piñon where water levels were between 1,000 and 1,272 bls. Shallow water levels (<50 feet bls) are found along the Little Colorado River, in the Tuba City area, near Window Rock and near Dennehotso.
- Areas of most significant groundwater level decline were found in the vicinity of St. Johns, Pinon, Flagstaff and Kayenta. Water level rises were noted in individual wells near Springerville, Concho, Chilchinbito and Flagstaff.

**Table 2.1-6 Groundwater Data for the Little Colorado River Plateau Basin**

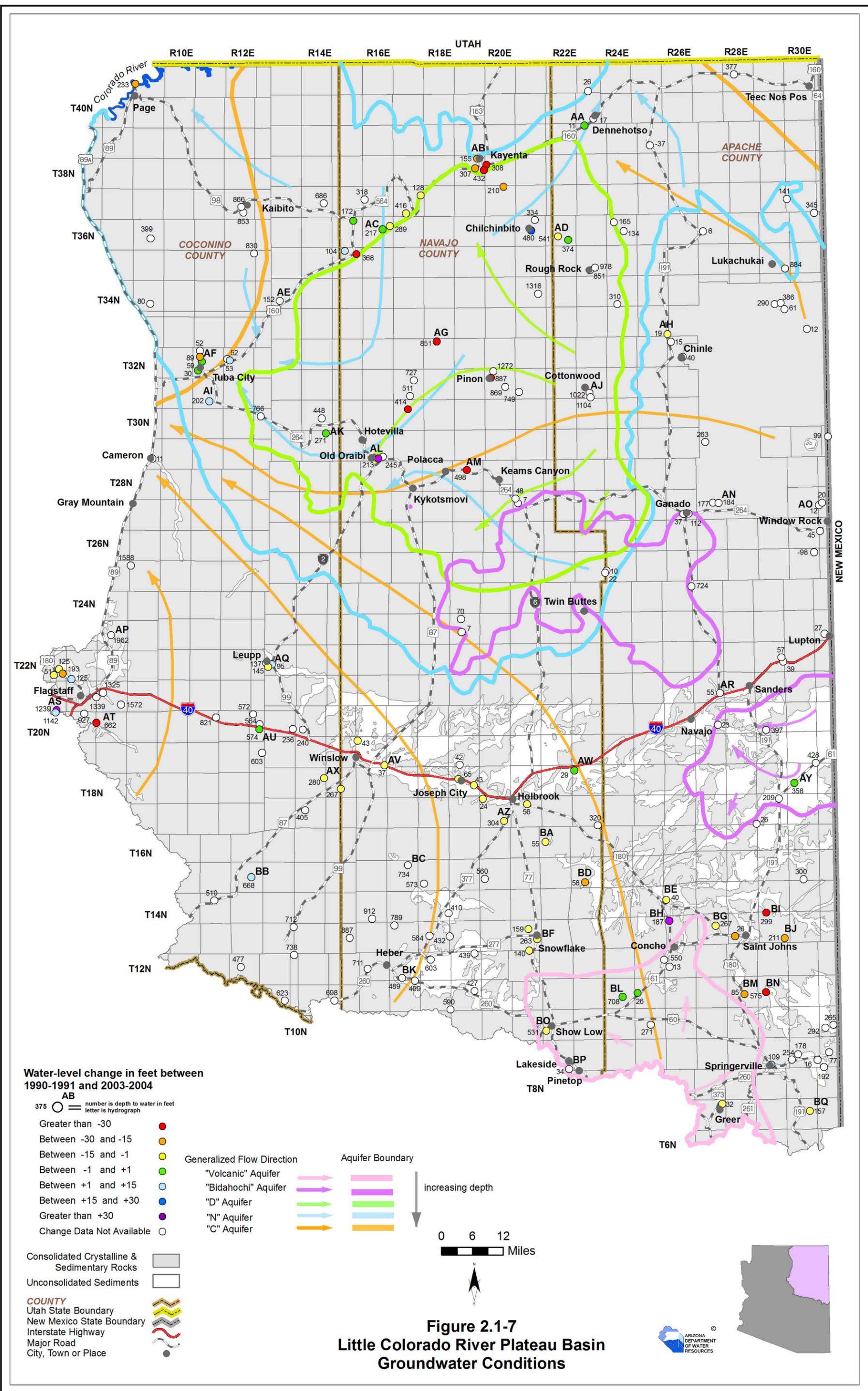
<b>Basin Area, in square miles:</b>	26,700	
<b>Major Aquifer(s):</b>	<b>Geologic Units and/or Name</b>	
	Recent Stream Alluvium	
	Volcanic Rock (Lakeside-Pinetop Aquifer)	
	Sedimentary Rock (Bidahochi Formation, C, D, N, Springerville, and White Mountain Aquifers)	
<b>Well Yields, in gal/min:</b>	Range 8-1,602 Median 95 (85 wells measured)	Measured by ADWR and/or USGS or NTUA
	Range 1-3,000 Median 500 (386 wells reported)	Reported on registration forms for large (> 10-inch) diameter wells
	Range 30-300	ADWR (1990b)
	Range 0-2,500	Anning and Duet (1994)
<b>Estimated Natural Recharge, in acre-feet/year:</b>	319,000 <sup>1</sup> (C Aquifer)	Hart et. al (2002)
	5,392 (D Aquifer)	GeoTrans and Waterstone (1999)
	2,600 - 20,248, median 13,000 (N Aquifer)	OSM (2008)
<b>Estimated Water Currently in Storage, in acre-feet:</b>	508,000,000 (total)	ADWR (1990b)
	413,000,000 (C Aquifer)	ADWR (1989)
	15,000,000 (D Aquifer)	ADWR (1989)
	526,000,000 (N Aquifer)	ADWR (2008d)
<b>Current Number of Index Wells:</b>	94	
<b>Date of Last Water-level Sweep:</b>	2001 (932 wells measured)	

**Notes:**

<sup>1</sup> Assumes steady state conditions and may include parts of the Verde and Salt River Basins.

NTUA = Navajo Tribal Utility Authority



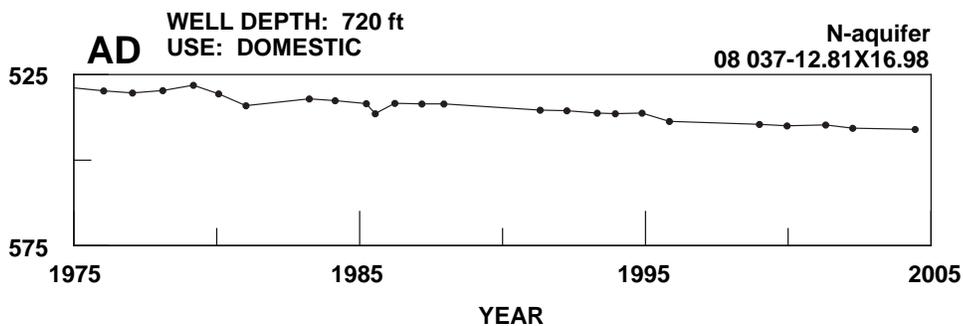
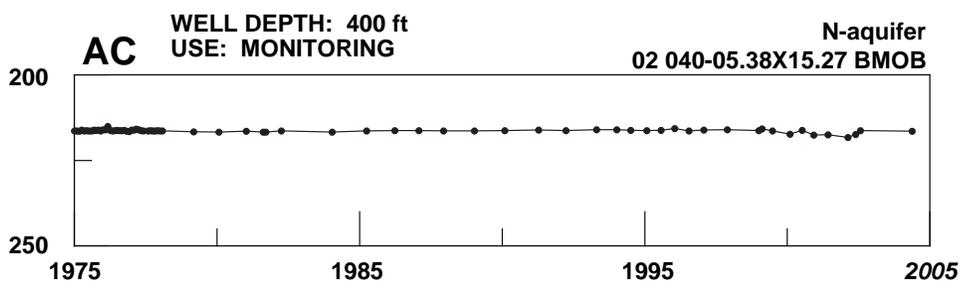
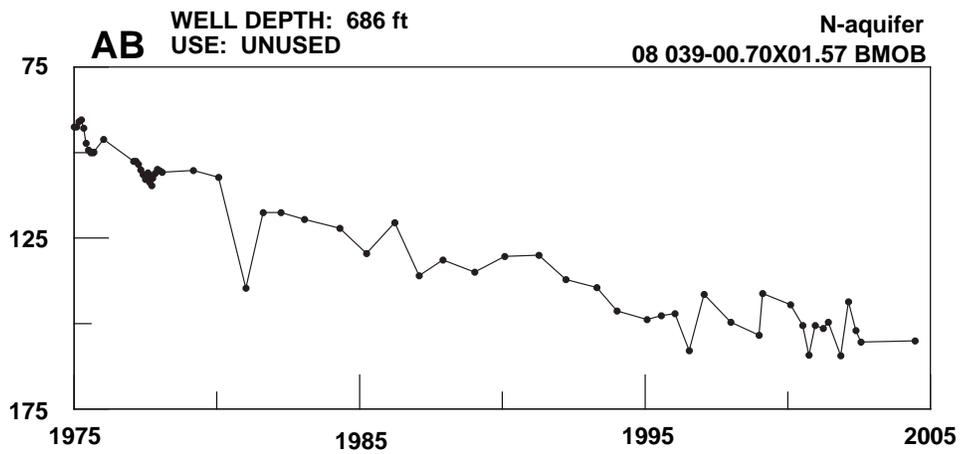
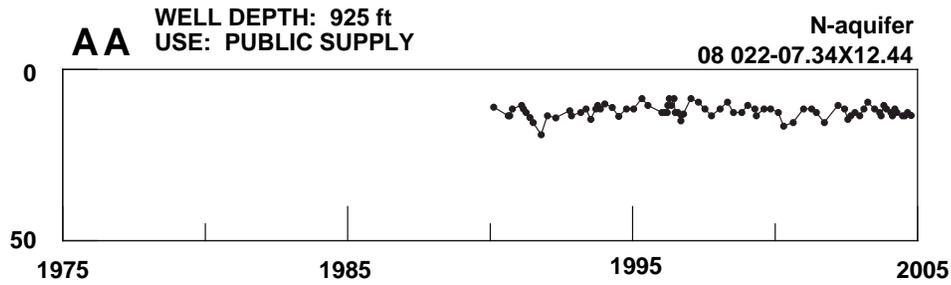


**Figure 2.1-7**  
Little Colorado River Plateau Basin  
Groundwater Conditions

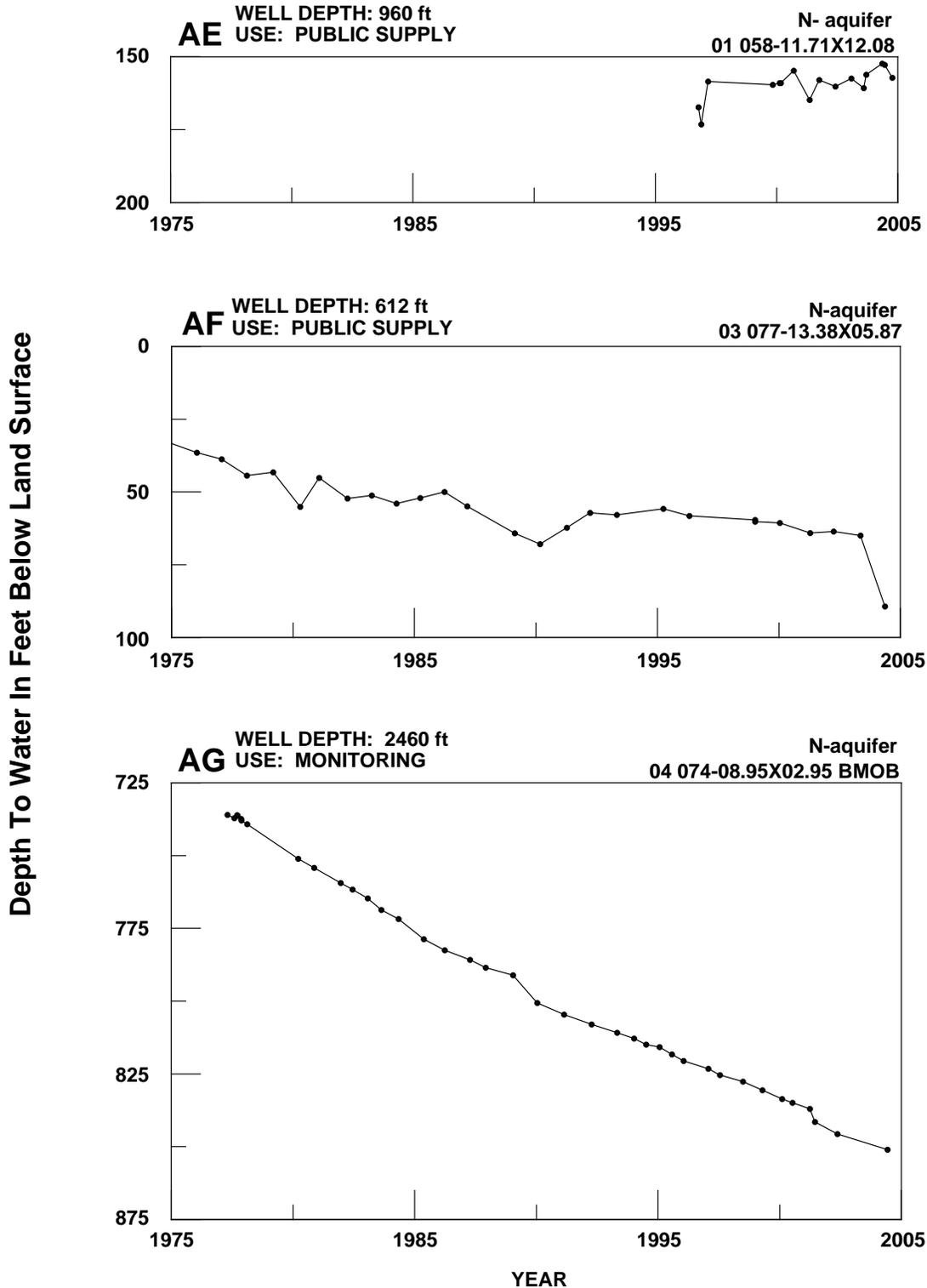


**Figure 2.1-8**  
**Little Colorado River Plateau Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**

Depth To Water In Feet Below Land Surface

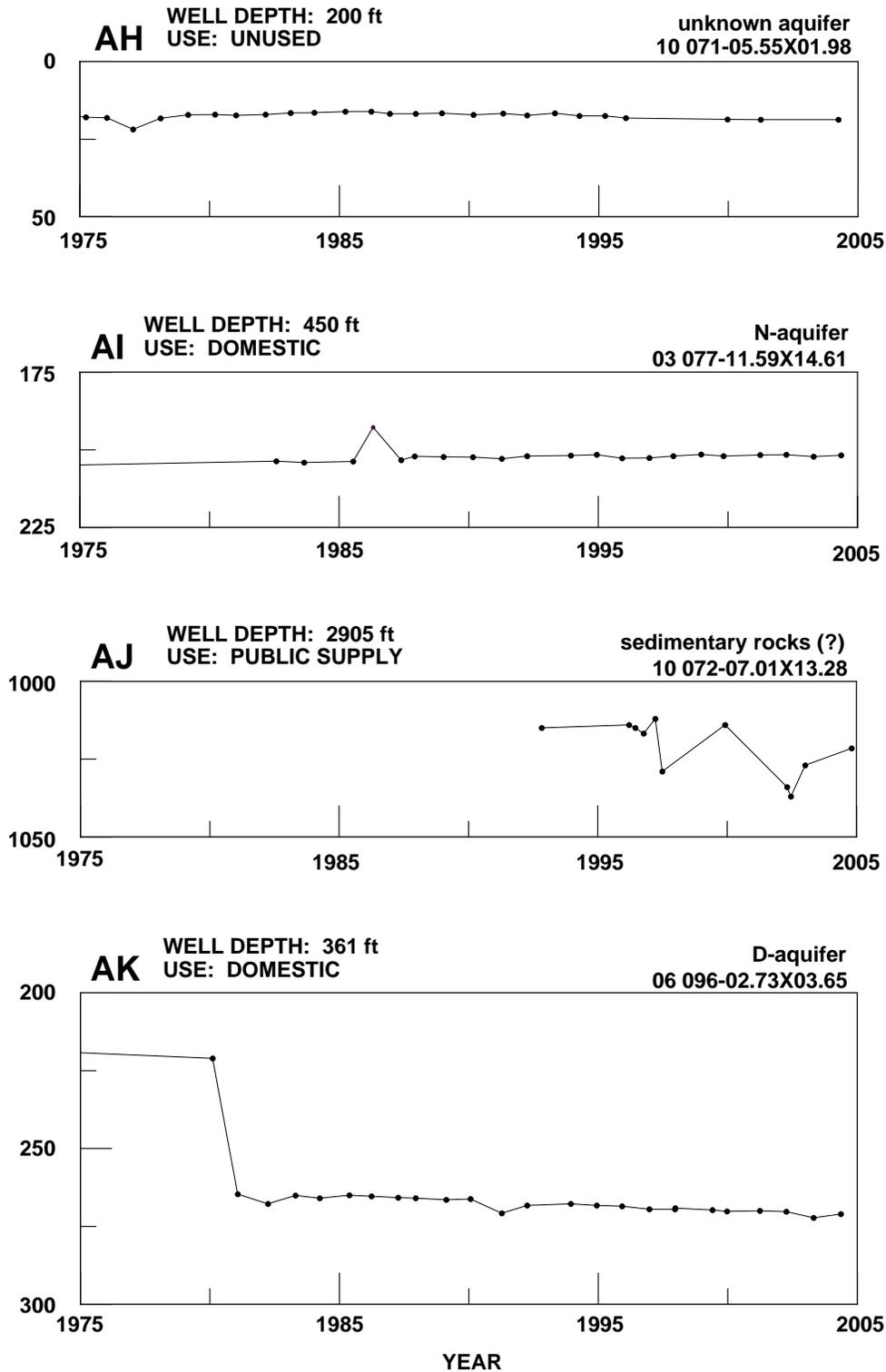


**Figure 2.1-8 (Cont)**  
**Little Colorado River Plateau Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**

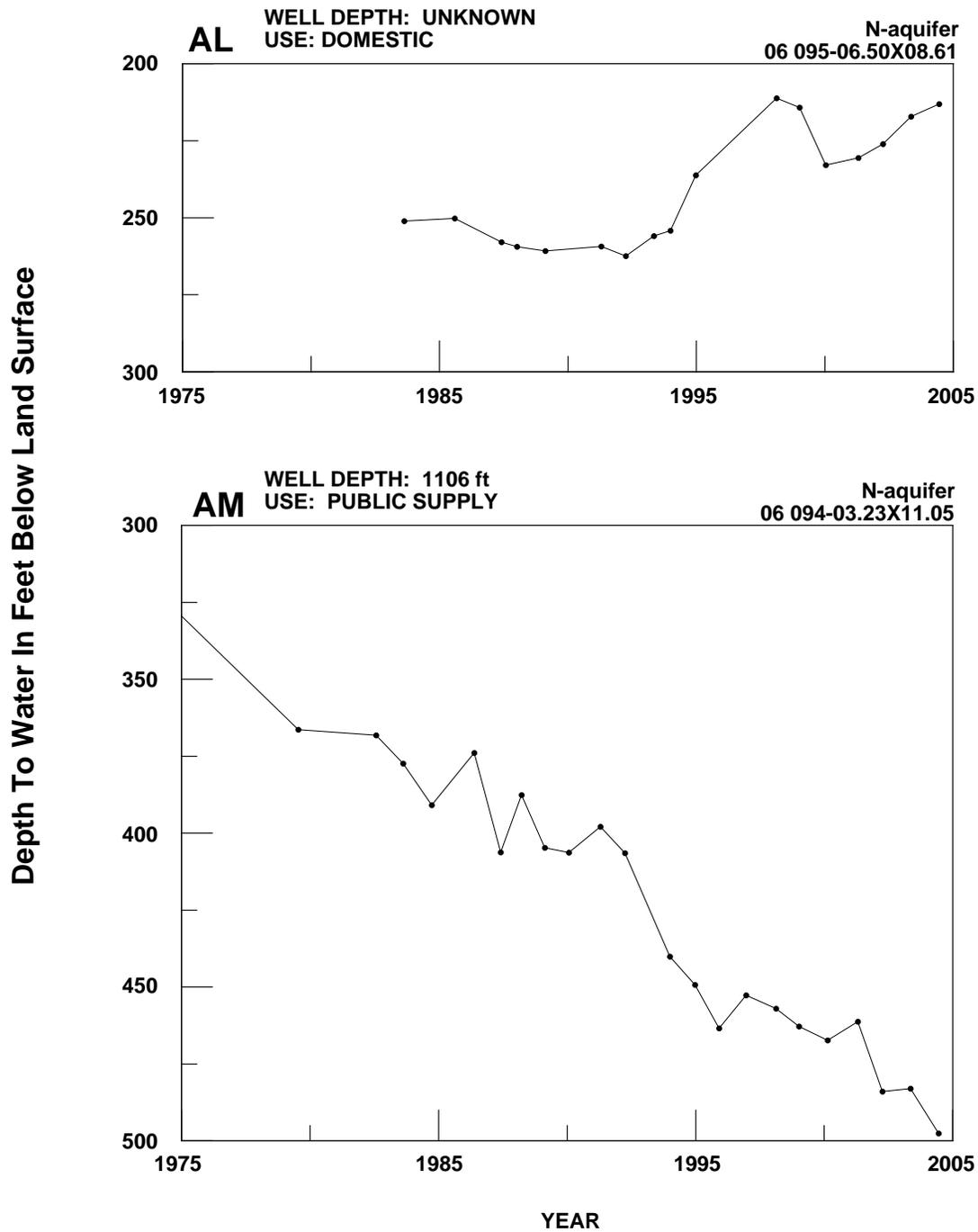


**Figure 2.1-8 (Cont)**  
**Little Colorado River Plateau Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**

Depth To Water In Feet Below Land Surface

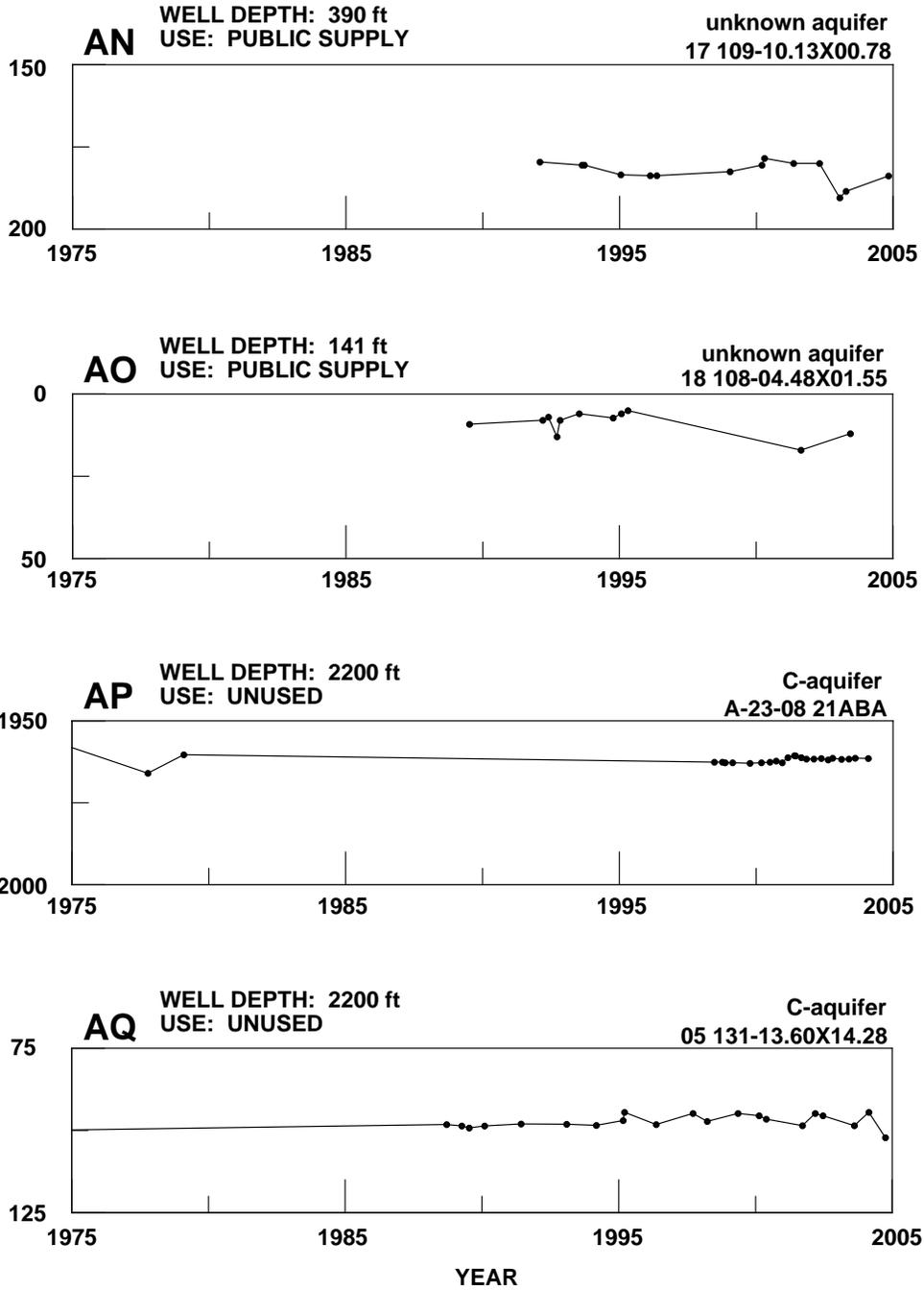


**Figure 2.1-8 (Cont)**  
**Little Colorado River Plateau Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**

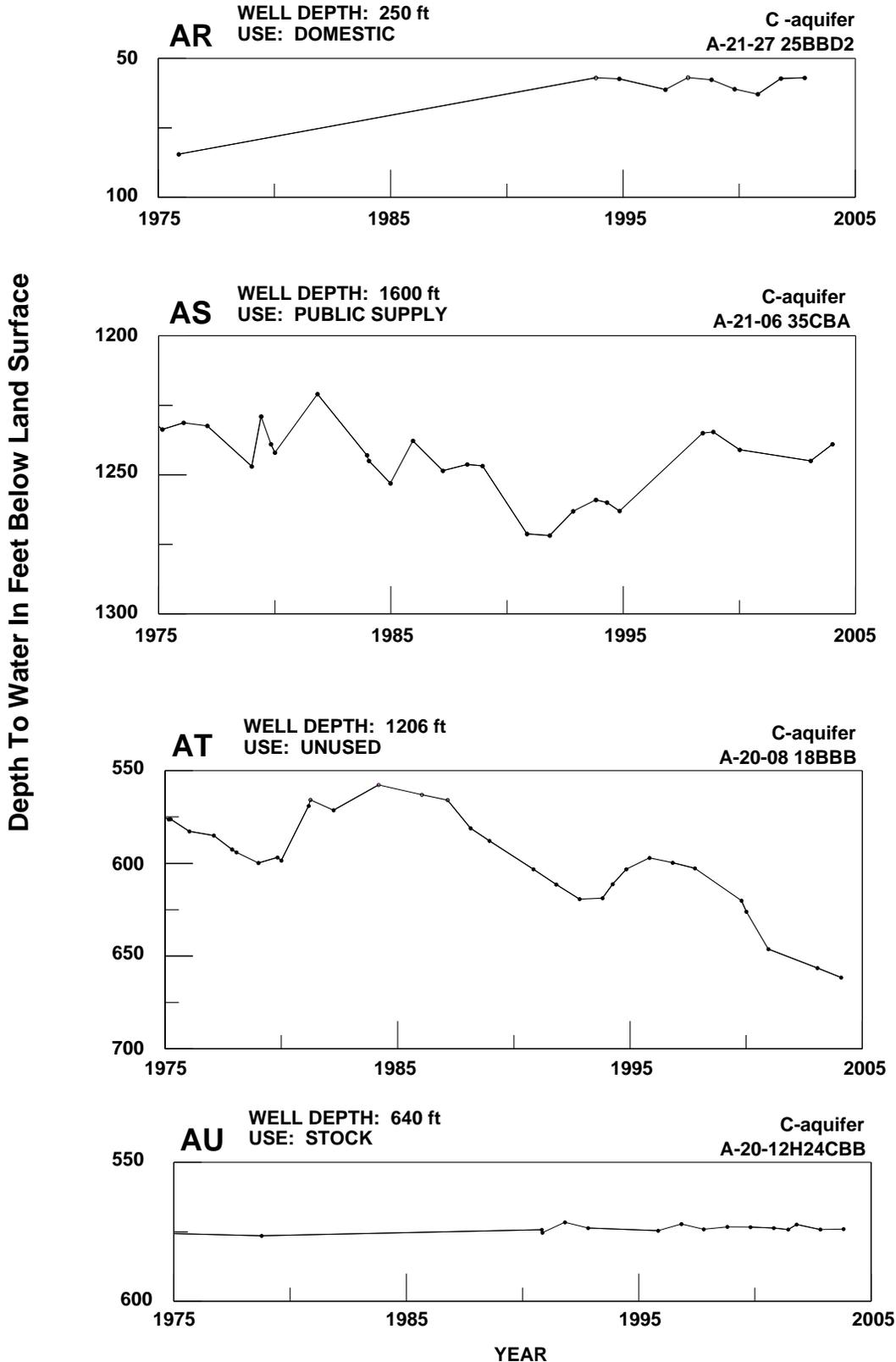


**Figure 2.1-8 (Cont)**  
**Little Colorado River Plateau Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**

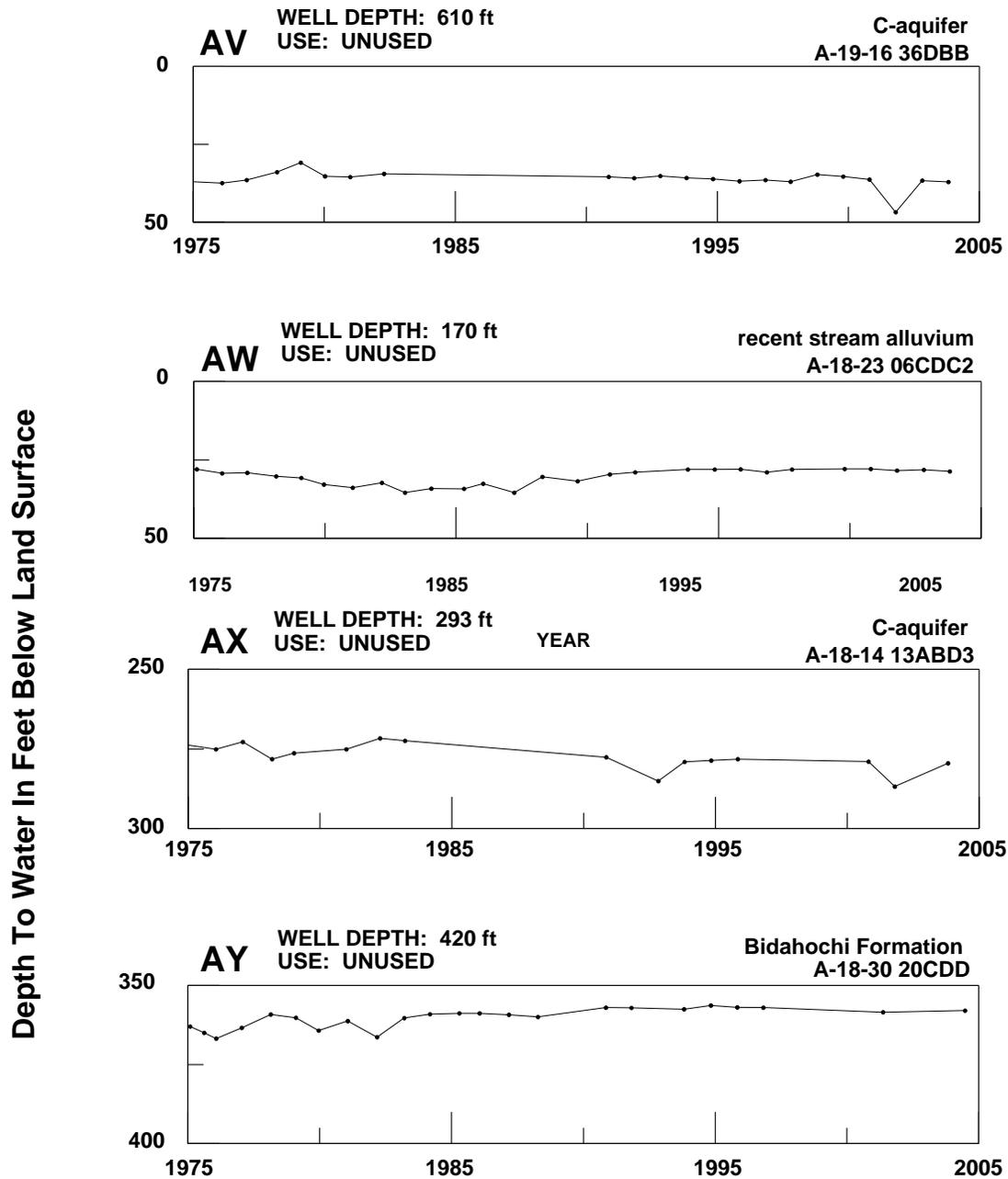
Depth To Water In Feet Below Land Surface



**Figure 2.1-8 (Cont)**  
**Little Colorado River Plateau Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**

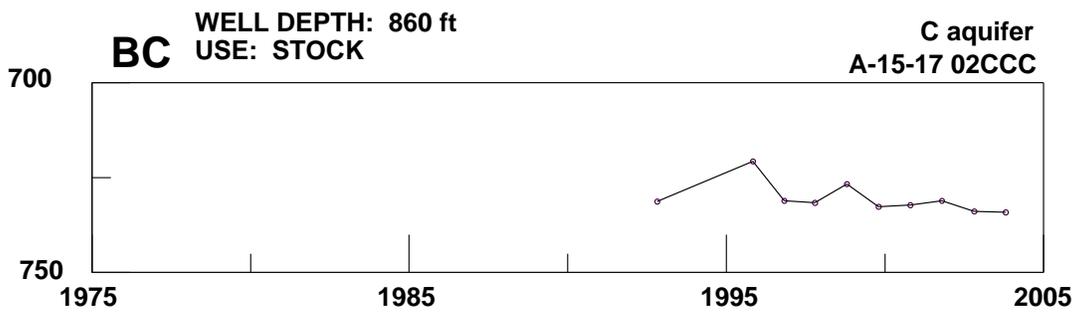
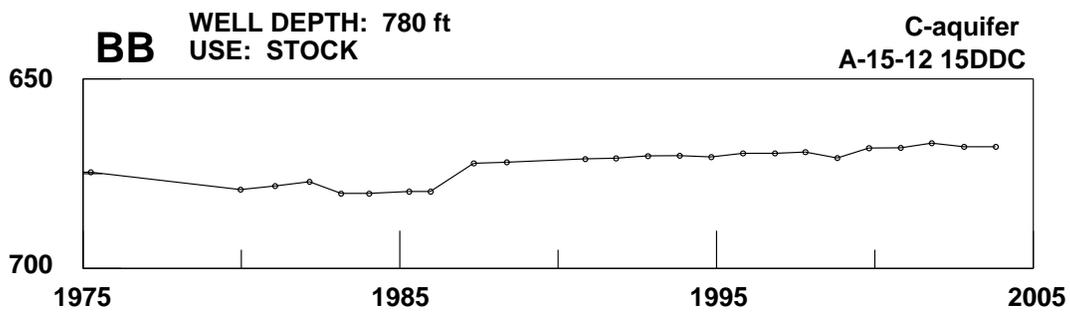
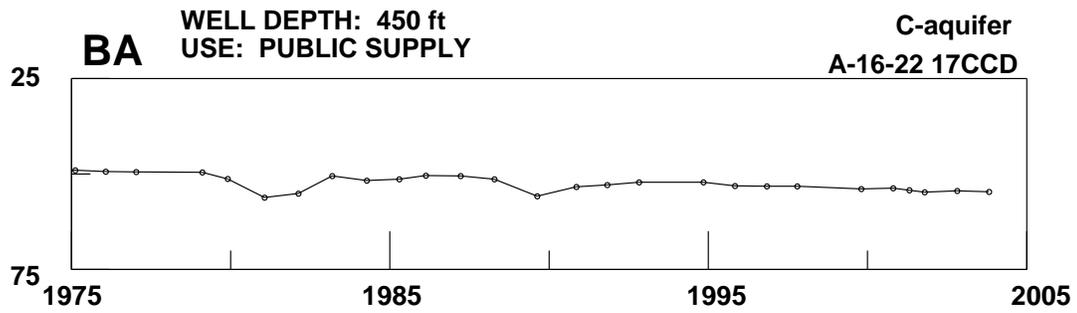
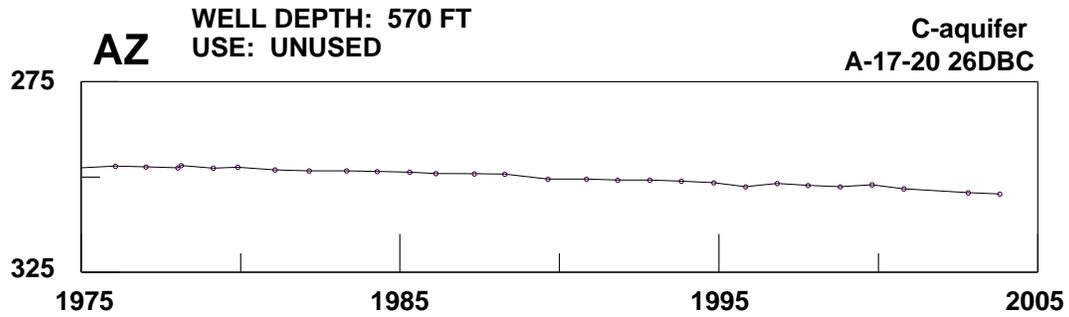


**Figure 2.1-8 (Cont)**  
**Little Colorado River Plateau Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**



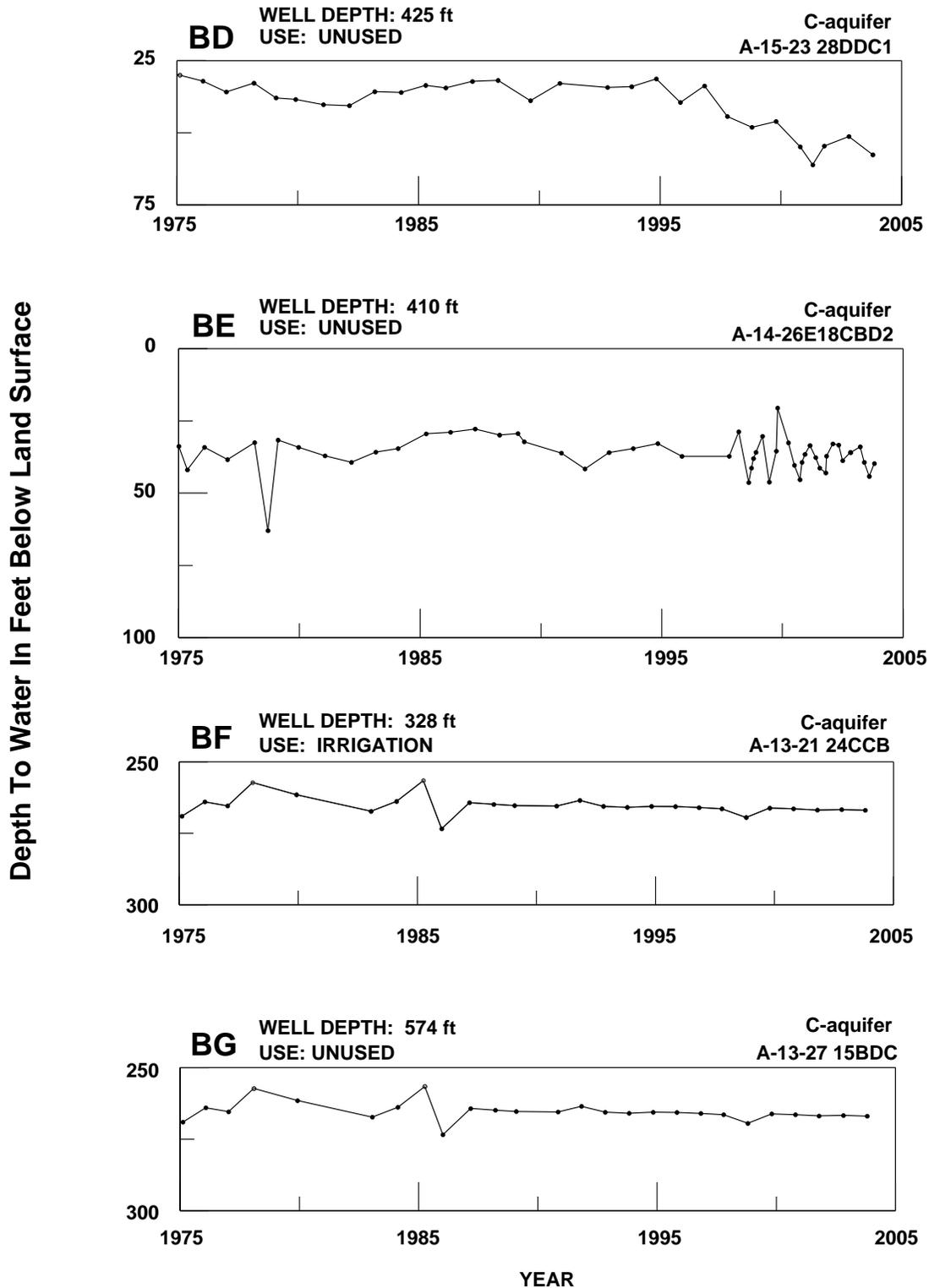
**Figure 2.1-8 (Cont)**  
**Little Colorado River Plateau Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**

Depth To Water In Feet Below Land Surface

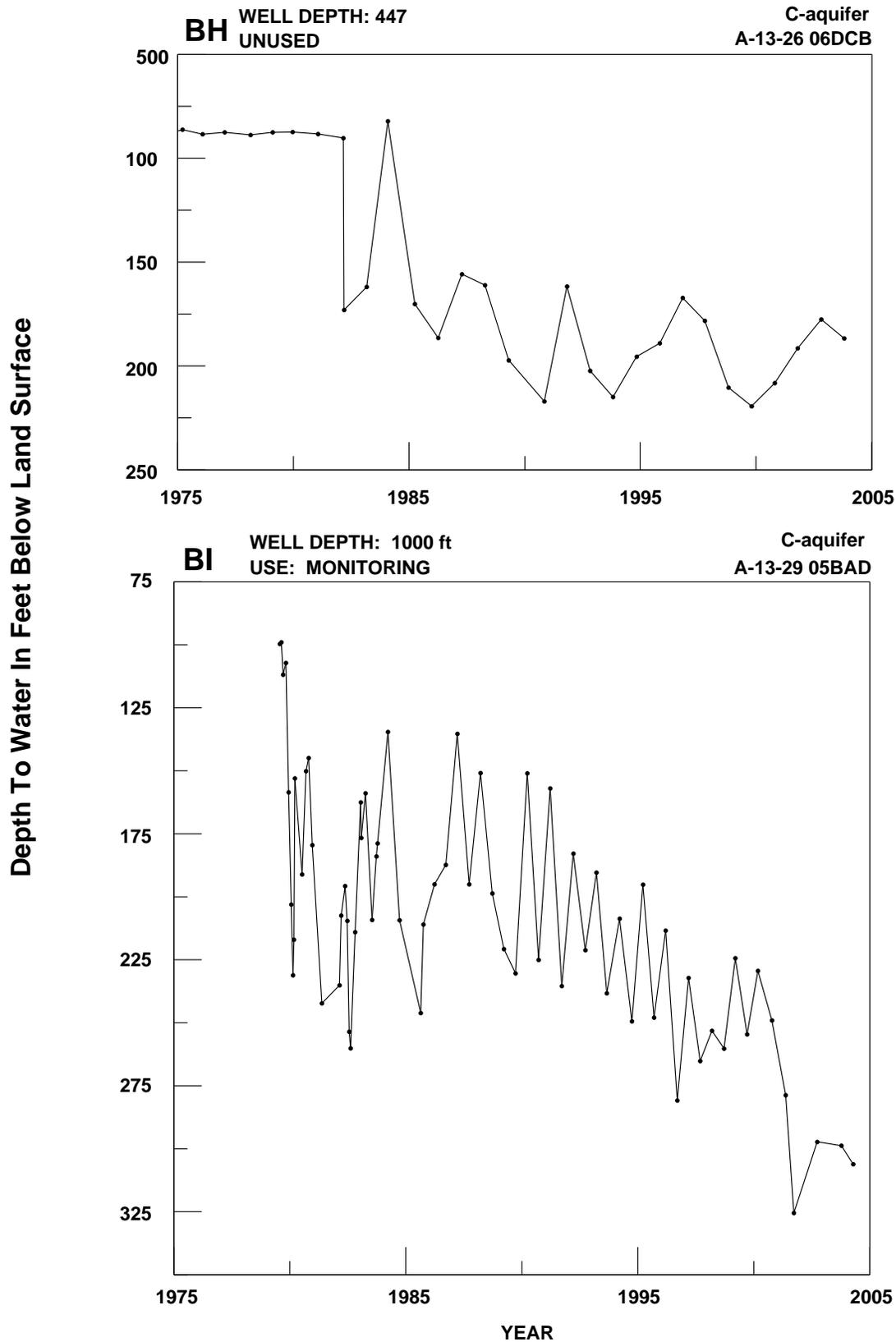


YEAR

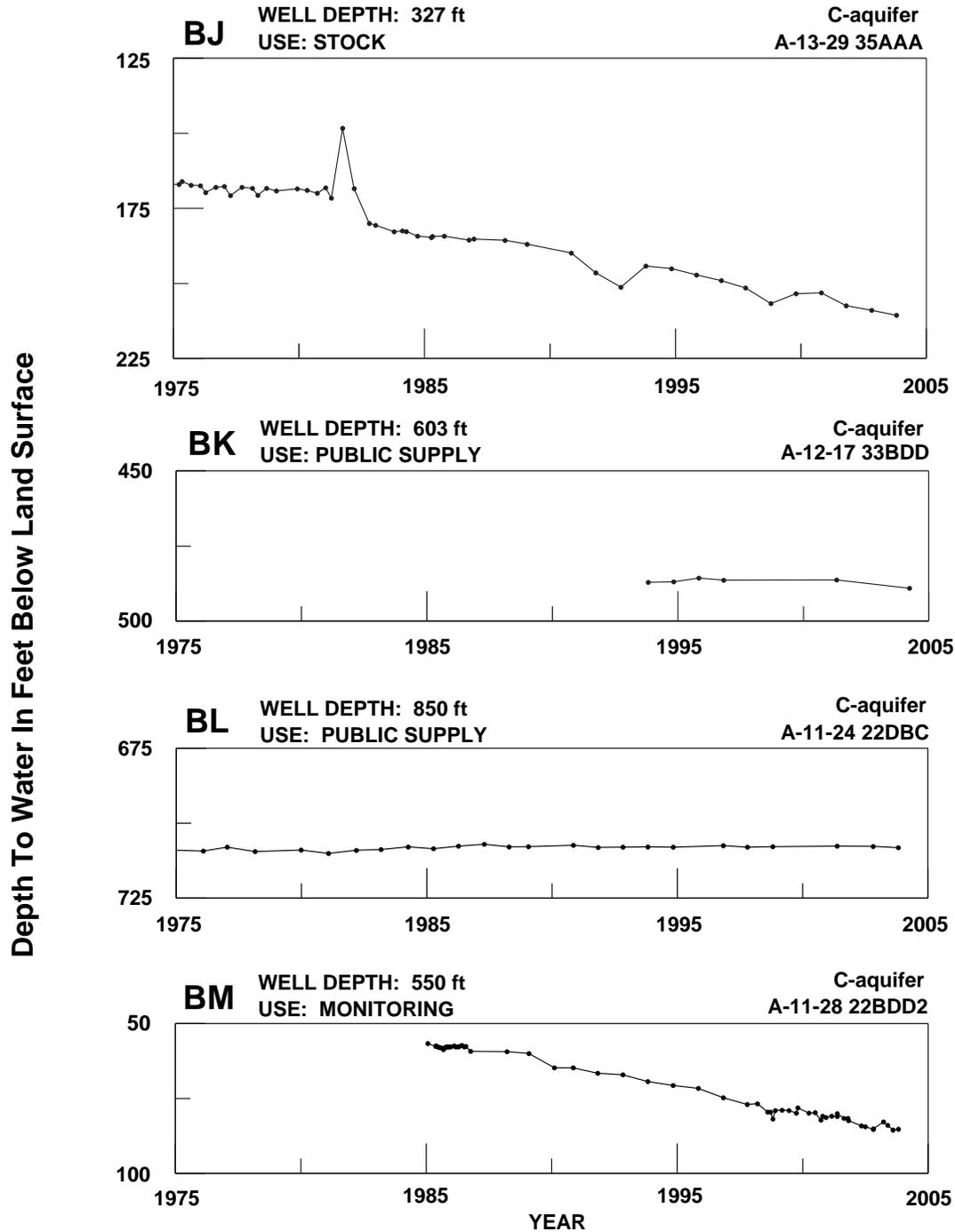
**Figure 2.1-8 (Cont)**  
**Little Colorado River Plateau Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**



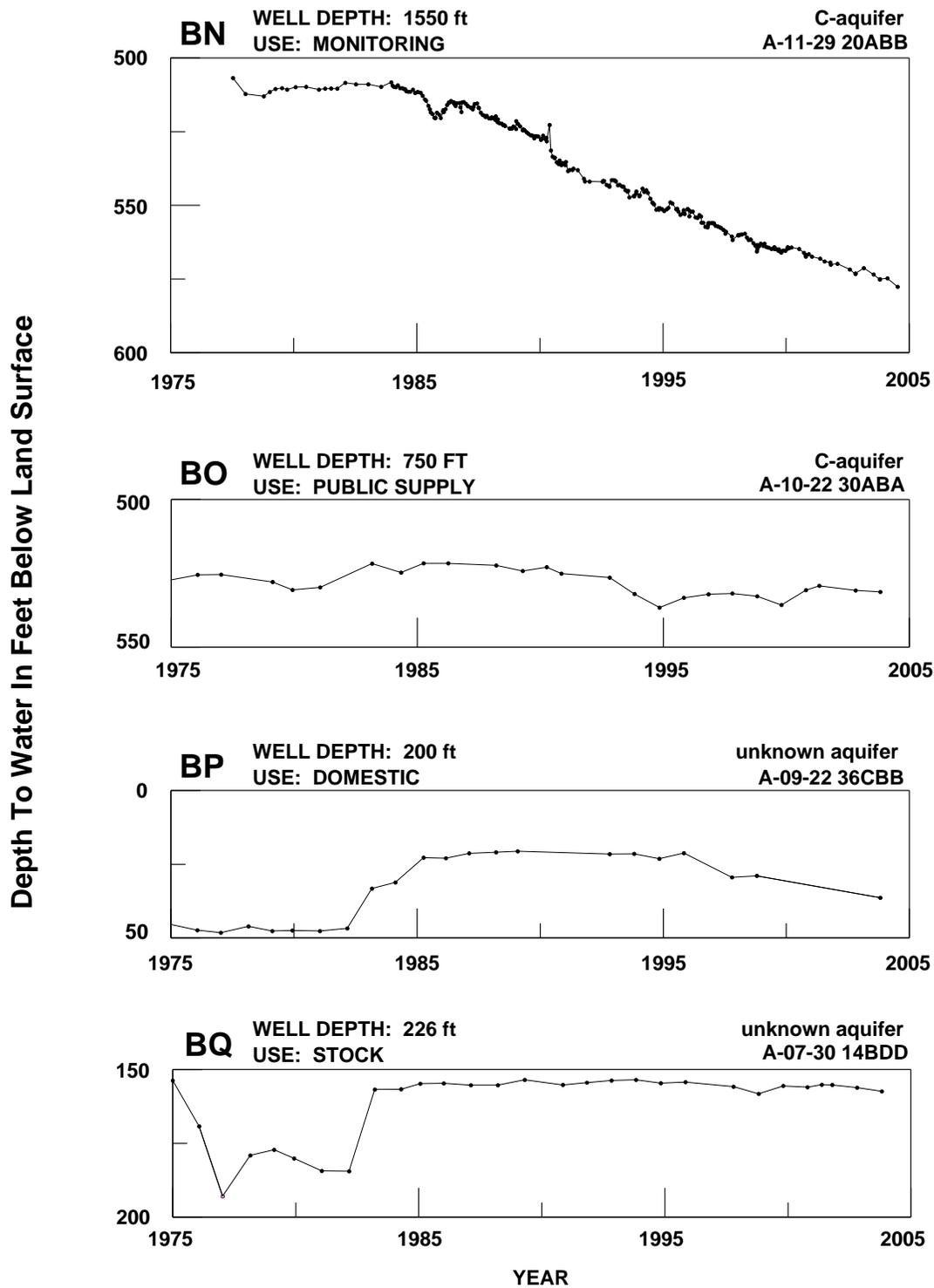
**Figure 2.1-8 (Cont)**  
**Little Colorado River Plateau Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**

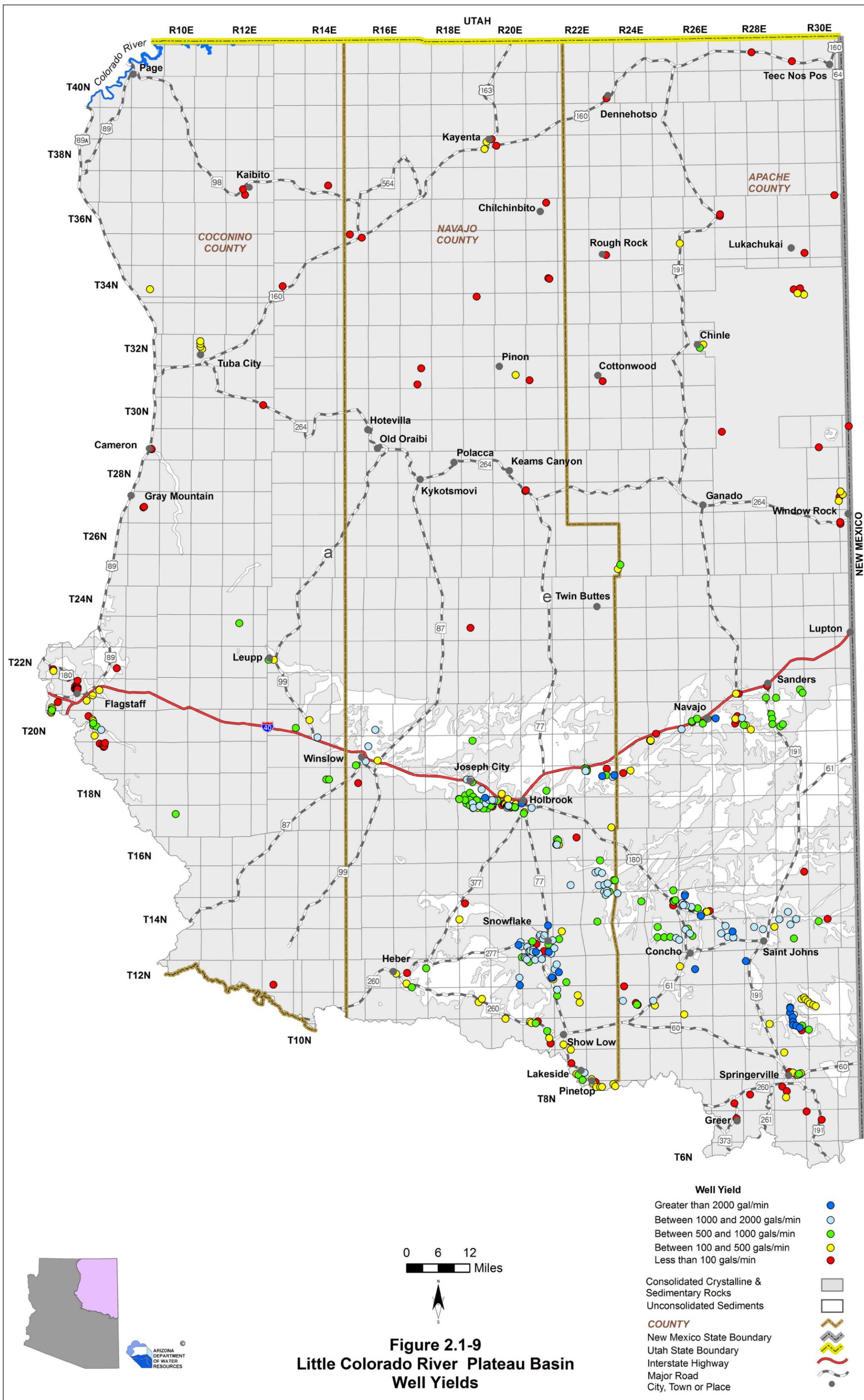


**Figure 2.1-8 (Cont)**  
**Little Colorado River Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**



**Figure 2.1-8 (Cont)**  
**Little Colorado River Plateau Basin**  
**Hydrographs Showing Depth to Water in Selected Wells**





**Figure 2.1-9**  
**Little Colorado River Plateau Basin**  
**Well Yields**

- Well Yield**
- Greater than 2000 gal/min ●
  - Between 1000 and 2000 gals/min ●
  - Between 500 and 1000 gals/min ●
  - Between 100 and 500 gals/min ●
  - Less than 100 gals/min ●
- Consolidated Crystalline & Sedimentary Rocks
- Unconsolidated Sediments
- COUNTY**
- New Mexico State Boundary
- Utah State Boundary
- Interstate Highway
- Major Road
- City, Town or Place

## 2.1.7 Water Quality of the Little Colorado River Plateau Basin

Wells, springs and mine sites with parameter concentrations that have equaled or exceeded drinking water standard(s), including location and parameter(s) are shown in Table 2.1-7A. Impaired lakes and streams with site type, name, length of impaired stream reach, area of impaired lake, designated use standard and parameter(s) exceeded is shown in Table 2.1-7B. Figure 2.1-10 shows the location of water quality occurrences keyed to Table 2.1-7. A description of water quality data sources and methods is found in Volume 1, Appendix A. All community water systems are regulated under the Safe Drinking Water Act and treat water supplies to meet drinking water standards. Not all parameters were measured at all sites; selective sampling for particular constituents is common.

### Wells, Springs and Mine Sites

- Refer to Table 2.1-7A
- 237 wells, springs and mine sites have parameter concentrations that have equaled or exceeded drinking water standards.
- North of Highway 264, the parameters most frequently exceeded in the sites measured were thallium and radionuclides in both wells and springs.
- Between Highway 264 and Interstate 40, the parameter most frequently exceeded in the sites measured was arsenic. There is a notable arsenic cluster in the vicinity of the Hopi communities of Polacca, Kykotsmovi and Keams Canyon.
- South of Interstate 40 the parameters most frequently exceeded in the sites measured were arsenic and cadmium.
- For the entire basin, the most frequently exceeded constituents measured, in order of greatest occurrence were arsenic, radionuclides, thallium, lead and TDS.

### Lakes and Streams

- Refer to Table 2.1-7B
- Water quality standards were equaled or exceeded in eight lakes; mercury was the most common contaminant.
- Water quality standards were equaled or exceeded in two reaches of Nutrioso Creek and six reaches of the Little Colorado River; turbidity was the most common contaminant.
- At this time, 12 of the 16 sites are part of the ADEQ water quality improvement effort called the Total Maximum Daily Load (TMDL) Program. These include sites b, c, f, and h-p in Table 2.1-7B.
- Final TMDL reports have been completed for the Little Colorado River (Nutrioso Creek to Camero Wash), Little Colorado River (Water Canyon Creek to Nutrioso Creek), Rainbow Lake and Nutrioso Creek from its headwaters to the Little Colorado River where Clean Water Act 319 projects are ongoing.

### Effluent Dependent Reaches

- See Figure 2.1-10
- There is one effluent dependent reach, the Rio de Flag, at Flagstaff. Effluent is discharged to the Rio de Flag from the Rio de Flag and Wildcat Hill wastewater treatment plants.

Table 2.1-7 Water Quality Exceedences in the Little Colorado River Plateau Basin

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS) <sup>2</sup>
		Township	Range	Section	
1	Well	41 North	19 East	21	As, Rad
2	Spring	41 North	23 East	28	Pb
3	Well	41 North	29 East	14	TI
4	Well	41 North	30 East	34	TI
5	Well	40 North	27 East	14	Rad
6	Well	40 North	27 East	21	As
7	Well	40 North	27 East	26	As
8	Well	40 North	28 East	1	As
9	Spring	40 North	28 East	13	Rad
10	Well	40 North	28 East	18	Rad
11	Well	40 North	28 East	29	Rad
12	Spring	39 North	21 East	35	Rad, Se, TI
13	Spring	39 North	39 East	31	Sb
14	Spring	39 North	39 East	31	TI
15	Spring	38 North	7 East	28	Rad, TI
16	Well	38 North	20 East	23	TI
17	Spring	38 North	28 East	2	Rad
18	Spring	38 North	29 East	33	TI
19	Spring	37 North	29 East	2	TI
20	Well	37 North	29 East	26	Sb, Rad
21	Well	37 North	29 East	27	Rad, TI
22	Well	37 North	31 East	19	Sb, TI
23	Well	36 North	22 East	9	Pb
24	Well	36 North	23 East	18	As, TI
25	Spring	36 North	23 East	33	Rad, Se
26	Spring	36 North	28 East	1	TI
27	Well	36 North	29 East	4	Rad, TI
28	Spring	36 North	29 East	14	Pb
29	Spring	36 North	29 East	15	TI
30	Mine	36 North	29 East	17	As, Rad, Se, TI
31	Spring	36 North	29 East	18	TI
32	Mine	36 North	29 East	21	As, Rad, Se, TI
33	Mine	36 North	29 East	33	Rad
34	Spring	36 North	30 East	6	TI
35	Spring	36 North	31 East	18	Rad
36	Spring	35 North	22 East	17	TI
37	Spring	35 North	23 East	7	Rad, TI
38	Spring	35 North	23 East	8	Rad, TI
39	Spring	35 North	23 East	18	Rad
40	Well	35 North	23 East	27	As
41	Well	35 North	23 East	27	As
42	Well	35 North	23 East	27	As
43	Mine	35 North	30 East	2	Rad
44	Well	34 North	9 East	31	TI
45	Well	34 North	21 East	22	As, TI
46	Well	34 North	21 East	23	As
47	Well	34 North	22 East	8	TI
48	Well	34 North	23 East	20	TI
49	Well	33 North	11 East	27	Rad, TI
50	Spring	33 North	23 East	2	Rad
51	Well	33 North	23 East	32	TI
52	Spring	33 North	23 East	32	Rad
53	Spring	33 North	24 East	7	Se
54	Spring	32 North	9 East	2	As, TI
56	Spring	32 North	11 East	33	TI
55	Well	32 North	11 East	29	TI
57	Spring	32 North	12 East	14	TI
58	Well	32 North	12 East	21	As, Pb, Rad
59	Well	32 North	20 East	6	TI
60	Well	32 North	23 East	21	Rad
61	Spring	32 North	23 East	33	TI
62	Well	31 North	23 East	21	Rad
63	Spring	31 North	24 East	5	TI
64	Spring	30 North	10 East	16	Rad
65	Spring	30 North	19 East	25	Pb
66	Mine	29 North	9 East	11	As, Ba, Be, Cd, Pb, Rad
67	Well	29 North	9 East	15	NO3

Table 2.1-7 Water Quality Exceedences in the Little Colorado River Plateau Basin (Cont)

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS) <sup>2</sup>
		Township	Range	Section	
68	Well	29 North	9 East	22	TDS
69	Mine	29 North	9 East	25	As, Ba, Pb, Rad
70	Well	29 North	9 East	33	TDS
71	Well	29 North	12 East	7	TI
72	Spring	29 North	15 East	12	NO3
73	Spring	29 North	18 East	26	Se
74	Well	29 North	19 East	33	Fl
75	Well	29 North	21 East	5	AS, TDS
76	Well	28 North	10 East	5	Pb
77	Well	28 North	17 East	9	As
78	Well	28 North	17 East	9	As
79	Well	28 North	17 East	26	As
80	Well	28 North	17 East	26	As
81	Well	28 North	17 East	26	As
82	Well	28 North	17 East	27	As
83	Well	28 North	17 East	27	As
84	Well	28 North	17 East	28	As
85	Well	28 North	18 East	14	As
86	Well	28 North	18 East	14	As
87	Well	28 North	18 East	22	As, Pb
88	Well	28 North	19 East	9	As
89	Well	28 North	19 East	9	As
90	Well	28 North	19 East	21	As
91	Well	28 North	19 East	21	As
92	Well	27 North	9 East	11	TDS
93	Well	27 North	10 East	6	Pb
94	Well	27 North	11 East	19	As, Rad
95	Spring	27 North	11 East	26	As, Rad, TI
96	Spring	27 North	12 East	27	As, Rad
97	Well	27 North	15 East	16	NO3
98	Spring	26 North	10 East	2	TI
99	Well	26 North	10 East	9	TDS
100	Well	26 North	10 East	16	TDS
101	Spring	26 North	11 East	14	As, Rad, TI
102	Spring	26 North	17 East	7	TDS
103	Spring	26 North	22 East	31	As
104	Well	26 North	22 East	35	As
105	Well	26 North	23 East	35	As, Rad
106	Well	25 North	10 East	30	Pb
107	Well	25 North	20 East	22	As
108	Well	25 North	20 East	34	As
109	Well	25 North	21 East	22	Ba, TI
110	Spring	25 North	22 East	6	As TI
111	Well	25 North	22 East	17	TI
112	Well	25 North	22 East	35	As
113	Well	25 North	22 East	35	Ba
114	Well	25 North	23 East	19	As, Rad
115	Well	24 North	18 East	11	Ba
116	Spring	24 North	23 East	1	As, Rad, Se, TI
117	Well	24 North	24 East	24	As
118	Spring	23 North	17 East	24	As
119	Well	23 North	19 East	21	Ba
120	Well	23 North	21 East	14	Ba
121	Spring	23 North	22 East	8	As
122	Spring	23 North	23 East	4	As, Rad
123	Well	22 North	6 East	26	NO3
124	Well	22 North	6 East	26	NO3
125	Well	22 North	8 East	27	Ba
126	Spring	22 North	18 East	10	As
127	Spring	22 North	19 East	9	As
128	Spring	22 North	21 East	4	TI
129	Well	22 North	30 East	22	Cd, Rad
130	Well	22 North	30 East	27	Cd
131	Well	22 North	31 East	5	Rad
132	Well	22 North	31 East	8	Rad
133	Well	22 North	31 East	8	Cd
134	Well	22 North	31 East	8	Pb

Table 2.1-7 Water Quality Exceedences in the Little Colorado River Plateau Basin (Cont)

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS) <sup>2</sup>
		Township	Range	Section	
135	Well	22 North	31 East	9	Rad
136	Well	21 North	6 East	23	As
137	Well	21 North	6 East	25	As, Sb
138	Well	21 North	7 East	9	As
139	Well	21 North	7 East	19	As
140	Well	21 North	7 East	20	As
141	Well	21 North	7 East	20	TDS
142	Well	21 North	7 East	25	Pb, NO3
143	Well	21 North	27 East	25	Be
144	Well	21 North	27 East	25	F
145	Well	21 North	27 East	25	As, Cd
146	Well	21 North	27 East	35	Be
147	Well	21 North	28 East	10	As, Cd, Rad
148	Well	21 North	28 East	13	Cd
149	Well	21 North	28 East	20	As
150	Well	21 North	28 East	23	Rad
151	Well	21 North	28 East	24	Cd
152	Well	21 North	28 East	24	As
153	Well	21 North	28 East	28	Cd
154	Well	21 North	28 East	30	Rad
155	Well	21 North	28 East	30	Rad
156	Well	20 North	19 East	15	TDS
157	Well	20 North	25 East	15	F
158	Well	20 North	25 East	28	F
159	Well	20 North	27 East	4	As
160	Spring	20 North	27 East	26	Rad
161	Spring	20 North	27 East	28	As
162	Spring	20 North	28 East	32	As
163	Well	20 North	29 East	20	As
164	Well	19 North	9 East	17	Ba
165	Well	19 North	16 East	20	TDS
166	Well	19 North	16 East	28	TDS
167	Well	19 North	23 East	3	Rad
168	Well	19 North	23 East	19	TDS
169	Well	19 North	25 East	11	Cd, Rad
170	Well	19 North	26 East	32	As
171	Well	19 North	28 East	4	As
172	Well	18 North	24 East	8	Be, F, TDS
173	Well	18 North	24 East	16	As, Rad
174	Well	18 North	24 East	16	As, Rad
175	Well	17 North	19 East	28	Cd, Pb
176	Well	17 North	22 East	17	TDS
177	Well	17 North	26 East	13	F
178	Well	16 North	18 East	9	TDS
179	Well	16 North	22 East	14	F
180	Well	16 North	25 East	6	F
181	Well	16 North	28 East	18	NO3
182	Well	16 North	28 East	35	TDS
183	Well	16 North	30 East	14	TDS
184	Well	14 North	16 East	9	As
185	Well	14 North	25 East	4	As
186	Well	14 North	27 East	1	TDS
187	Well	14 North	27 East	15	TDS
188	Well	14 North	30 East	7	F
189	Well	14 North	30 East	21	F
190	Well	13 North	21 East	26	NO3
191	Well	13 North	21 East	26	NO3
192	Well	13 North	27 East	31	NO3
193	Well	13 North	28 East	20	F
194	Well	13 North	28 East	28	TDS
195	Well	13 North	28 East	29	F
196	Well	12 North	16 East	15	Pb
197	Well	12 North	17 East	21	Cd, Se
198	Well	12 North	17 East	30	Cd, Se
199	Well	12 North	17 East	32	As, Cd, Se
200	Well	12 North	17 East	33	Cd, Se
201	Well	12 North	18 East	28	As

Table 2.1-7 Water Quality Exceedences in the Little Colorado River Plateau Basin (Cont)

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS) <sup>2</sup>
		Township	Range	Section	
202	Well	12 North	26 East	13	Be
203	Spring	12 North	28 East	17	As
204	Well	12 North	28 East	17	F
205	Well	12 North	28 East	18	F
206	Well	11 North	14 East	11	As
207	Well	11 North	19 East	18	Cd
208	Well	11 North	20 East	29	As, Cd
209	Well	11 North	21 East	34	As, Cd
210	Well	11 North	22 East	23	As
211	Well	11 North	28 East	9	As
212	Well	11 North	29 East	7	As
213	Well	11 North	29 East	28	As
214	Well	10 North	20 East	13	Be, Cd
215	Well	10 North	20 East	20	Cd, Pb, Se
216	Well	10 North	21 East	3	As
217	Well	10 North	21 East	3	As, Cd
218	Well	10 North	21 East	13	Pb
219	Well	10 North	22 East	14	As
220	Well	10 North	22 East	32	Cd
221	Well <sup>3</sup>	10 North	23 East	22	Cd
222	Well	10 North	25 East	22	Cd
223	Well	10 North	25 East	22	Cd
224	Well	9 North	22 East	25	Cd
225	Well	9 North	22 East	26	Pb, Cd
226	Well	9 North	23 East	22	Cd
227	Well	8 North	23 East	10	Cu, Pb
228	Well	8 North	29 East	9	Pb
233	Well	7 North	26 East	14	NO3
234	Well	UNSRV	UNSRV	UNSRV	Pb, TI
235	Spring	UNSRV	UNSRV	UNSRV	As, Pb, Rad
236	Spring	UNSRV	UNSRV	UNSRV	TI
237	Well	UNSRV	UNSRV	UNSRV	TI

Source: Compilation of databases from ADWR & others

B. Lakes and Streams

Map Key	Site Type	Site Name	Length of Impaired Stream Reach (in miles)	Area of Impaired Lake (in acres)	Designated Use Standard <sup>4</sup>	Parameter(s) Exceeding Use Standard <sup>2</sup>
a	Lake	Bear Canyon	NA	55	A&W, AgI, AgL, FBC	pH
b	River	Little Colorado River (Nutrioso Creek to Carnero Wash)	12	NA	A&W	Turbidity/Suspended sediment concentration
c	River	Little Colorado River (Porter Tank to McDonalds Wash)	17	NA	A&W	Cu, Ag, Sediment
d	River	Little Colorado River (Silver Creek to Carr Wash)	6	NA	A&W	E. coli, sediment
e	River	Little Colorado River (unnamed tributary to Lyman Lake)	3	NA	A&W	Turbidity/Suspended sediment concentration
f	River	Little Colorado River (Water Canyon Creek to Nutrioso Creek)	4	NA	A&W	Turbidity/Suspended sediment concentration

Table 2.1-7 Water Quality Exceedences in the Little Colorado River Plateau Basin (Cont)

B. Lakes and Streams

Map Key	Site Type	Site Name	Length of Impaired Stream Reach (in miles)	Area of Impaired Lake (in acres)	Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS) <sup>2</sup>	
g	River	Little Colorado River (West Fork to Water Canyon Creek)	20	NA	A&W	Turbidity/Suspended sediment concentration
h	Lake	Long Lake	NA	323	FC	Hg
i	Lake	Lower Lake Mary	NA	865	FC	Hg
j	Lake	Lyman	NA	1,308	FC	Hg
k	Stream	Nutrios Creek (headwaters to Picnic Creek)	27	NA	A&W	Turbidity
l	Stream	Nutrios Creek (Picnic Creek to Little Colorado River)	4	NA	A&W	Turbidity
m	Lake	Rainbow	NA	111	A&W, AgI, AgL, FBC	DO, NO <sub>3</sub> , P, pH
n	Lake	Soldiers	NA	28	FC	Hg
o	Lake	Soldiers Annex	NA	122	FC	Hg
p	Lake	Upper Lake Mary	NA	760	FC	Hg

Source: ADEQ 2005f

**Notes:**

NA = Not applicable

UNSRV = Unsurveyed

<sup>1</sup>Most water quality samples collected between 1975 and 2003. One sample was collected in 1951.

<sup>2</sup> Sb = Antimony

As = Arsenic

Ba = Barium

Be = Beryllium

Cd = Cadmium

Cu = Copper

DO = Dissolved oxygen

F= Fluoride

Pb = Lead

Hg = Mercury

NO<sub>3</sub> = Nitrate

P = Phosphorous

Se = Selenium

Ag = Silver

TDS = Total Dissolved Solids

TI = Thallium

Rad = One or more of the following radionuclides - Gross Alpha, Gross Beta, Radium, and Uranium

<sup>3</sup> Conflicting locational information

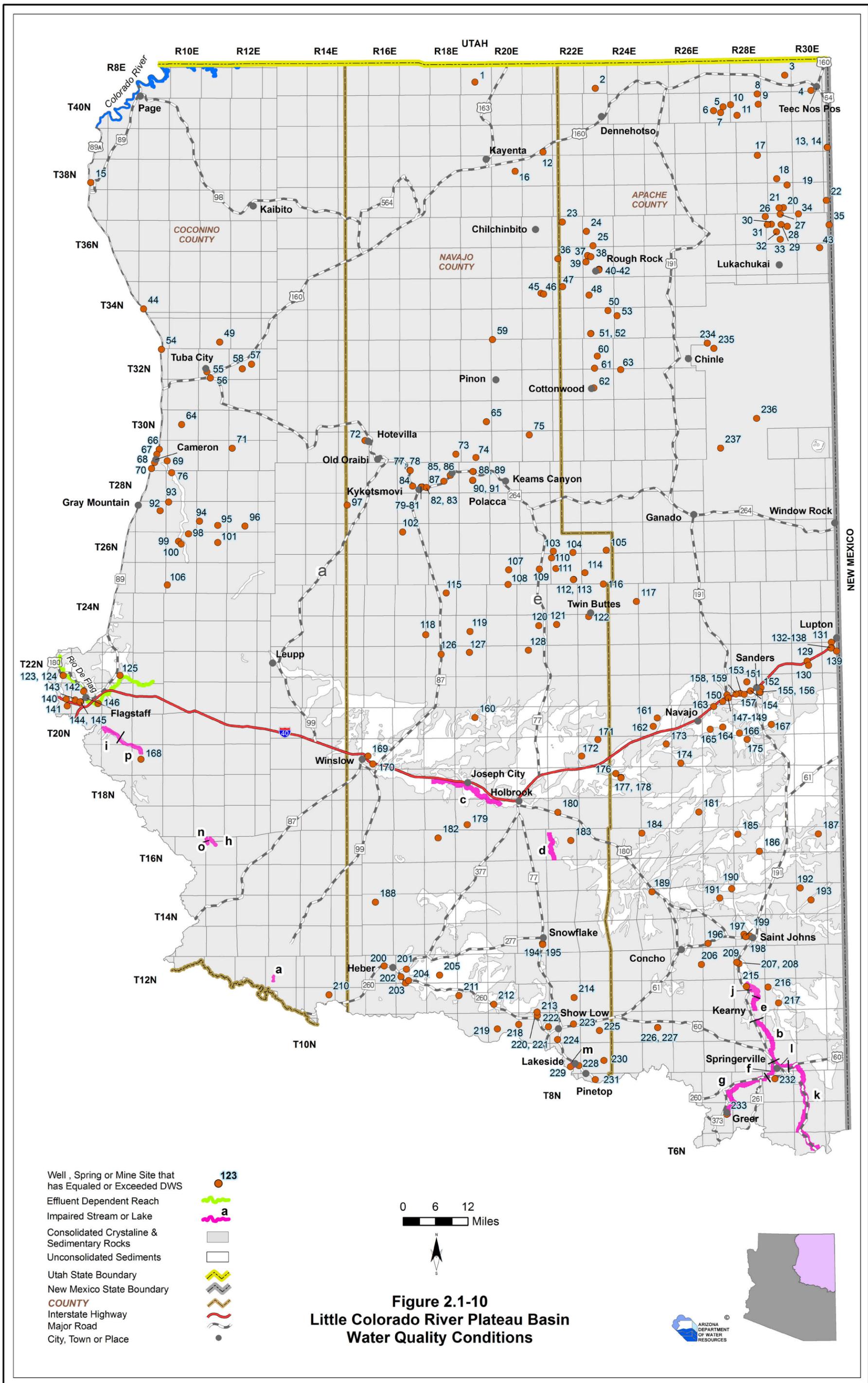
<sup>4</sup> A&W = Aquatic and Wildlife

AgI = Agricultural Irrigation

AgL = Agricultural Livestock Watering

FBC = Full Body Contact

FC = Fish Consumption



## 2.1.8 Cultural Water Demand in the Little Colorado River Plateau Basin

Cultural water demand data including population, number of wells, and the average well pumpage and surface water diversions by the municipal, industrial and agricultural sectors are shown in Table 2.1-8. Effluent generation including facility ownership, location, population served and not served, volume treated, disposal method and treatment level is shown in Table 2.1-9. Figure 2.1-11 shows the location of demand centers. A description of cultural water demand data sources and methods is found in Volume 1, Appendix A. More detailed information on cultural water demand is found in Section 2.0.7.

### Cultural Water Demand

- Refer to Table 2.1-8 and Figure 2.1-11.
- Population increased by an average of 3,700 people per year between 1980 and 2000.
- Total groundwater pumping is increasing with an average of 104,800 acre-feet pumped per year in 2001-2005.
- Total surface water diversions are estimated to be comparable to historic diversion volumes with 50,800 acre-feet diverted per year in 2001-2005. Municipal surface water diversions, however, appear to be declining with 4,100 acre-feet of surface water diverted per year between 2001-2005.
- Most high intensity municipal and industrial (M&I) use is found in the population centers of Flagstaff, Page, Show Low/Pinetop-Lakeside, Taylor/Snowflake and Winslow/Holbrook.
- Industrial use has remained relatively constant with an average of 83,100 acre-feet of surface water and groundwater used per year during 2001-2005.
- Approximately two-thirds of the industrial water supply is groundwater.
- Location of power plants and mines are shown on Figure 2.1-11 including the extent of the large Black Mesa and Kayenta coal mines south of Kayenta. Power plants/electrical generating stations include Cholla near Joseph City, Coronado near Saint Johns, Navajo at Page and the Springerville power plant located northeast of Springerville.
- Agricultural use is estimated to have declined since 1991, for agricultural acreage in 2008 see Table 2.0-12.

### Effluent Generation

- Refer to Table 2.1-9.
- There are 60 known wastewater treatment facilities in the basin.
- The population served appears to be overestimated for the basin as a whole. Multiple databases were used to compile the effluent generation information and may contain flawed population estimates and outdated information.
- More than 36,000 acre-feet of effluent per year are generated in the basin. Almost a third of this volume is generated by a single facility, the Catalyst paper mill.
- Eight facilities discharge waste water for irrigation.
- Effluent is used to irrigate five golf courses. More than 20 schools, parks, and other locations use effluent in Flagstaff.
- Thirteen facilities discharge effluent to unlined impoundments that recharge the aquifer and five discharge to wildlife areas.

Table 2.1-8 Cultural Demand in the Little Colorado River Plateau Basin<sup>1</sup>

Year	Estimated and Projected Population	Number of Registered Water Supply Wells Drilled		Average Annual Demand (in acre-feet)						Data Source
				Well Pumpage			Surface-Water Diversions			
		Q ≤ 35 gpm	Q > 35 gpm	Municipal	Industrial	Agricultural	Municipal	Industrial	Agricultural	
1971		2,581 <sup>2</sup>	947 <sup>2</sup>							ADWR (1994a)
1972										
1973				60,000			85,000			
1974										
1975										
1976										
1977										
1978		77,000			85,000					
1979										
1980	175,451	905	190							
1981	178,851									
1982	182,252			90,000			85,000			
1983	185,652									
1984	189,052									
1985	192,452									
1986	195,853	717	119							
1987	199,253									
1988	202,653			93,000			85,000			
1989	206,053									
1990	209,454									
1991	213,463									
1992	217,472	819	117	29,600	52,400	36,500	7,100	30,500	15,600	ADWR (2008b) ADWR (2008c) ADWR (2008d) USGS (2007)
1993	221,481									
1994	225,490									
1995	229,649									
1996	233,508									
1997	237,518									
1998	241,527	1,428	128	34,700	53,800	22,300	5,500	31,900	16,300	
1999	245,536									
2000	249,545									
2001	254,513									
2002	259,481									
2003	264,450			1,542	155	37,300	54,400	13,100	4,100	28,700
2004	269,418									
2005	274,386									
2010	299,227									
2020	343,049									
2030	378,392									
<b>WELL TOTALS:</b>		<b>7,990</b>	<b>1,657</b>							

<sup>1</sup> Does not include evaporation losses from stockpounds and reservoirs or effluent.

<sup>2</sup> Includes all wells through 1980.

Table 2.1-9 Effluent Generation in the Little Colorado River Plateau Basin

Facility Name	Ownership	City/Location Served	Population Served	Volume Treated/Generated (acre-feet/year)	Disposal Method								Current Treatment Level	Population Not Served	Year of Record
					Water-course	Evaporation Pond	Irrigation	Wildlife Area	Golf Course/ Turf/ Landscape	Discharge to Another Facility	Industrial Use	Infiltration Basins			
Catalyst Paper	Private	Industrial	NA	11,862			X						Primary	NA	2005
Bacovi WWTP	Hopi Tribe	Bacovi	550	62								X	NA	70	2000
Bison Ranch WWTP	Private	Overgaard													
Black Mesa Ranger District	Apache Sitgreaves National Forest	Forest Service Facilities													
Black Mesa Sewer System	Navajo Nation	Black Mesa	305	34								X	Secondary	100	2000
Chilchinbito Sewer System	Navajo Nation	Chilchinbito	150	17			X						Secondary	600	1999
Chinle WWTP	Navajo Nation	Chinle	7,775	493			X						Secondary	750	1998
Cottonwood Sewer System	Navajo Nation	Cottonwood	1,000	112			X						Secondary	645	2000
Dennehotso	Navajo Nation	Dennehotso	1,000	112			X						Secondary	1,115	2000
Dilkon WWTF	Navajo Nation	Dilkon	1,408	134	X								Secondary	850	2000
Eager WWTP	Town of Eagar	Eagar	4,500	269				X	X				Adv. Trt.II	1,400	2001
Flagstaff Ranch Development WWTP	Private	Flagstaff		NA						Flagstaff Ranch				NA	
Fort Valley Meadow Subdivision	Private	Flagstaff													
Ganado Burnwater Phase IX	Navajo Nation	Ganado	3,000	336								X	Secondary	500	1998
Ganado WWTP	Navajo Nation	Ganado	851	157								X	Secondary	51	1996
Ganado Wood Springs II	Navajo Nation	Ganado	NA	45								X	Secondary	NA	2000
Glen Canyon NRA WWTF	National Park Service	Recreation Area													
Greenhaven Sewer WWTP	Private	Page	226	13			X							NA	2003
Greer WWTP	Little Colorado SD	Greer	600	56								X	Secondary	300	2000
Houck Burnwater Phase I	Navajo Nation	Houck	300	34								X	Secondary	300	2001
Inscription House Septics	Navajo Nation	Inscription House	1,000	112			X						Secondary	250	2000
Joseph City WWTF	Town of Joseph City	Joseph City	1,300	314			X						Secondary	60	2000
Kayenta WWTP	Navajo Nation	Kayenta	3,270	661	Laguna & Chinle Washes								Secondary	750	2000
Le Chee Sewer System	Navajo Nation	Le Chee	150	17			X						Secondary	165	2000
Leupp WWTF	Navajo Nation	Leupp	400	45			X						Secondary	NA	1999
Linden Trails WWTP	NA	Show Low													
Livco Sewer Co.	Private	Concho	NA	3			X							NA	2003
Lukachukai	Navajo Nation	Lukachukai	200	22			X						Secondary	1,540	2000
Many Farms	Navajo Nation	Many Farms	685	34	X								Secondary	620	2000
Moenkopi WWTF	Hopi Tribe	Moenkopi	1,385	NA			X							NA	
Navajo Govt. Complex	Navajo County	Holbrook	700	45			X						Secondary	NA	2004
Nazali WWTF	Navajo Nation	Ganado	1,493	157			X						Secondary	NA	2000
Oraibi	Hopi Tribe	Oraibi	500	56			X						Secondary	NA	2000



Table 2.1-9 Effluent Generation in the Little Colorado River Plateau Basin (Cont)

Facility Name	Ownership	City/Location Served	Population Served	Volume Treated/Generated (acre-feet/year)	Disposal Method							Current Treatment Level	Population Not Served	Year of Record	
					Water-course	Evaporation Pond	Irrigation	Wildlife Area	Golf Course/ Turf/ Landscape	Discharge to Another Facility	Industrial Use				Infiltration Basins
Page WWTF	City of Page	Page	7,500	1,120						Lake Powell	X		Adv. Trt. I	NA	2000
Painted Mesa WWTF	City of Holbrook	Holbrook	6,000	560		X	X			Hidden Cove			Adv. Trt.I	NA	2008
Pinetop Lakeside WWTF	Pinetop-Lakeside SD	Pinetop-Lakeside	20,000	1,792				X				X	Adv. Trt. II	2,200	2004
Pinon WWTP	Navajo Nation	Pinon	2,050	213	NA							Secondary	700	2000	
Rio De Flag WWTP	City of Flagstaff	Flagstaff	20,000	2,467	Rio De Flag		X	X	Pine Canyon			X	Adv. Trt. II	NA	2008
Rough Rock WWTF	Navajo Nation	Rough Rock	839	11	NA							Secondary	675	2000	
Sanders Unifed School District	NA	Sanders	NA												
Show Low WWTF	City of Show Low	Show Low	8,800	896		X		X					Secondary	1,500	2004
Shungopavi WWTF	Hopi Tribe	Shungopavi	400	45		X							Secondary	NA	2000
Sipaulovi WWTF	Hopi Tribe	Sipaulovi	500	56		X							Secondary	200	2000
Snowflake WWTF	Town of Snowflake	Snowflake	3,600	293			X						Adv.Trt.I	600	1997
Springerville WWTF	Town of Springerville	Springerville	1,400	224		X		X					Secondary	NA	2000
St. Johns WWTP	Town of St. John's	St.Johns	3,340	446			X						Secondary	159	2000
St. Micheals WWTF	Hopi Tribe	St.Micheals	500	50		X							Secondary	450	1999
Sweetwater Sewer System	Navajo Nation	Sweetwater	200	22								X	Secondary	200	2001
Sunrise Resort	White Mountain Apache Tribe	Resort	7,677	45	NA							Secondary	NA	2000	
Taylor WWTF	Town of Taylor	Taylor	2,400	202		X							Secondary	1,200	2004
Tec Nos Pos WWTF	Navajo Nation	Tec Nos Pos	400	22								X	Secondary	1,399	2001
Tolani-Red Lake Sewer System	Navajo Nation	Tolani-Red Lake	100	11								X	Secondary	100	2000
Tsaille WWTF	Navajo Nation	Tsaille	4,861	448								X	Secondary	594	2000
Tuba City WWTF	Navajo Nation	Tuba City	12,443	448			X						Secondary	350	2000
Waweep WWTF	National Park Service	Park	NA												
Wide Ruins Sewer System	Navajo Nation	Wide Ruin	245	11								X	Secondary	245	1999
Wildcat Hill WWTP	City of Flagstaff	Flagstaff	64,693	3,939	Rio De Flag		X		Continental & Aspen				Adv. Trt II	NA	2008
Window Rock WWTP	Navajo Nation	Window Rock	10,650	986	Black Creek								Secondary	2,215	2000
Winslow WWTF	City of Winslow	Winslow	9,800	2,016	Ruby Wash		X						Adv. Tr. I	NA	2004
<b>Total</b>			<b>221,146</b>	<b>31,524</b>											

Source: Compilation of databases from ADWR & others

**Notes:**

Year of Record is for the volume of effluent treated/generated

NA: Data not currently available to ADWR

NRA: National Recreation Area

WWTF: Waste Water Treatment Facility

WWTP: Waste Water Treatment Plant

WRP: Water Reclamation Plant

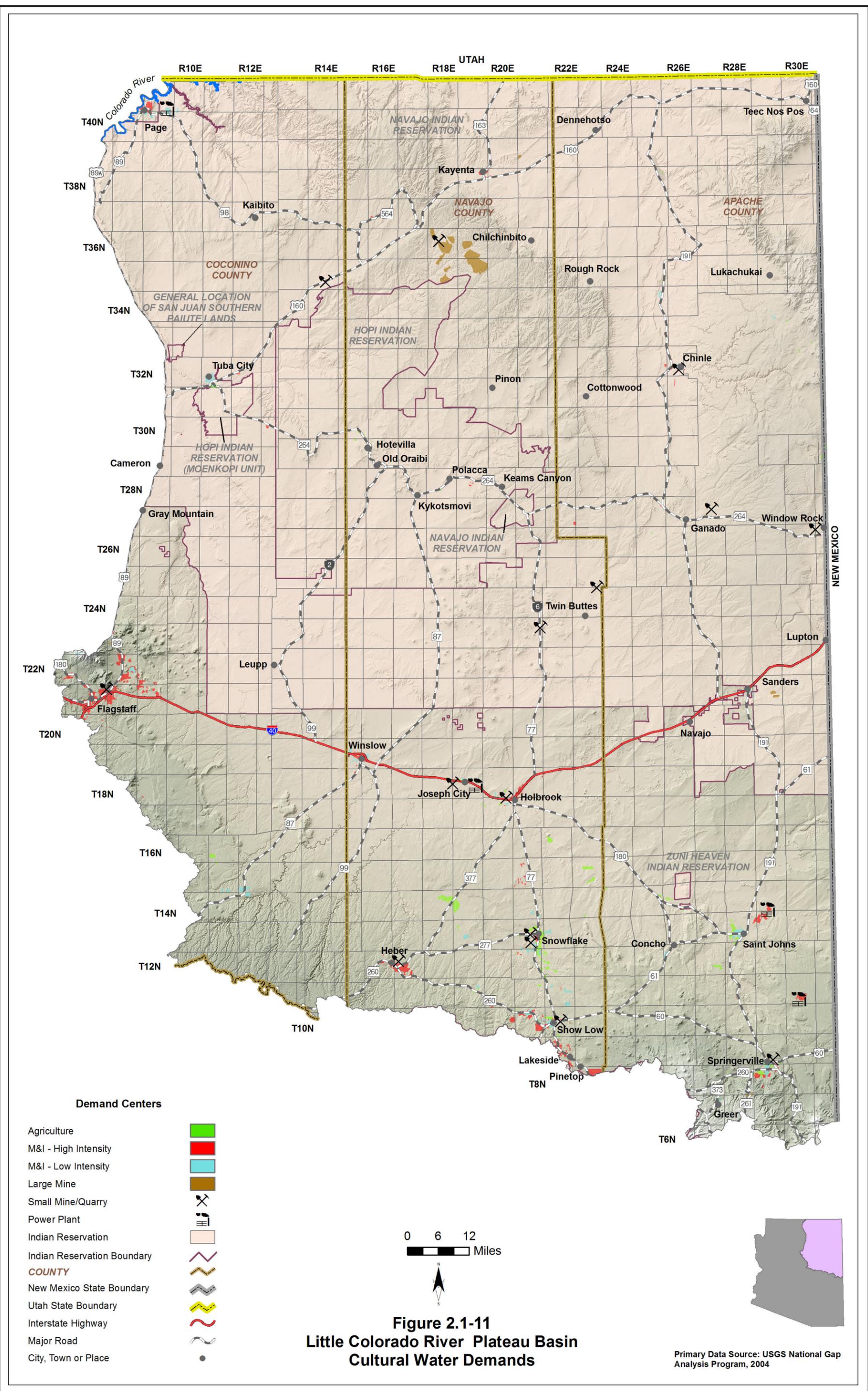
SD: Sanitation District

ID: Improvement District

Adv. Tr. I: Advanced treatment level I

Adv. Tr. II: Advanced treatment level II

<sup>1</sup>SCA Tissues began using reclaimed water for industrial processes in 2004



## 2.1.9 Water Adequacy Determinations in the Little Colorado River Plateau Basin

Water adequacy determination information including the subdivision name, location, number of lots, adequacy determination, reason for the inadequacy determination, date of determination and subdivision water provider are shown in Table 2.1-10A and B for water adequacy reports and analysis of adequate water supply. Water adequacy designations are shown in Table 2.1-10C. Figure 2.1-12 shows the general location of subdivisions (to the section level) and designated providers keyed to the table. A description of the Water Adequacy Program is found in Volume 1. Adequacy determination data sources and methods are found in Volume 1, Appendix A.

- Three hundred and six determinations of water adequacy for over 18,800 lots have been made through December 2008.
- One hundred and forty-nine determinations of inadequacy have been made, primarily in the vicinity of Flagstaff, Show Low and Pinetop-Lakeside.
- The most common reason for a determination of inadequacy was because the applicant chose not to submit necessary information and/or available hydrologic data were insufficient to make a determination.
- There are two analyses of adequate water supply for a total of 1,936 lots.
- There are 13 designated water providers. Six designated water providers have total projected or estimated annual demand of 10,450.22 acre feet. The remaining seven designated water providers do not have a projected or estimated annual demand.
- The number of lots receiving an adequacy determination, by county, are:

County	Number of Subdivision Lots	Number of Lots Determined to be Adequate	Percent Adequate
Apache	5,597	2,731	48
Coconino	4,139	2,330	56
Navajo	9,054	5,042	56

Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin<sup>1</sup>

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No. <sup>2</sup>	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination <sup>3</sup>	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
1	A-1 Ranch	Coconino	21 North	6 East	15	33	53-401052	Inadequate	A1,A2	5/7/2004	A-1 Ranch Owners
2	Amity Estates	Apache	8 North	29 East	7	23	53-500268	Adequate		12/2/1976	Town of Eagar
3	Anasazi Trails	Coconino	22 North	8 East	10, 15	17	53-401071	Inadequate	A1,A2	10/14/2003	Doney Park Water Company
4	Apache Trails Unit One - Amended	Apache	10 North	24 East	11	94	53-400112	Inadequate	C	7/30/1999	Cedar Grove WC
5	Arizona Park Estates Unit One	Apache	21 North	28 East	24, 26, 35	19	53-700259	Inadequate	A1	4/4/2007	Dry Lot Subdivision
6	Arizona Rancheros, Rancho 36	Navajo	18 North	22 East	9	21	53-400335	Inadequate	C	7/28/2000	Sun Valley Utilities
7	Arrowhead Estates	Coconino	21 North	7 East	9	8	53-500298	Inadequate	A2,A3	8/8/1988	Dry Lot Subdivision
8	Aspen Glen	Coconino	22 North	8 East	27	28	53-300069	Inadequate	A1	12/5/1995	Doney Park Water Company
9	Aspen Meadow Estates and Aspen Meadow Condominiums	Navajo	8 North	23 East	5	214	53-402263	Inadequate	A1	8/21/2006	Pinetop Water Community Facilities District
10	Aspen Meadows Phase 1	Navajo	8 North	23 East	5	14	53-700381	Inadequate	A1	8/13/2007	Pinetop Water Community Facilities District
11	Aspen Shadows	Coconino	21 North	6 East	25	390	53-300242	Adequate		8/11/1997	Flagstaff Ranch Water Company
12	Bar D Ranches	Coconino	21 North	8 East	3	15	53-400979	Inadequate	A1,A2	7/30/2003	Doney Park Water Company
13	Bear Country Estates	Navajo	12 North	17 East	33	22	53-400036	Adequate		3/24/1999	Arizona Water Company - Overgaard
14	Belair Estates	Apache	10 North	24 East	9	8	53-500314	Inadequate	D	3/2/1987	Belair Estates HOA
15	Benny Jay Heights	Apache	8 North	29 East	17	9	53-400431	Inadequate	A1	12/1/2000	Town of Eagar
16	Bent Oak	Navajo	8 North	23 East	2, 11	71	53-500318	Adequate		6/21/1989	Ponderosa DWID
17	Bison Cabin Resort II	Navajo	12 North	17 East	34	33	53-400516	Adequate		4/2/2002	Arizona Water Company - Overgaard
18	Bison Ranch	Navajo	12 North	17 East	33	39	53-400080	Adequate		6/2/1999	Arizona Water Company - Overgaard
19	Bison Ranch Parcel C3 Bison Lodge Cabins	Navajo	12 North	17 East	34	22	53-400572	Adequate		9/21/2001	Arizona Water Company - Overgaard
20	Bison Ranch Resort Suites	Navajo	12 North	17 East	34	88	53-401659	Adequate		5/25/2005	Arizona Water Company - Overgaard
21	Bison Resort Cabins	Navajo	11 North	17 East	3	57	53-400257	Adequate		3/6/2000	Arizona Water Company - Overgaard
22	Bison Resort Cabins III	Navajo	12 North	17 East	34	57	53-400691	Adequate		4/2/2002	Arizona Water Company - Overgaard
23	Bison Town I, Parcels B1 and B2 of Bison	Navajo	12 North	17 East	33, 34	34	53-400447	Adequate		1/19/2001	Arizona Water Company - Overgaard
24	Bison Town II, Parcels B3 and B4 of Biso	Navajo	12 North	17 East	33, 34	25	53-400446	Adequate		1/19/2001	Arizona Water Company - Overgaard
25	Blue Ridge Estates	Coconino	15 North	12 East	32	193	53-300463	Adequate		6/12/1997	Starlight Water Company

Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin (Cont)<sup>1</sup>

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No. <sup>2</sup>	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination <sup>3</sup>	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
26	Blue Valley	Apache	8 North	29 East	16	8	53-500345	Adequate		5/14/1976	Town of Eagar
27	Brewer Acres	Navajo	13 North	21 East	23	20	53-500359	Adequate		11/3/1975	Town of Snowflake
28	Burdon Ranch Estates	Navajo	11 North	22 East	25	131	53-500370	Inadequate	A1	12/6/1984	Dry Lot Subdivision
29	Bushman Acres	Navajo	13 North	21 East	26	48	53-500371	Adequate		8/11/1976	Town of Snowflake
30	Canyon Vista Estates	Navajo	12 North	22 East	31	56	53-402027	Adequate		5/24/2006	Watco Inc.
31	Casitas of Pinetop, The	Navajo	9 North	23 East	32	0	53-500420	Inadequate	A1	10/31/1980	Pinetop Water Company
32	Cedar Mesa Ridge	Navajo	12 North	22 East	31	56	53-402026	Adequate		8/18/2006	Watco Inc.
33	Cedar Ridge	Apache	8 North	29 East	11	49	53-500427	Adequate		8/22/1983	Town of Eagar
34	Cedar Ridge #1	Apache	10 North	24 East	10	13	53-500429	Inadequate	A1	11/6/1991	Dry Lot Subdivision
35	Cedar Ridge #2	Apache	10 North	24 East	4	5		Inadequate	A1	7/9/1987	Dry Lot Subdivision
36	Central Center	Navajo	10 North	22 East	20	10	53-500430	Inadequate	A1	6/21/1984	City of Show Low
37	Cheney Ranch	Navajo	10 North	21 East	8	168	53-500449	Adequate		4/17/1986	White Mountain Water Co.
38	Cholla Subdivision	Navajo	13 North	21 East	36	12	53-500453	Adequate		3/4/1981	Town of Taylor
39	Chu-Vista Estates	Navajo	12 North	22 East	30	23	53-500455	Inadequate	D	5/12/1987	Dry Lot Subdivision
40	Cinder Forest Estates	Coconino	22 North	8 East	26, 27, 35	82	53-500457	Inadequate	A2	1/16/1974	Dry Lot Subdivision
41	Cinder Mountain	Navajo	8 North	23 East	11	65	53-500458	Adequate		9/17/1973	Ponderosa Water Company
42	Circle G at Temple Hill Estates	Navajo	13 North	21 East	22	23	53-400715	Adequate		5/22/2002	Town of Snowflake
43	Clearview Estates	Apache	10 North	24 East	12	8	53-700423	Inadequate	A1	10/26/2007	Lord AZ Water Co.
44	Cobblecreek Development	Navajo	11 North	20 East	32	0	53-500475	Adequate		5/12/1987	Pinedale DWID
45	Concho Lake Land Unit 1 Amended	Apache	11 North	26 East	7	8	53-700256	Inadequate	A1	3/30/2007	Dry Lot Subdivision
46	Concho Lakeland Unit 1 Amended	Apache	11 North	26 East	7	4	53-700306	Inadequate	A1	5/22/2007	Dry Lot Subdivision
47	Concho Lakeland Unit 3, lots 580-582 & 538	Apache	11 North	26 East	19	4	53-402274	Inadequate	A1	8/31/2006	Dry Lot Subdivision
48	Concho Valley #01B	Apache	12 North	26 East	18	21	53-500489	Adequate		5/11/1982	Livco Water & Sewer Co.
49	Concho Valley #05A	Apache	12 North	26 East	19	108	53-500490	Adequate		7/16/1979	Livco Water & Sewer Co.
50	Concho Valley #05B	Apache	12 North	26 East	19	0	53-500491	Adequate		6/23/1980	Livco Water & Sewer Co.
51	Concho Valley #09	Apache	12 North	26 East	29	181	53-500492	Adequate		8/23/1989	Livco Water & Sewer Co.
52	Concho Valley #09A	Apache	12 North	26 East	19	117	53-500493	Adequate		5/23/1991	Livco Water & Sewer Co.
53	Concho Valley #10	Apache	12 North	26 East	7, 8	193	53-500494	Adequate		5/23/1991	Livco Water & Sewer Co.
54	Concho Valley #12	Apache	12 North	26 East	8	303	53-500495	Adequate		7/30/1992	Livco Water & Sewer Co.
55	Concho Valley #18	Apache	12 North	26 East	8, 9	203	53-500496	Adequate		3/5/1993	Livco Water & Sewer Co.
56	Concho Valley #33	Apache	12 North	26 East	33	82	53-500497	Adequate		1/15/1985	Livco Water & Sewer Co.



Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin (Cont)<sup>1</sup>

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No. <sup>2</sup>	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination <sup>3</sup>	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
57	Concho Valley Unit 3	Apache	12 North	26 East	29, 31	7	53-700262	Inadequate	A1	6/11/2007	Dry Lot Subdivision
58	Concho Valley Unit 3, Lot 1/85; Lot 3/50; Lot 2/73; Lot 3/276; Parcel 2, Lot 2/134	Apache	12 North	26 East	29	5	53-402273	Inadequate	A1	8/30/2006	Dry Lot Subdivision
59	Concho Valley Unit 4	Apache	South	East		13	53-500034	Inadequate	A1	11/21/2006	Livco Water & Sewer Co.
60	Concho Valley Unit Eight	Apache	12 North	26 East	22	7	53-402248	Inadequate	A1	8/23/2006	Dry Lot Subdivision
61	Concho Valley Unit Three	Apache	12 North	26 East	31	6	53-700258	Inadequate	A1	4/2/2007	Dry Lot Subdivision
62	Concho Valley, Unit 4A	Apache	12 North	26 East	18	14	53-500033	Inadequate	A1	11/21/2006	Livco Water & Sewer Co.
63	Concho Valley, Unit 5	Apache	13 North	27 East	18	26	53-500032	Inadequate	A1	10/24/2006	Livco Water & Sewer Co.
64	Concho West Shore Subdivision	Apache	12 North	26 East	7, 18	47	53-402047	Inadequate	A1	3/17/2006	Livco Water & Sewer Co.
65	Condominium at Pine Creek, The	Navajo	9 North	23 East	31	101	53-500498	Inadequate	A1	10/3/1986	Pinetop Water Community Facilities District
66	Cool Water Acres	Navajo	17 North	19 East	12	25	53-500503	Adequate		5/23/1984	Dry Lot Subdivision
67	Cosnino Equestrian Estates	Coconino	21 North	9 East	7, 8	30	53-500512	Adequate		8/28/1973	Black Bill and Doney Park WUA
68	Cosnino Equestrian Sub. #2	Coconino	21 North	9 East	8, 9	77	53-500514	Adequate		3/21/1979	Black Bill and Doney Park WUA
69	Cottonwood Ranch	Navajo	19 North	16 East	7	47	53-500518	Inadequate	A1	6/19/1985	Dry Lot Subdivision
70	Country Club Estates #1	Navajo	13 North	21 East	21	18	53-500522	Adequate		10/31/1983	Town of Snowflake
71	Country Club Manor #1	Navajo	10 North	21 East	14	0	53-500523	Adequate		9/13/1978	City of Show Low
72	Country Club Villas, Unit I, Lots 2-15	Apache	12 North	26 East	18	14	53-700387	Inadequate	A1	8/8/2007	Livco Water & Sewer Co.
73	Country Estates	Apache	8 North	29 East	10	20	53-500524	Adequate		9/11/1980	Town of Eagar
74	Dutch Joe Ranch	Coconino	13 North	13 East	27	400	53-500045	Inadequate	A1	3/12/2007	Dutch Joe Ranch HOA
75	E C Bar Ranch Estates	Apache	7 North	30 East	20, 29	81	53-700503	Inadequate	A1	3/14/2008	Dry Lot Subdivision
76	Eagle Ridge	Apache	11 North	24 East	34	54	53-300464	Adequate		12/28/1998	Cedar Grove WC
77	Eagle View Park	Coconino	22 North	8 East	10	11	53-401404	Inadequate	A1	9/2/2004	Doney Park Water Company
78	East Highland Estates	Navajo	13 North	21 East	23	11	53-500597	Adequate		5/23/1979	Town of Snowflake
79	East Valley Acres	Apache	8 North	29 East	33	12	53-500598	Inadequate	A1	8/21/1986	Town of Eagar
80	El Rancho Grande	Navajo	12 North	21 East	6	46	53-500609	Inadequate	A1	3/14/1984	Dry Lot Subdivision
81	Elk Crest Estates	Apache	8 North	29 East	18	72	53-400164	Inadequate	A1	11/30/1999	Town of Eagar
82	Elk Meadow	Apache	6 North	29 East	1	8	53-500610	Adequate		5/30/1989	Elk Meadow HOA
83	Elk Springs	Navajo	9 North	22 East	9	43	53-500063	Inadequate	A1	11/14/2006	Pineview Water Company
84	Elk Springs Subdivision	Navajo	20 North	11 East	30	6	53-700441	Inadequate	A1	1/28/2008	Dry Lot Subdivision

Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin (Cont)<sup>1</sup>

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No. <sup>2</sup>	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination <sup>3</sup>	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
85	Ellkins Acres	Navajo	10 North	21 East	24	51	53-400991	Inadequate	A1	8/18/2003	Park Valley Water Company
86	Escondido	Apache	8 North	29 East	7, 8	48	53-500616	Adequate		8/22/1979	Town of Eagar
87	Escondido #2 amended	Apache	8 North	29 East	18	57	53-500617	Adequate		5/21/1982	Town of Eagar
88	Escudilla Mountain Estates, Units 1, 2 & 3	Apache	7 North	30 East	31	74	53-300583	Inadequate	A1	12/15/1998	Dry Lot Subdivision
89	Evergreen Estates Unit I	Navajo	9 North	22 East	4	24	53-400725	Inadequate	A1	5/22/2002	Pineview Water Company
90	Evergreen Estates Unit II	Navajo	9 North	22 East	4	19	53-401857	Inadequate		9/8/2005	Pineview Water Company
91	Fairway Park Center	Navajo	10 North	21 East	23	26	53-500636	Adequate		9/24/1976	Fairway Park
92	Foothills #02	Apache	8 North	29 East	9	36	53-500639	Adequate		12/21/1979	Town of Eagar
93	Forest Trails #1	Navajo	12 North	17 East	28	170	53-500673	Adequate		7/20/1984	Arizona Water Company - Overgaard
94	Forest Trails #2	Navajo	12 North	17 East	28	207	53-500674	Adequate		5/13/1985	Arizona Water Company - Overgaard
95	Forest Trails #3B	Navajo	12 North	17 East	28	49	53-300004	Adequate		4/3/1995	Arizona Water Company - Overgaard
96	Fort Valley Meadows, lots 56-65	Coconino	22 North	6 East	26	10	53-400139	Inadequate	A2	7/30/1999	Community well
97	Fort Valley Pines	Coconino	22 North	6 East	34	11	53-400898	Inadequate	A1	3/12/2003	Dry Lot Subdivision
98	Frontier Estates	Navajo	13 North	21 East	22	202	53-400564	Adequate		8/30/2001	Town of Snowflake
99	Frontier Hills	Coconino	22 North	8 East	24	33	53-500689	Inadequate	A1,A2	5/4/1994	Doney Park Water Company
100	G Flake Subdivision	Navajo	13 North	21 East	22	11	53-400583	Adequate		9/28/2001	Town of Snowflake
101	Gobbler Peak Estates	Apache	6 North	29 East	1	28	53-500706	Adequate		10/24/1991	Dry Lot Subdivision
102	Golden Lockett	Coconino	21 North	7 East	3	14	53-400951	Inadequate	A1,A2	5/23/2003	NA
103	Grand View Estates #1	Apache	8 North	29 East	18	58	53-500723	Adequate		7/26/1982	Town of Eagar
104	Green Acre Estates	Navajo	10 North	21 East	13	7	53-700400	Inadequate	A1	8/23/2007	Park Valley / Fool Hollow Water co.
105	Green Valley Acres	Apache	8 North	29 East	16	198	53-500730	Adequate		2/26/1975	Town of Eagar
106	Green Valley Ranches	Navajo	11 North	22 East	6	22	53-500750	Adequate		9/1/1976	Subdivision wells
107	Greer Acres	Apache	7 North	27 East	2	20	53-400209	Inadequate	A1	12/12/2000	Dry Lot Subdivision
108	Greer Lodge Estates	Apache	7 North	27 East	14	16	53-500764	Adequate		9/13/1994	Greer Meadows HOA
109	Greer Mountain Subdivision	Apache	7 North	27 East	14	24	53-500765	Adequate		7/11/1995	Greer Mountain Subdivision Joint Venture
110	Greer View Estates	Apache	7 North	27 East	12	22	53-400001	Adequate		3/4/1999	Dry Lot Subdivision
111	Hacienda Pines-Unit 1	Navajo	10 North	21 East	25	68	53-300448	Adequate		4/23/1998	City of Show Low
112	Harvest Valley	Navajo	12 North	21 East	5	10	53-500776	Adequate		2/24/1976	Dry Lot Subdivision
113	Hidden Meadow Ranch	Apache	9 North	27 East	30	52	53-400654	Inadequate	B	5/13/2002	Club at Hidden Ranch HOA
114	Hidden Oak	Navajo	8 North	23 East	2	21	53-401931	Inadequate	A1	11/7/2005	Ponderosa Water Company



Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin (Cont)<sup>1</sup>

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No. <sup>2</sup>	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination <sup>3</sup>	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
115	High Country Pines II - Unit 2	Navajo	12 North	16 East	15	74	53-400127	Adequate		7/21/1999	High Country Pines WC
116	High Country Pines II - Unit I	Navajo	12 North	16 East	15	104	53-300405	Adequate		1/8/1998	High Country Pines WC
117	High Country Pines Inc.	Navajo	12 North	16 East	15	0	53-500787	Adequate		4/26/1985	High Country Pines WC
118	High Pines Estates	Navajo	11 North	18 East	3, 4, 9	63	53-700437	Inadequate	A1	3/31/2008	Mountain Glen Water Co
119	Highland Park Unit 5, Phase 1	Navajo	13 North	21 East	36	12	53-300161	Adequate		6/24/1996	Town of Snowflake
120	Hillcrest	Apache	8 North	29 East	3, 4	36	53-500793	Adequate		1/29/1976	Town of Eagar
121	Homestead Unit One at Torreon	Navajo	10 North	21 East	25, 26	109	53-300437	Adequate		3/31/1998	City of Show Low
122	Hutchinson Acres	Coconino	22 North	8 East	9, 16	95	53-400459	Inadequate	A1	3/21/2001	Doney Park Water Company
123	J. L. Subdivision	Apache	8 North	29 East	4	11	53-500817	Adequate		7/23/1976	Town of Eagar
124	Koch Field East	Coconino	22 North	8 East	25	10	53-500847	Inadequate	A2	4/26/1993	Doney Park Water Company
125	Laguna Estates #1	Navajo	11 North	22 East	25	151	53-500871	Inadequate	A1	7/7/1986	High Country Water
126	Lake View Estates Phase I	Navajo	11 North	22 East	11	25	53-700328	Inadequate	A1	6/13/2007	Dry Lot Subdivision
127	Linden Trails	Navajo	10 North	21 East	3, 4	96	53-401605	Adequate		3/16/2005	Mountain Glen Water Co
128	Lockett Estates	Coconino	21 North	7 East	4	16	53-400415	Inadequate	A1,A3	11/13/2000	Community well
129	Mahogany Run Subdivision	Coconino	21 North	7 East	3, 4	7	53-400716	Inadequate	A3	5/21/2002	Dry Lot Subdivision
130	Majestic Views Estates	Coconino	22 North	6 East	26	28	53-401616	Inadequate	A1	1/12/2005	Majestic Views Domestic Water Improvement District
131	Mogollon Airpark	Navajo	12 North	17 East	33	27	53-500994	Adequate		1/3/1986	Arizona Water Company - Overgaard
132	Mogollon Airpark #03	Navajo	12 North	17 East	33	59	53-500995	Adequate		5/15/1987	Arizona Water Company - Overgaard
133	Mogollon Airpark #04A	Navajo	12 North	17 East	34	37	53-500997	Adequate		10/6/1993	Arizona Water Company - Overgaard
134	Mogollon Air Park #04B	Navajo	12 North	17 East	27, 34	36	53-500993	Adequate		4/6/1994	Arizona Water Company - Overgaard
135	Mogollon Airpark #06	Navajo	12 North	17 East	27, 34	52	53-300042	Adequate		7/25/1995	Arizona Water Company - Overgaard
136	Mogollon Airpark Properties	Navajo	12 North	17 East		54	53-500998	Adequate		3/6/1985	Arizona Water Company - Overgaard
137	Mogollon Estates	Navajo	12 North	17 East	27, 34	70	53-300167	Adequate		7/15/1996	Arizona Water Company - Overgaard
138	Mountain Pine Ranch #1	Apache	10 North	24 East	5	57	53-501019	Inadequate	A1	4/13/1993	Dry Lot Subdivision
139	Mountain Pine Ranch Unit II	Apache	10 North	24 East	5	57	53-400107	Inadequate	A1	6/26/1999	Dry Lot Subdivision
140	Mountain Pines Estates	Navajo	8 North	23 East	2	86	53-501020	Adequate		9/1/1983	Ponderosa Water Company

Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin (Cont)<sup>1</sup>

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No. <sup>2</sup>	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination <sup>3</sup>	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
142	Mountain View #2	Apache	12 North	28 East	4	32	53-501027	Adequate		8/18/1978	Mountain View Water Company
143	Mountain View Ranchos	Coconino	21 North	9 East	11	28	53-501035	Adequate		7/19/1973	Subdivision wells
144	Mountains Meadow	Navajo	9 North	22 East	4	142	53-402238	Inadequate	A1	9/11/2006	Pineview Water Company
145	Needles Creek Subdivision	Navajo	10 North	21 East	13	57	53-400451	Inadequate	A1	1/19/2001	Fools Hollow Water Company
146	Nicoll Subdivision	Apache	8 North	29 East	9	20	53-501048	Adequate		2/6/1980	Town of Eagar
147	Noble Mountain Estates Amended	Apache	6 North	30 East	7	65	53-501050	Inadequate	A1	7/26/1994	Doney Park Water Company
148	North Peak	Coconino	22 North	8 East	28, 29	18	53-501051	Inadequate	A2	1/24/1992	Doney Park Water Company
149	North Peak #2	Coconino	22 North	8 East	28	11	53-501052	Inadequate	A2	2/23/1993	Doney Park Water Company
150	Northern Taylor	Navajo	13 North	21 East	36	14	53-501055	Adequate		8/15/1977	Town of Taylor
151	Northfork Ranches #1	Apache	10 North	24 East	7	93	53-501056	Inadequate	A1	4/10/1985	Dry Lot Subdivision
152	Nutriso Pines	Apache	6 North	30 East	4, 5	83	53-700223	Inadequate	A1	3/15/2007	Dry Lot Subdivision
153	Ojo Bonito Estates	Apache	10 North	25 East	19	63	53-501074	Adequate		9/10/1981	Ojo Bonito HOA
154	Overgaard Springs Ranch Unit I	Navajo	12 North	17 East	33	32	53-500047	Inadequate		11/14/2006	Arizona Water Company - Overgaard
155	Overgaard Springs Ranch Unit II	Navajo	12 North	17 East	33	39	53-500048	Inadequate		11/14/2006	Arizona Water Company - Overgaard
157	Park Place	Navajo	10 North	21 East	24	78	53-300341	Inadequate	A1	8/15/1997	Park Valley / Fool Hollow Water co.
158	Park Place III	Navajo	10 North	21 East	24	35	53-400331	Inadequate	A1	7/17/2000	Park Valley / Fool Hollow Water co.
159	Park Place IV	Navajo	10 North	21 East	24	16	53-401172	Inadequate	A1	1/12/2004	Park Valley / Fool Hollow Water co.
160	Park Plaza #1	Navajo	13 North	21 East	21	31	53-501113	Adequate		5/23/1986	Town of Snowflake
161	Park Show Low #1	Apache	10 North	24 East	1	14	53-501114	Inadequate	A1	9/8/1989	Dry Lot Subdivision
162	Park Show Low #1-4	Apache	10 North	24 East	1, 11, 25	140	53-501117	Inadequate	A1	11/6/1991	Dry Lot Subdivision
163	Park Show Low #3, 4	Apache	11 North	24 East	1, 11	47	53-501119	Inadequate	A1	6/22/1994	Dry Lot Subdivision
164	Park Show Low #4,5,6	Apache	11 North	24 East	1, 13, 15	62	53-501120	Inadequate	A1	12/22/1986	Dry Lot Subdivision
165	Park Valley #3	Navajo	10 North	21 East	24	86	53-501121	Inadequate	A1	10/5/1983	Park Valley / Fool Hollow Water co.
166	Park Valley #4	Navajo	10 North	21 East	25	189	53-501122	Inadequate	A1	10/8/1986	City of Show Low
167	Petrified Forest Estates #2	Apache	18 North	24 East	5	133	53-501144	Inadequate	C	1/14/1987	Dry Lot Subdivision
168	Pine Canyon Estates	Coconino	14 North	12 East	6	385	53-300466	Adequate		6/24/1998	Starlight Water Company
169	Pine Creek	Navajo	9 North	23 East	31	45	53-402114	Inadequate	A1	4/25/2006	Pinetop Water Community Facilities District
170	Pine Meadows Country Club Est	Navajo	12 North	17 East	33	116	53-501150	Adequate		5/30/1986	Arizona Water Company - Overgaard



Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin (Cont)<sup>1</sup>

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No. <sup>2</sup>	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination <sup>3</sup>	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
172	Pine Mountain Estates	Coconino	22 North	8 East	9	36	53-300065	Inadequate	A1	12/5/1995	Doney Park Water Company
173	Pine Oaks	Navajo	10 North	22 East	29	78	53-300200	Inadequate	A1	10/17/1996	City of Show Low
174	Pine Ridge #1	Navajo	8 North	23 East	4, 5	0	53-501152	Inadequate	A1	1/8/1986	Pinetop Water Company
175	Pine Rim Forest	Navajo	12 North	17 East	30	56	53-501154	Adequate		9/1/1983	Arizona Water Company - Overgaard
176	Pineaire	Navajo	10 North	22 East	32	160	53-501156	Adequate		10/25/1973	Pineview Water Company
177	Pinecrest Lake	Navajo	12 North	17 East	33	3	53-501158	Adequate		8/5/1986	Arizona Water Company - Overgaard
178	Pineglen Park	Navajo	9 North	22 East	4	84	53-501159	Inadequate	A1	12/5/1983	Pineview Water Company
179	Pineglen Village #1	Navajo	9 North	22 East	4	94	53-501160	Inadequate	A1	12/5/1983	Pineview Water Company
180	Pinegrove Park	Navajo	10 North	21 East	24	37	53-501161	Inadequate	A1	8/10/1983	Park Valley / Fool Hollow Water co.
181	Pines at Show Low Condominiums	Navajo	10 North	22 East	32	0	53-501163	Adequate		2/18/1987	Pineview Water Company
182	Pinetop Country Club Village	Navajo	8 North	23 East	11	65	53-501164	Adequate		9/17/1973	Ponderosa Water Company
183	Pinetop Lakes Plaza #2,3	Navajo	8 North	23 East	2	53	53-501166	Adequate		10/6/1983	Ponderosa Water Company
184	Pinetop Lakes, Mountain Homes	Navajo	8 North	23 East	11	0	53-501167	Adequate		2/6/1974	Ponderosa Water Company
185	Pioneer Subdivision	Apache	8 North	29 East	4	0	53-501196	Adequate		6/8/1981	Town of Eagar
186	Pioneer Valley #1	Coconino	22 North	8 East	14, 23	35	53-501197	Inadequate	A2	12/4/1992	Doney Park Water Company
187	Pioneer Valley #3, 2B	Coconino	22 North	8 East	23	83	53-501198	Inadequate	A2	10/3/1994	Doney Park Water Company
188	Randall	Navajo	18 North	19 East	15	36	53-501286	Adequate		9/6/1973	Joseph City Water Company
189	Red Cabin Ranch Estates	Apache	9 North	26 East	5, 8	44	53-402231	Inadequate	A1	8/22/2006	Dry Lot Subdivision
190	Rendezvous Unit One at Torreon	Navajo	10 North	21 East	23	113	53-300436	Adequate		3/31/1998	City of Show Low
191	Rim Rock View Estates, Unit 1	Navajo	13 North	21 East	22	8	53-400642	Adequate		1/3/2002	Subdivision wells
192	Rim Spur	Navajo	9 North	22 East	27	11	53-400368	Inadequate	C	8/30/2000	Dry Lot Subdivision
193	Rim Top Ranch	Coconino	15 North	12 East	21, 27, 35	233	53-300542	Inadequate	D	9/21/1999	HOA Wells
194	Rio Rancho Estates	Coconino	22 North	8 East	35, 36	37	53-400499	Inadequate	A1	3/2/2001	Doney Park Water Company
195	Rio Vista Estates	Apache	21 North	28 East	13	34	53-401474	Inadequate	A1	11/3/2004	Navajo Tribal Utility
196	River Run Estates	Apache	8 North	29 East	5	214	53-400290	Inadequate	A1	4/13/2000	Town of Eagar
197	Rolling Hills #2	Navajo	12 North	21 East	3	49	53-501341	Adequate		3/12/1974	Town of Taylor
198	Roundhouse Square #2	Navajo	8 North	23 East	2	0	53-501345	Adequate		3/31/1976	Ponderosa Water Company

Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin (Cont)<sup>1</sup>

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No. <sup>2</sup>	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination <sup>3</sup>	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
199	Sacred Circle Ranchos, lots 1-7,17-23, 46,47	Apache	10 North	24 East	10	16	53-402183	Inadequate	A1	6/14/2006	Cedar Grove WC
200	San Juan Meadows	Apache	13 North	27 East	25, 26	15	53-300370	Adequate		10/31/1997	Dry Lot Subdivision
201	Saskan Ranch	Coconino	21 North	6 East	23, 24	14	53-501372	Inadequate	D	8/31/1994	HOA Wells
202	Satellite Homestead	Navajo	11 North	22 East	25	131	53-501373	Adequate		5/13/1975	Silver Well Service Corporation
203	Sawmill Point	Navajo	12 North	16 East	13	30	53-700299	Inadequate	A1	5/2/2007	Heber Domestic Water Improvement District
204	Scotts Pine Meadows	Navajo	9 North	22 East	9	27	53-501378	Inadequate	A1	2/11/1986	Pineview Water Company
205	Shadowing Pines	Navajo	8 North	23 East	5	112	53-501388	Adequate		12/16/1974	Pinetop Water Company
206	Show Low East Unit 1	Apache	10 North	24 East	9	41	53-700233	Inadequate	A1	4/12/2007	Cedar Grove WC
207	Show Low Golf & Country Club	Navajo	10 North	21 East	23	124	53-501391	Adequate		7/1/1975	City of Show Low
208	Show Low Mountain Ranch	Navajo	11 North	22 East	25	147	53-700567	Inadequate	A1	10/2/2008	Watooc Inc.
209	Show Low Pines Unit 5	Apache	11 North	25 East	7, 18, 19	6	53-700257	Inadequate	A1	4/4/2007	Dry Lot Subdivision
210	Show Low Vista Community - Unit 1A	Navajo	10 North	22 East	18	20	53-300490	Adequate		7/8/1998	City of Show Low
211	Sierra Pines	Navajo	10 North	22 East	30	57	53-300054	Adequate		10/19/1995	City of Show Low
212	Sierra Pines Unit Two	Navajo	10 North	22 East	30	30	53-300198	Inadequate	A1	9/19/1996	City of Show Low
213	Sierra Pines Unit Three	Navajo	10 North	22 East	29, 30	39	53-300379	Adequate		10/15/1997	City of Show Low
214	Sierra Pines Unit Four	Navajo	10 North	22 East	30	49	53-300501	Adequate		7/21/1998	Dry Lot Subdivision
215	Sierra Springs Ranch	Navajo	9 North	23 East	27, 34	51	53-401740	Adequate		3/29/2006	Sierra Springs Ranch HOA
216	Sierra Vista Ranchettes	Navajo	19 North	15 East	1	20	53-501407	Adequate		6/5/1986	Dry Lot Subdivision
217	Silver Creek Golf Heights, Unit 1	Navajo	11 North	22 East	11	50	53-700343	Inadequate	A1	6/14/2007	White Mountain Lake Estates, Inc.
218	Silver Creek Village	Navajo	11 North	22 East	15	0	53-501409	Inadequate	A1	2/4/1985	White Mountain Lake Water Company
219	Silver Creek Waterfront Estates	Navajo	11 North	22 East	10, 11	99	53-400262	Adequate		2/3/2000	White Mountain Lake Estates, Inc.
220	Silver Lake Estates No. 1 & 2	Navajo	11 North	22 East	35	12	53-300146	Inadequate	C	7/25/1996	Silver Well Service Corporation
221	Skyline Estates	Coconino	22 North	9 East	19	9	53-401403	Inadequate	D	9/2/2004	Doney Park Water Company
222	Skyline Ranch	Apache	10 North	24 East	11, 12	71	53-700340	Inadequate	A1	6/12/2007	The Wilderness
223	Stayton Ranch Estates	Coconino	22 North	8 East	13, 19, 24	117	53-401149	Inadequate	A1,A2	12/22/2003	Doney Park Water Company
224	Snowbase	Coconino	22 North	6 East	26	55	53-300287	Inadequate	A1	6/4/1997	Dry Lot Subdivision
225	Snowbowl Ranch	Coconino	22 North	6 East	23	15	53-501421	Inadequate	A1,A2	8/24/1994	Dry Lot Subdivision
226	Snowbowl Ranch Unit 2	Coconino	22 North	6 East	23	10	53-700545	Inadequate	A1	7/7/2008	Dry Lot Subdivision
227	Snowbowl Ranch Unit 3	Coconino	22 North	6 East	23	14	53-700547	Inadequate	A1	7/10/2008	Dry Lot Subdivision



Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin (Cont)<sup>1</sup>

A. Water Adequacy Reports

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			Township	Range	Section						
228	Snowflake Cntry Club Properties	Navajo	13 North	21 East	21	80	53-400563	Adequate		8/20/2001	Town of Snowflake
229	Snowflake Country Club	Navajo	13 North	21 East	21	57	53-501422	Adequate		6/4/1980	Town of Snowflake
230	Snowflake East #1	Navajo	13 North	22 East	3	25	53-501425	Inadequate	A1	8/9/1985	Dry Lot Subdivision
231	Snowflake Garden Estates	Navajo	13 North	21 East	14	47	53-501426	Adequate		7/8/1974	Town of Snowflake
232	Snowflake Heights	Navajo	13 North	22 East	17	90	53-501427	Adequate		1/27/1984	Town of Snowflake
233	Snowflake Heights #2	Navajo	13 North	22 East	17	131	53-501428	Adequate		6/6/1984	Town of Snowflake
234	Solomon's Lakes	Navajo	11 North	22 East	6	56	53-700513	Inadequate	A1	4/11/2008	Dry Lot Subdivision
235	Stardust Meadows	Coconino	22 North	8 East	24	9	53-300002	Inadequate	A1	4/10/1995	Doney Park Water Company
236	Stardust Trails Subdivision	Coconino	22 North	8 East	23, 24	5	53-700305	Inadequate	A1	5/3/2007	Doney Park Water Company
237	Starlight Pines #1	Coconino	15 North	12 East	31	54	53-501451	Adequate		5/23/1983	Mogollon Water Company
238	Starlight Pines #2	Coconino	15 North	12 East	31	176	53-501452	Adequate		4/24/1986	Mogollon Water Company
239	Starlight Pines #3	Coconino	15 North	12 East	31	118	53-501453	Adequate		10/24/1986	Mogollon Water Company
240	Starlight Pines #4	Coconino	15 North	12 East	31	248	53-501454	Adequate		11/9/1988	Mogollon Water Company
241	Starlight Pines #5	Coconino	15 North	12 East	31	17	53-501455	Adequate		2/9/1995	Starlight Water Company
242	Starlight Pines Ranchettes	Coconino	14 North	12 East	7	125	53-300093	Adequate		7/30/1996	Starlight Water Company
243	Starlight Ridge Estates Townhouses unit 1	Navajo	9 North	22 East	8	72	53-401754	Inadequate	D	5/25/2005	Pineview Water Company
244	Starlight Ridge Estates Townhouses Unit 2	Navajo	9 North	22 East	8	72	53-700333	Inadequate	A1	6/22/2007	Pineview Water Company
245	Starlight Ridge Estates Unit 1	Navajo	9 North	22 East	8	48	53-401400	Inadequate	D	7/20/2004	Pineview Water Company
246	Starlight Ridge Estates Unit II	Navajo	9 North	22 East	8	95	53-402147	Inadequate	A1	5/23/2006	Pineview Water Company
247	Starwood Estates	Navajo	8 North	23 East	1	65	53-400300	Inadequate	D	5/3/2000	Ponderosa Water Company
248	Summer Meadows	Apache	8 North	29 East	4	17	53-501473	Adequate		6/8/1981	Town of Eagar
249	Summer Meadows #3	Apache	8 North	29 East	4	7	53-501474	Inadequate	A1	8/21/1986	Town of Eagar
250	Summer Place	Navajo	12 North	16 East	24	58	53-501475	Adequate		10/8/1985	Arizona Water Company - Overgaard
251	Summer Place North	Navajo	12 North	16 East	24	45	53-300369	Adequate		11/17/1997	Arizona Water Company - Overgaard
252	Summer Place North Unit 2	Navajo	12 North	16 East	24	40	53-400412	Adequate		9/28/2000	Arizona Water Company - Overgaard
253	Summer Place North Unit 3A & 3B	Navajo	12 North	16 East	24	68	53-700323	Adequate		8/7/2007	Heber Domestic Water Improvement District
254	Summer Place North, Unit 3C	Navajo	12 North	16 East	24	43	53-700515	Adequate		6/23/2008	Arizona Water Company - Overgaard

Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin (Cont)<sup>1</sup>

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No. <sup>2</sup>	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination <sup>3</sup>	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
255	Sun Valley Highlands No. 2	Navajo	18 North	22 East	5	58	53-300308	Inadequate	A1	6/3/1997	Dry Lot Subdivision
257	Sundance Springs Community	Navajo	13 North	21 East	13	257	53-401743	Adequate		8/4/2005	Snowflake Municipal Water Company
258	Sunrise Vista Estates	Apache	10 North	24 East	9	24	53-501514	Adequate		10/26/1993	Cedar Grove WC
259	Sunset Vista Estates	Coconino	22 North	8 East	31	24	53-300390	Inadequate	A1	11/19/1997	Doney Park Water Company
260	Tall Pine Estates #2	Coconino	18 North	9 East	28	44	53-501534	Inadequate	A1	8/10/1989	Tall Pines Estates Water & Improvement
261	Tamarron Pines	Coconino	15 North	12 East	32	411	53-400100	Adequate		7/8/1999	Starlight Water Company
262	The Commons at White Mountain Lodge	Apache	7 North	27 East	11	7	53-402010	Inadequate	A1	2/9/2006	White Mountain Lodge
263	The Ranch At The Peaks	Coconino	22 North	6 East	23	74	53-700246	Inadequate	A1	3/29/2007	Majestic Views Domestic Water Improvement District
264	The Retreat Villas at Bison Crossing	Navajo	10 North	21 East	13, 24	66	53-700337	Inadequate	A1	5/22/2007	Park Valley / Fool Hollow Water Co.
265	The Retreat at Bison Crossing	Navajo	10 North	21 East	13, 24	90	53-700336	Inadequate	A1	5/22/2007	Park Valley / Fool Hollow Water Co.
266	The Village	Navajo	10 North	21 East	24	17	53-401373	Inadequate	D	8/4/2004	Park Valley / Fool Hollow Water Co.
267	Thunder Run Estates	Navajo	12 North	17 East	30	41	53-400132	Adequate		7/28/1999	Arizona Water Company - Overgaard
268	Timberline Estates #3	Coconino	22 North	8 East	9	10	53-501560	Inadequate	A2	10/3/1989	Doney Park Water Company
269	Timberline Estates Unit 4	Coconino	22 North	8 East	9	25	53-400187	Inadequate	A1,A2	10/20/1999	Doney Park Water Company
270	Town and Country #1	Navajo	18 North	19 East	15	33	53-501574	Adequate		5/7/1979	Joseph City Water Company
271	Udall Estates	Apache	8 North	29 East	7, 18	37	53-501589	Adequate		12/5/1983	Town of Eagar
272	United Estates #1	Navajo	12 North	17 East	30	35	53-501591	Adequate		5/23/1979	Arizona Water Company - Overgaard
273	Valley View Estates	Apache	8 North	29 East	26	11	53-501601	Adequate		9/1/1976	Town of Eagar
274	Valley View Estates	Navajo	13 North	21 East	26	49	53-501602	Adequate		9/26/1977	Town of Snowflake
275	Valley View Estates #2	Apache	8 North	29 East	8	21	53-501603	Adequate		7/26/1982	Town of Eagar
276	Vein of Gold Unit IV	Navajo	18 North	22 East	5, 8	322	53-300309	Inadequate	A1	6/3/1997	Dry Lot Subdivision
277	Vernon Valley II	Apache	10 North	25 East	22	28	53-501616	Adequate		10/15/1986	Serviceberry Water Company
278	Vista San Juan #1	Apache	13 North	28 East	31	45	53-501656	Adequate		12/6/1976	Developer Water Company
279	Wagon Wheel Meadows	Navajo	9 North	22 East	9	17	53-700240	Inadequate	A1	2/13/2007	Pineview Water Company
280	Wenima Village Project	Apache	9 North	29 East	8, 17, 18	221	53-501665	Adequate		5/17/1989	Town of Springerville
281	West Gardens	Navajo	13 North	21 East	16	0	53-501666	Adequate		12/9/1976	Town of Snowflake
282	West Peak	Coconino	21 North	6 East	23, 24	12	53-501667	Inadequate	A2,A3	8/11/1994	Dry Lot Subdivision



Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin (Cont)<sup>1</sup>

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No. <sup>2</sup>	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination <sup>3</sup>	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
283	West View Subdivision	Navajo	13 North	21 East	23	12	53-401498	Adequate		1/18/2005	Snowflake Municipal Water Company
284	Westbrook Additn to the Vernon Townsite	Apache	10 North	25 East	21	8	53-400056	Adequate		4/18/2001	Vernon DWID
285	Westwood Estates	Coconino	21 North	6 East	23	78	53-300012	Adequate		6/21/1995	Flagstaff Ranch Water Company
286	Whispering Pines Townhouses	Navajo	9 North	23 East	31	89	53-501675	Inadequate	A1	7/3/1984	Pinetop Water Company
287	White Mountain Lake Vistas, Unit I	Navajo	11 North	22 East	15	84	53-401733	Inadequate		10/4/2005	White Mountain Lake Estates, Inc.
288	White Mountain Lakes #18	Navajo	11 North	22 East	10, 14, 15	132	53-501678	Inadequate	A1	9/27/1984	White Mountain Lake Estates, Inc.
289	White Mountain Lakes Airpark Voyager Unit I	Navajo	11 North	22 East	13, 24	61	53-402149	Inadequate	A1	6/15/2006	White Mountain Lake Estates, Inc.
290	White Mountain Lakes Estates	Navajo	11 North	22 East	3, 4, 10, 11, 12, 13, 14, 23, 24	0	53-501679	Adequate		6/27/1985	White Mountain Lake Estates, Inc.
291	White Mountain Vacation Village, LLC	Navajo	9 North	22 East	4, 5	117	53-400626	Inadequate	A1	11/8/2001	Pineview Water Company
			10 North	22 East	32, 33						
292	White Mountain Vacation Village, Unit 2 Phase 3	Navajo	9 North	22 East	4	7	53-401415	Inadequate	A1	38214	Pineview Water Company
			10 North	22 East	33						
293	Wilderness, The	Apache	10 North	24 East	12	115	53-501686	Adequate		7/10/1991	Lord Arizona Water Systems
294	Winchester Trails Ranches	Apache	10 North	25 East	17	125	53-501692	Adequate		3/3/1987	Lord Arizona Water Systems
295	Winchester Trails Ranches #2	Apache	10 North	25 East	17	68	53-501693	Inadequate	C	1/28/1985	Dry Lot Subdivsion
296	Windsor Valley Ranch Phase 2	Apache	12 North	25 East	25, 26, 27, 28, 33, 34	332	53-700551	Inadequate	A1	9/29/2008	Dry Lot Subdivsion
297	Windsor Valley Subdivision	Apache	12 North	25 East	25, 26, 27, 28	321	53-402094	Inadequate	A1	9/1/2006	Dry Lot Subdivsion
298	Wing Mountain Ranch, Unit 1	Coconino	22 North	6 East	27	15	53-501697	Inadequate	A1	4/11/1990	Dry Lot Subdivsion
299	Wing Mountain Ranch, Unit 2	Coconino	22 North	6 East	27	15	53-501698	Inadequate	A1	7/7/1992	Dry Lot Subdivsion
300	Wing Mountain Ranch, Unit 3	Coconino	22 North	6 East	27	15	53-300534	Inadequate	A1,A2	9/22/1998	Dry Lot Subdivsion
301	Wing Mountain Ranch, Unit 3, Phase 2	Coconino	22 North	6 East	27	15	53-401217	Inadequate	A1	3/2/2004	Dry Lot Subdivsion
302	Wolf Pines Unit I	Navajo	9 North	22 East	9	26	53-400565	Inadequate	A1	10/2/2001	Pineview Water Company
303	Woodland Acres	Navajo	12 North	17 East	6	19	53-400043	Adequate		3/24/1999	Arizona Water Company - Overgaard
304	Woodland Hills Subdivision	Navajo	8 North	23 East	6	152	53-300514	Inadequate	A1,C	8/27/1998	Pinetop Water Company
305	Wupatki Trails	Coconino	23 North	8 East	29, 32	41	53-400517	Inadequate	A1	5/14/2001	Doney Park Water Company
306	Wye Subdivision	Apache	8 North	29 East	11	18	53-501708	Adequate		8/22/1983	Town of Eagar

Table 2.1-10 Adequacy Determinations in the Little Colorado River Plateau Basin (Cont)<sup>1</sup>

**B. Analysis of Adequate Water Supply**

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No.	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section				
156	Padre Canyon Trails Planned Residential Development	Coconino	21 North	11 East	19, 29, 31	1200	43-402073	6/23/2006	Undetermined
256	Sundance Springs Community	Navajo	13 North	21 East	13	736	43-401744	7/21/2005	Snowflake Municipal Water Company

**C. Designated Adequate Water Supply**

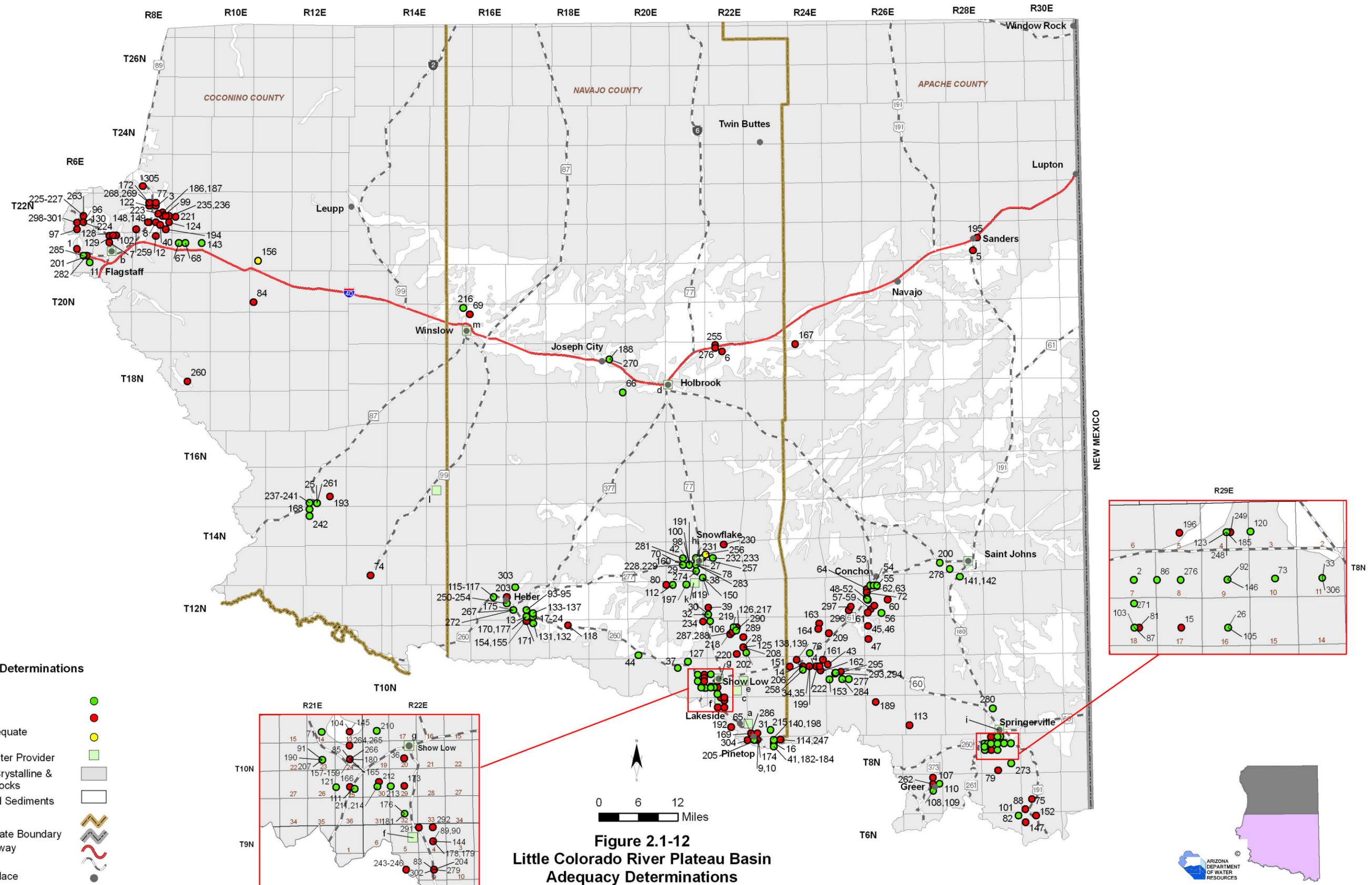
Map Key	Basin	County	Designation No.	Projected or Annual Estimated Demand (af/yr)	Date Application Received	Date Application Issued	Year of Projected or Annual Demand
a	Arizona Water Company - Lakeside & Pinetop	Navajo	40-900000	No amount designated	NA	10/25/1973	No data, hydrologic study needed
b	City of Flagstaff	Coconino	40-900002	No amount designated	NA	5/17/1973	No data, hydrologic study needed
c	City of Holbrook	Navajo	40-900005	No amount designated	NA	5/17/1973	No data, hydrologic study needed
Not Shown	City of Page	Coconino	40-900009	No amount designated	NA	5/17/1973	No data, hydrologic study needed
d	Park Valley/Fools Hollow Water Company	Navajo	40-402065	611.74	3/16/2006	10/16/2007	2016
e	Pineview Water Company	Navajo	40-402066	919.48	3/16/2006	8/20/2007	2016
f	City of Show Low	Navajo	40-300412	2,246	1/1/1998	4/15/1999	2010
g	Town of Snowflake	Navajo	40-401841	3,333	8/10/2005	1/17/2006	2025
h	Town of Springerville	Apache	40-900013	No amount designated	NA	5/17/1973	No data, hydrologic study needed
i	City of St. Johns	Apache	40-900012	No amount designated	NA	5/16/1973	No data, hydrologic study needed
j	Town of Taylor	Navajo	40-900014	1,800	NA	12/21/1982	NA
k	Voyager at White Mountain Lakes Water Co.	Navajo	40-700359	1,540	6/12/2007	2/19/2008	2017
l	City of Winslow	Navajo	40-900018	No amount designated	NA	5/17/1973	No data, hydrologic study needed

Source: ADWR 2008a

**Notes:**

- <sup>1</sup> Each determination of the adequacy of water supplies available to a subdivision is based on the information available to ADWR and the standards of review and policies in effect at the time the determination was made. In some cases, ADWR might make a different determination if a similar application were submitted today, based on the hydrologic data and other information currently available, as well as current rules and policies.
- <sup>2</sup> Prior to February 1995, ADWR did not assign file numbers to applications for adequacy. Between 1995-2006 all applications for adequacy were given a file number with a 22 prefix. In 2006 a 53 prefix was assigned to all water adequacy reports and applications regardless of their issue date.
- <sup>3</sup> A. Physical/Continuous
- 1) Insufficient Data (applicant chose not to submit necessary information, and/or available hydrologic data insufficient to make determination)
  - 2) Insufficient Supply (existing water supply unreliable or physically unavailable; for groundwater, depth-to-water exceeds criteria)
  - 3) Insufficient Infrastructure (distribution system is insufficient to meet demands or applicant proposed water hauling)
- B. Legal (applicant failed to demonstrate a legal right to use the water or failed to demonstrate the provider's legal authority to serve the subdivision)
- C. Water Quality
- D. Unable to locate records
- NA=ia not currently available to ADWR





# LITTLE COLORADO RIVER PLATEAU BASIN

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