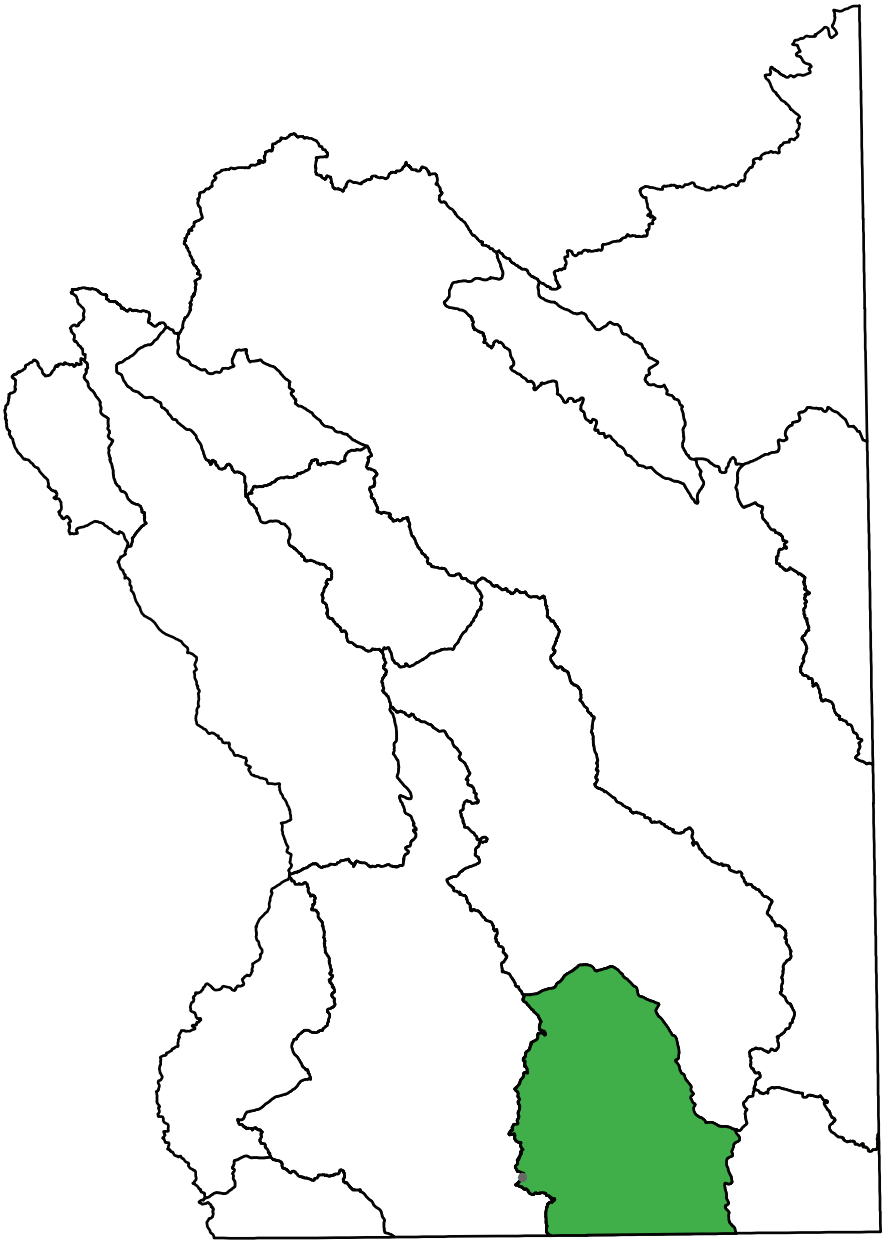
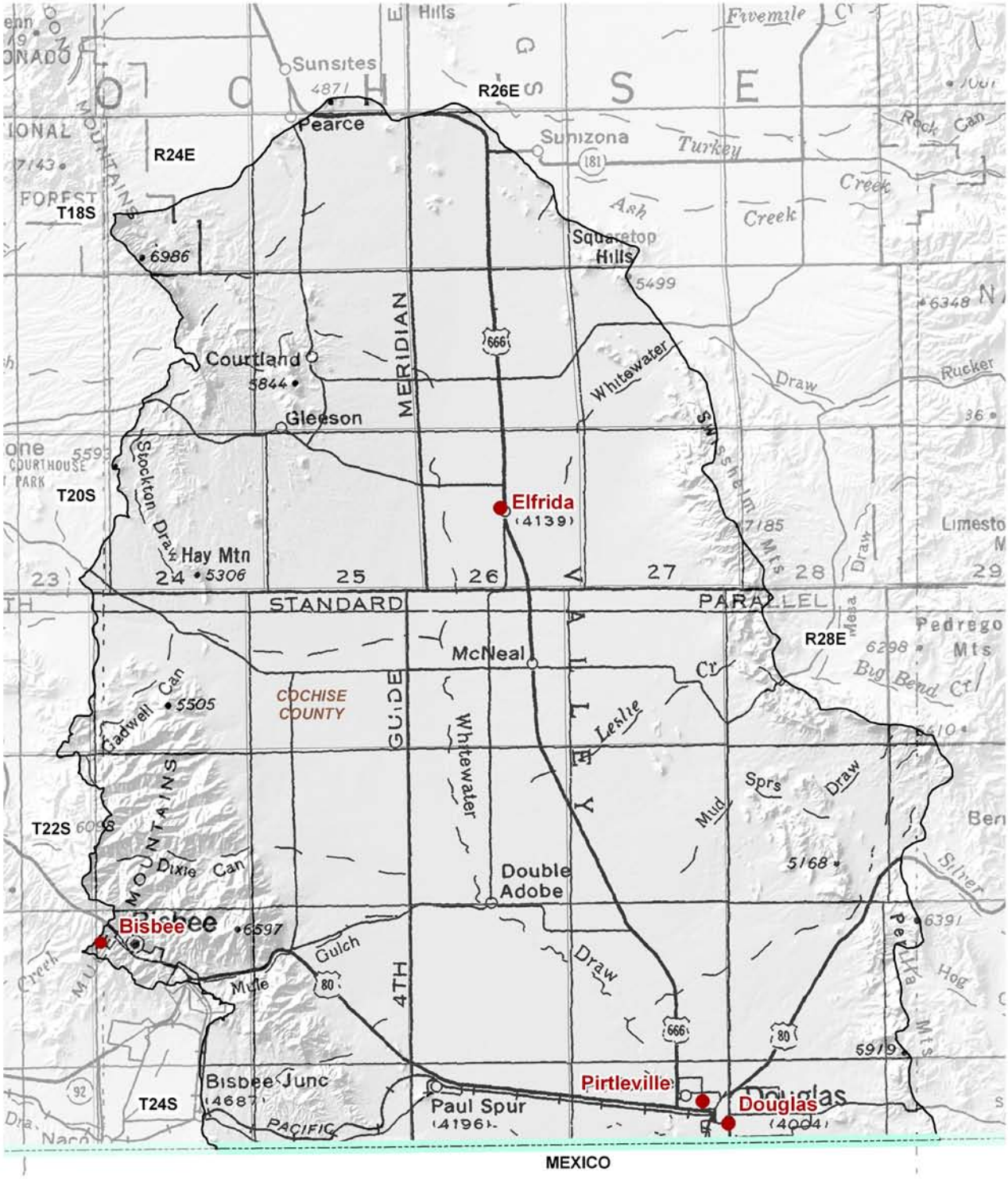
Section 3.5
Douglas Basin



3.5.1 Geography of the Douglas Basin

The Douglas Basin is a medium-size, 949 square mile basin located in the southern portion of the planning area. Geographic features and principal communities are shown on Figure 3.5-1. The basin is characterized by a large valley, grasslands and desertscrub vegetation. Vegetation is primarily semi-desert grassland with smaller areas of Chihuahuan desertscrub. (see Figure 3.0-10) Riparian vegetation includes cottonwood/willow along Leslie Creek.

- Principal geographic features shown on Figure 3.5-1 are:
    - Whitewater Draw running north-south down the center of the basin to Douglas
    - Mule Mountains along the southwestern basin boundary near Bisbee
    - Perilla Mountains east of Douglas and the Swisshelm Mountains east of Elfrida
    - The southern end of the Dragoon Mountains are northwest of Elfrida, which include the highest point in the basin at 6,966 feet
    - Sulphur Springs Valley, which includes the lowest point in the basin at 4,100 feet, running north-south down the center of the basin


Sunsites
Pearce
Sunizona
Courtland
Gleeson
Elfrida
Hay Mtn
McNeal
Double Adobe
Bisbee
Bisbee Junc
Paul Spur
Pirtleville
Douglas
R24E
R26E
R28E
T18S
T20S
T22S
T24S
STANDARD PARALLEL
COCHISE COUNTY
MERIDIAN
GUIDE
4TH
Whitewater
Turkey Creek
Ash Creek
Squaretop Hills
Stockton Draw
Leslie Draw
Mud Sprs Draw
Dixie Can
Cadwell Can
Mule Gulch
Pedregosa Mts
Swisshelm Mts
Mexico
0 3 6 Miles
International Boundary
City, Town or Place
Figure 3.5-1
Douglas Basin
Geographic Features
Base Map: USGS 1:500,000, 1981

3.5.2 Land Ownership in the Douglas Basin

Land ownership, including the percentage of ownership in each category, is shown for the Douglas Basin in Figure 3.5-2. Principal features of land ownership in this basin are the significant amount of private land interspersed with state trust lands. A description of land ownership data sources and methods is found in Volume 1, Appendix A. More detailed information on National Parks, Monuments, Riparian, Conservation, Wildlife and Wilderness Areas is found in Section 3.0.3. Land ownership categories are discussed below in the order of percentage from largest to smallest in the basin.

Private

- 62.6% of the land is held privately.
- The largest concentration of private lands is along Highway 191, the major route through the basin.
- This basin contains the largest percentage of private land ownership of any basin in the planning area.
- Primary land uses are farming, domestic, commercial and mining.

State Trust

- 32.1% of the land in this basin is held in trust for public schools and 13 other beneficiaries under the State Trust Land system.
- State land ownership in this basin is relatively fragmented.
- Primary land use is grazing.

U.S. Bureau of Land Management (BLM)

- 3.8% of land is federally owned and managed by the Safford Office of the Bureau of Land Management.
- BLM lands are interspersed throughout the private and state owned lands in this basin and there is little continuity.
- Primary land use is grazing.

National Forest

- 0.7% of land is federally owned and managed by the United States Forest Service (USFS).
- All forest lands in the basin are in the Douglas Ranger District of the Coronado National Forest.
- Primary land uses are recreation, grazing and timber production.

Wildlife Refuge

- 0.4% of land is federally owned and managed by the U.S. Fish and Wildlife Service
- All Fish and Wildlife Service lands are within the Leslie Canyon National Wildlife Refuge. The refuge also includes private and state trust lands.
- Primary land uses are wildlife protection and recreation.

Other

- 0.4% of land is state owned and managed by the Arizona Game and Fish Department.
- All Game and Fish lands are within the Whitewater Draw Wildlife Area.
- Primary land uses are wildlife protection and recreation.

U.S. Military

- 0.1% of the land is federally owned and managed by the U.S. Military.
- Primary land use is for military activities.

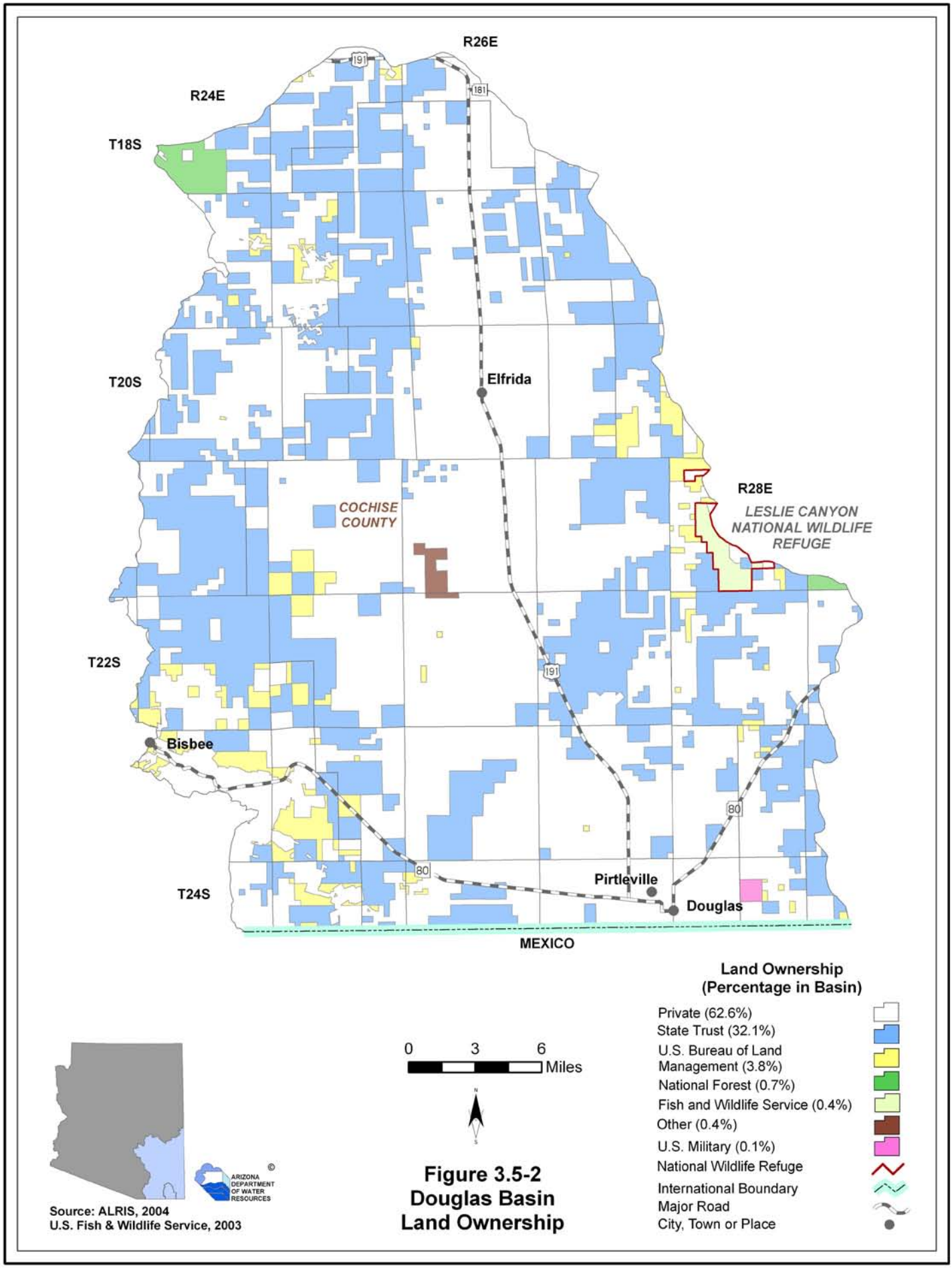


Figure 3.5-2
Douglas Basin
Land Ownership

3.5.3 Climate of the Douglas Basin

Climate data from NOAA/ NWS Coop Network stations are complied in Table 3.5-1 and their locations are shown on Figure 3.5-3. Figure 3.5-3 also shows precipitation contour data from the Spatial Climate Analysis Service (SCAS) at Oregon State University. The Douglas Basin does not contain Evaporation Pan, AZMET or SNOTEL/Snowcourse stations. More detailed information on climate is found in Section 3.0.4. A description of the climate data sources and methods is found in Volume 1, Appendix A.

NOAA/NWS Coop Network

- Refer to Table 3.5-1.
- There are four NOAA/NWS Coop network climate stations in the basin. The average monthly maximum temperature occurs in July and ranges from 76.5°F at Bisbee to 80.4°F at Douglas Smelter. The average monthly minimum occurs in December and is about 46°F for all four stations.
- Highest average seasonal rainfall occurs in the summer (July - September). For the period of record used, the highest annual rainfall is 22.75 inches, at Bisbee and the lowest is 13.76 inches at Douglas FAA AP.

SCAS Precipitation Data

- See Figure 3.5-3
- Additional annual precipitation data shows rainfall as high as 26 inches at the Mule Mountains north of the town of Bisbee and as low as 10 inches at the Sulphur Springs Valley in the vicinity of Elfrida.

Table 3.5-1 Climate Data for the Douglas Basin

A. NOAA/NWS Co-op Network:

Station Name	Elevation (in feet)	Period of Record Used for Averages	Average Temperature Range (in F)		Average Total Precipitation (in inches)				
			Max/Month	Min/Month	Winter	Spring	Summer	Fall	Annual
Bisbee	5,350	1892-1985[1]	76.5/Jul	45.8/Jan	4.94	1.66	10.54	5.62	22.75
Douglas	4,040	1948-2004[1]	79.3/Jul	45.9/Dec	2.16	1.56	8.51	3.12	15.36
Douglas FAA AP	4,100	1971-2000	79.0/Jul	45.8/Jan	1.85	1.16	7.65	3.10	13.76
Douglas Smelter	3,970	1903-1973[1]	80.4/Jul	45.5/Jan	1.43	1.28	8.09	3.47	14.27

Source**:** WRCC, 2005

Notes:
FAA AP = Federal Aviation Administration Airport
[1]Average temperature for period of record shown; average precipitation from 1971-2000

B. Evaporation Pan:

Station Name	Elevation (in feet)	Period of Record Used for Averages	Avg. Annual Evap (in inches)
None			

C. AZMET:

Station Name	Elevation (in feet)	Period of Record	Average Annual Reference Evaportranspiration, in inches (*Number of years to calculate averages*)
None			

D. SNOTEL/Snowcourse:

Station Name	Elevation (in feet)	Period of Record	Average Snowpack, at Beginning of the Month, as Inches Snow Water Content *(Number of measurements to calculate average)*					
			Jan.	Feb.	March	April	May	June
None								

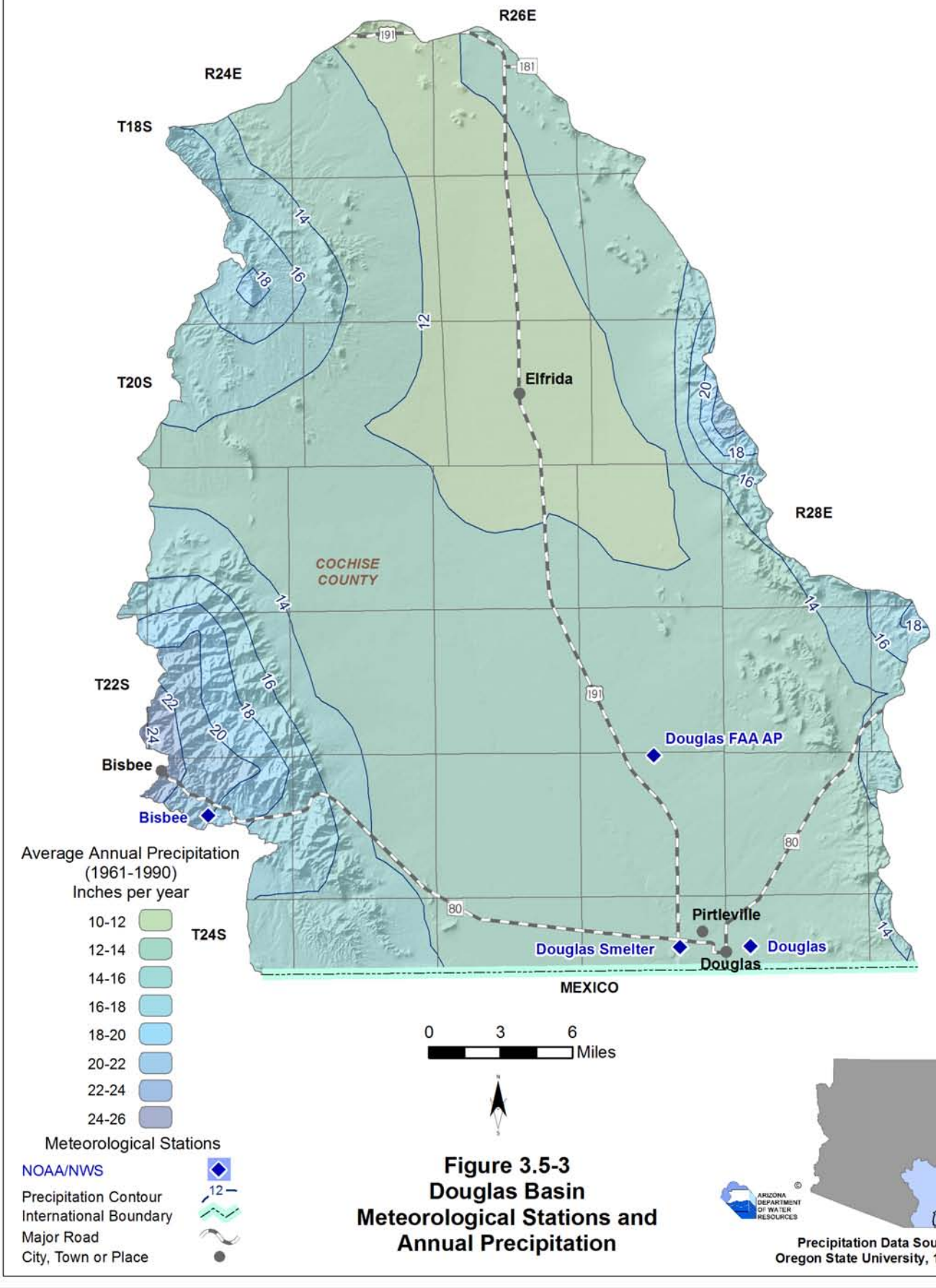


Figure 3.5-3
Douglas Basin
Meteorological Stations and Annual Precipitation

3.5.4 Surface Water Conditions in the Douglas Basin

Streamflow data, including average seasonal flow, average annual flow and other information is shown in Table 3.5-2. This basin does not contain Flood ALERT equipment. Reservoir and stockpond data, including maximum storage or maximum surface area, are shown in Table 3.5-3. The location of streamflow gages, using the USGS number, is shown on Figure 3.5-4. The location of large reservoirs as well as USGS runoff contours are also shown on Figure 3.5-4. Descriptions of stream, reservoir and stockpond data sources and methods are found in Volume 1, Appendix A.

Streamflow Data

- Refer to Table 3.5-2.
- Data from one real-time station located at Whitewater Draw are shown on the table and on Figure 3.5-4.
- The average seasonal flow is highest in the Summer (July-September) and lowest in the Winter (January-March) and Spring (April-June).
- Maximum annual flow was 22,304 acre-feet in 1980 and minimum annual flow was 232 acre-feet in 1955.

Reservoirs and Stockponds

- Refer to Table 3.5-3.
- Surface water is stored or could be stored in three small reservoirs in the basin.
- There are an estimated 254 stockponds in this basin.

Runoff Contour

- Refer to Figure 3.5-4.
- Average annual runoff varies from 0.2 inches per year, or 10.66 acre-feet per square mile, east and north of Whitewater Draw to one inch per year, or 53.3 acre-feet per square mile, west of Whitewater Draw.

Table 3.5-2 Streamflow Data for the Douglas Basin

Station Number	USGS Station Name	Drainage Area (in mi^2)	Gage Elevation (in feet)	Period of Record	Average Seasonal Flow (% of annual flow)				Annual Flow/Year (in acre-feet)				Years of Annual Flow Record
					Winter	Spring	Summer	Fall	Minimum	Median	Mean	Maximum	
9537500	Whitewater Draw near Douglas, AZ	1,023	3,909	1/1912-current (real time)	2	2	89	7	232 (1980)	5,960	6,533	22,304 (1955)	46

Source: USGS (NWIS) 2005 & 2008

Notes:
Statistics based on Calendar Year
Annual Flow statistics based on monthly values
Summation of Average Annual Flows may not equal 100 due to rounding
Period of record may not equal Year of 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 retreived in 2005

Table 3.5-3 Reservoirs and Stockponds in the Douglas Basin

A. Large Reservoirs (500 acre-feet capacity and greater)

MAP KEY	RESERVOIR/LAKE NAME (Name of dam, if different)	OWNER/OPERATOR	MAXIMUM STORAGE (AF)	USE	JURISDICTION
None identified by ADWR at this time					

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

MAP KEY	RESERVOIR/LAKE NAME (Name of dam, if different)	OWNER/OPERATOR	MAXIMUM SURFACE AREA (acres)	USE	JURISDICTION
None identified by ADWR at this time					

Source: Compilation of databases from ADWR & others

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

Total number: 0
Total maximum storage: 0 acre-feet

D. Other Small Reservoirs (between 5 and 50 acres surface area)[1]

Total number: 3
Total surface area: 28 acres

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

Total number: 254 (from water right filings)

Notes:
[1]Capacity data not available to ADWR

Figure 3.5-4
Douglas Basin
Surface Water Conditions

3.5.5 Perennial/Intermittent Streams and Major Springs in the Douglas Basin

Minor springs with discharge rates and date of measurement, and the total number of springs in the basin are shown in Table 3.5-4. There are no major springs in this basin. The locations of perennial and intermittent streams are shown on Figure 3.5-5. Descriptions of data sources and methods for intermittent and perennial reaches and springs are found in Volume 1, Appendix A.

- There is one perennial stream in this basin, Leslie Creek, located on the eastern boundary of the basin.
- There are six minor springs in the basin.
- Listed discharge rates may not be indicative of current conditions. All of the spring measurements were taken prior to 1982 and most were taken in 1951.
- The total number of springs identified by the USGS varies from six to ten, depending on the database reference. This is the smallest number of springs in a basin in the planning area.

Table 3.5-4 Springs in the Douglas Basin

A. Major Springs (10 gpm or greater):

Map Key	Name	Location		Discharge (in gpm)	Date Discharge Measured
		Latitude	Longitude		
None identified by ADWR at this time					

B. Minor Springs (1 to 10 gpm):

Name	Location		Discharge (in gpm)[1]	Date Discharge Measured
	Latitude	Longitude		
Unnamed[2]	312923	1095603	4	9/20/1951
Walnut #1	314908	1095343	2	09/1951
Unnamed[2]	313149	1095604	2	9/19/1951
Unnamed[2]	313035	1095438	2	9/20/1951
Unnamed[2]	312940	1095344	2	9/20/1951
Antelope	314025	1095405	1	During or prior to 1982

Source: Compilation of databases from ADWR & others

C. Total number of springs, regardless of discharge, identified by USGS (see ALRIS, 2005a and USGS, 2006a): 6 to 10

Notes:
[1]Most recent measurement identified by ADWR
[2]Spring not displayed on current USGS topo map

ARIZONA DEPARTMENT OF WATER RESOURCES ©

Figure 3.5-5
Douglas Basin
Perennial/Intermittent Streams and Major (>10 gpm) Springs

Perennial Streams
International Boundary
Major Road
City, Town or Place

Stream Data Source: AGFD, 1993 & 1997

3.5.6 Groundwater Conditions of the Douglas 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 3.5-5. Figure 3.5-6 shows aquifer flow direction and water-level change between 1990-1991 and 2003-2004. Figure 3.5-7 contains hydrographs for selected wells shown on Figure 3.5-6. Figure 3.5-8 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 3.5-5 and Figure 3.5-6.
- The major aquifers in the basin are basin fill and basin fill with interbedded volcanic rock in the Douglas area.
- As seen on Figure 3.5-6, in the vicinity of Elfrida, groundwater flow directions have been altered due to agricultural pumpage.
- Flow direction is generally from north to south and east to west south of Elfrida

Well Yields

- Refer to Table 3.5-5 and Figure 3.5-8.
- As shown on Figure 3.5-8 well yields in this basin range from less than 100 gallons per minute (gpm) to more than 2,000 gpm.
- One source of well yield information, based on 656 reported wells, indicates that the median well yield in this basin is 600 gpm.
- In general, the highest well yields are north of Elfrida and west of Pirtleville. All well yields in the vicinity of Bisbee are less than 100 gpm.

Natural Recharge

- Refer to Table 3.5-5.
- The principal source of recharge for this basin is mountain-front precipitation.
- Natural recharge estimates range from 15,500 acre-feet per year to 22,000 acre-feet per year.

Water in Storage

- Refer to Table 3.5-5.
- Storage estimates for this basin range from 26 million to 32 million acre-feet to a depth of 1,200 feet.

Water Level

- Refer to Figure 3.5-6. Water levels are shown for wells measured in 2003-2004.
- The Department annually measures 27 index wells in this basin. Hydrographs for six of these wells are shown in Figure 3.5-7.
- The deepest recorded water level in 2003-2004 is 337 feet north of Elfrida and the shallowest is 65 feet northwest of Pirtleville.

Table 3.5-5 Groundwater Data for the Douglas Basin

Basin Area, in square miles:	949	
Major Aquifer(s):	**Name and/or Geologic Units**	
	Basin Fill	
	Basin Fill with Interbedded Volcanic Rock (city of Douglas area)	
Well Yields, in gal/min:	Range 144 - 1,068 Median 717.5 (64 wells measured)	Measured by ADWR and/or USGS
	Range 3 - 2,600 Median 600 (656 wells reported)	Reported on registration forms for large (> 10-inch) diameter wells
	Range 50 - 2,000	ADWR (1990 and 1994b)
	Range 0 - 2,500	Anning and Duet, USGS (1994)
	Range <1,000-1,600	Rascona, ADWR (1993)
Estimated Natural Recharge, in acre-feet/year:	15,500	Anderson and Freethey (1995)
	22,000	ADWR (1994b)
	20,000	Freethey and Anderson (1986)
Estimated Water Currently in Storage, in acre-feet:	32,000,000 (to 1,200 ft)	ADWR (1994b)
	30,000,000[1] (to 1,200 ft)	Freethey and Anderson (1986)
	26,000,000 (to 1,200 ft)	Arizona Water Commission (1975)
Current Number of Index Wells:	27	
Date of Last Water-level Sweep:	2004 (387 wells measured)	

Notes:
[1]Predevelopment Estimate

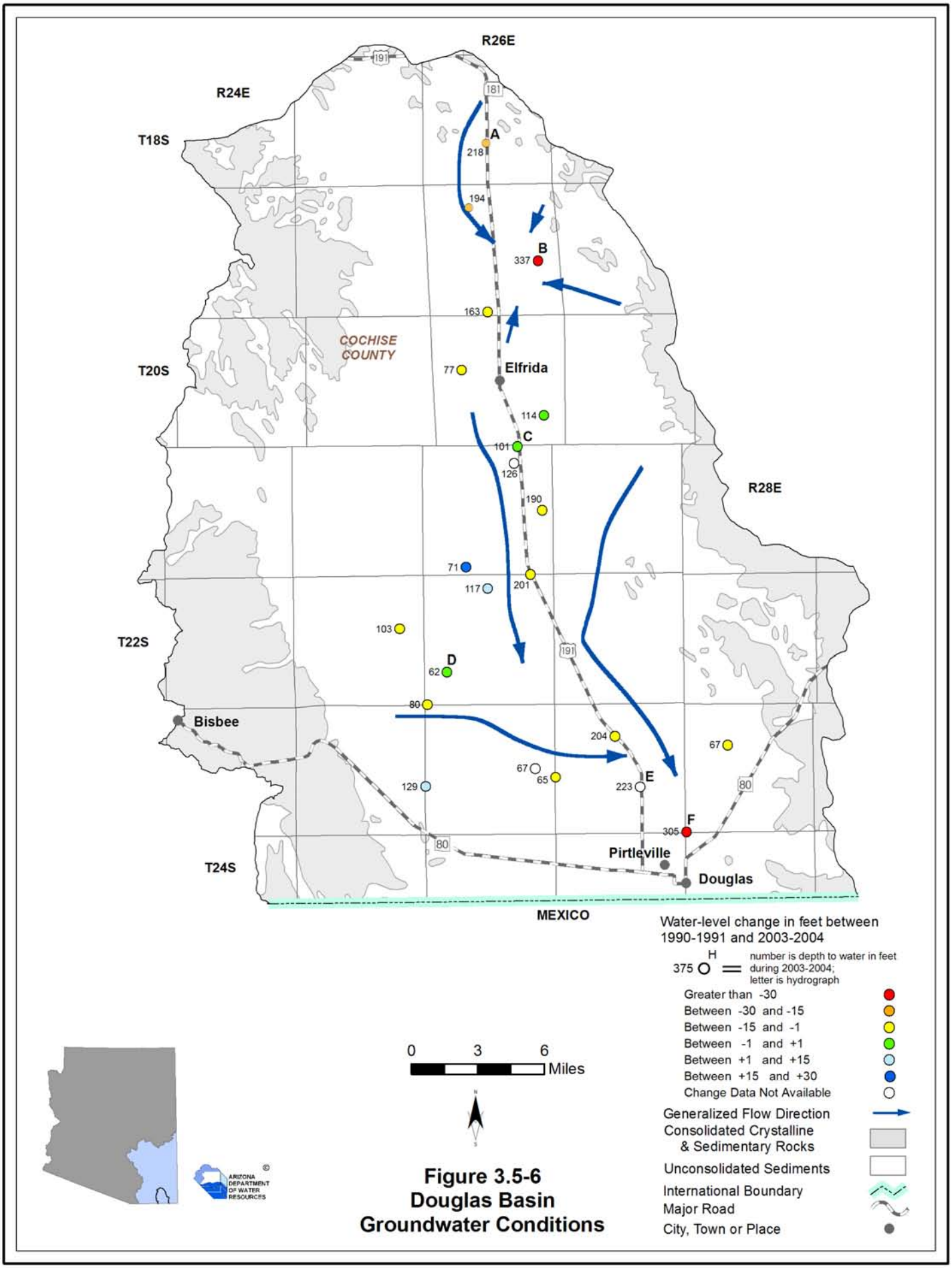


Figure 3.5-6
Douglas Basin
Groundwater Conditions

Figure 3.5-7
Douglas Basin
Hydrographs Showing Depth to Water in Selected Wells

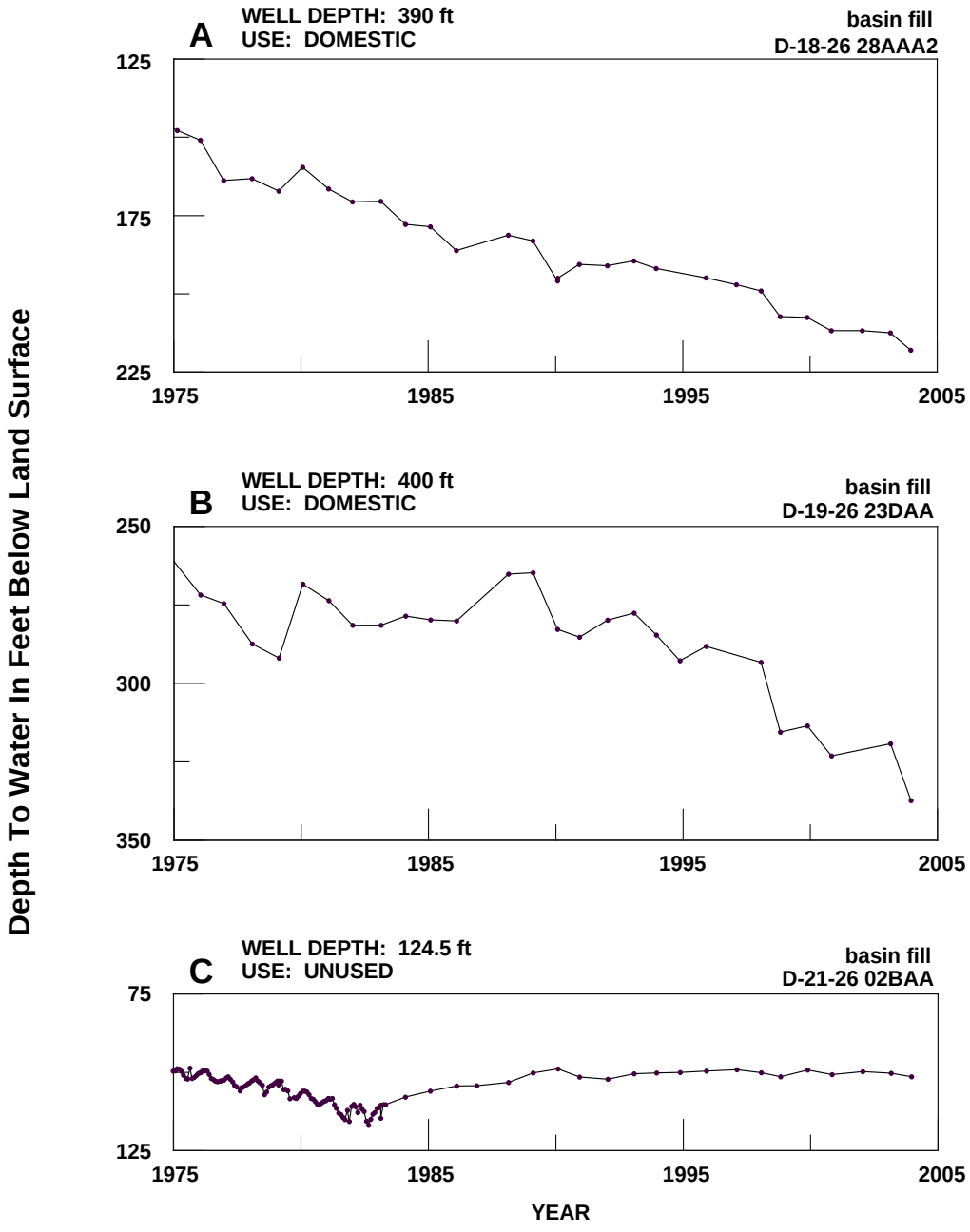
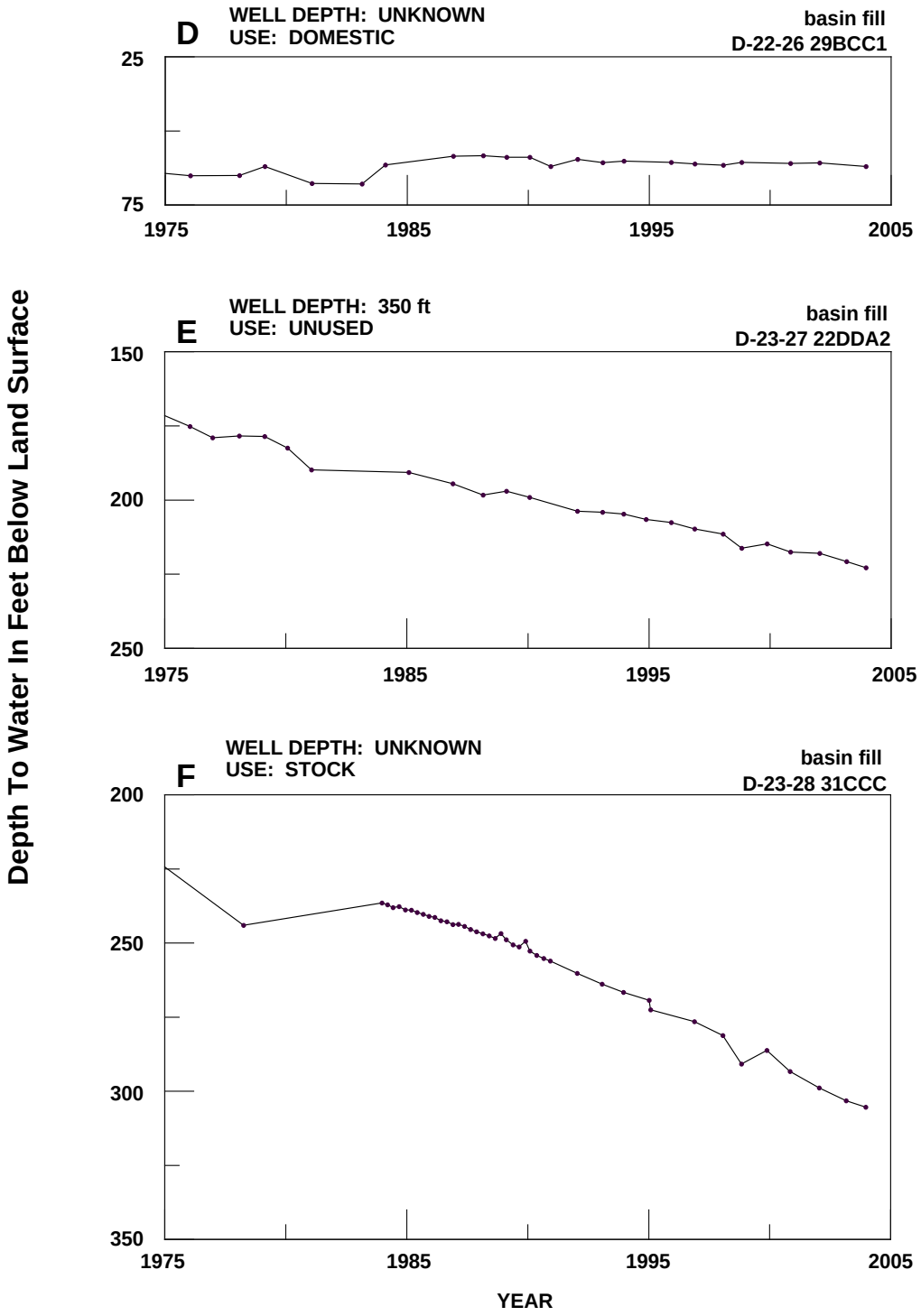


Figure 3.5-7 (Cont)
Douglas Basin
Hydrographs Showing Depth to Water in Selected Wells



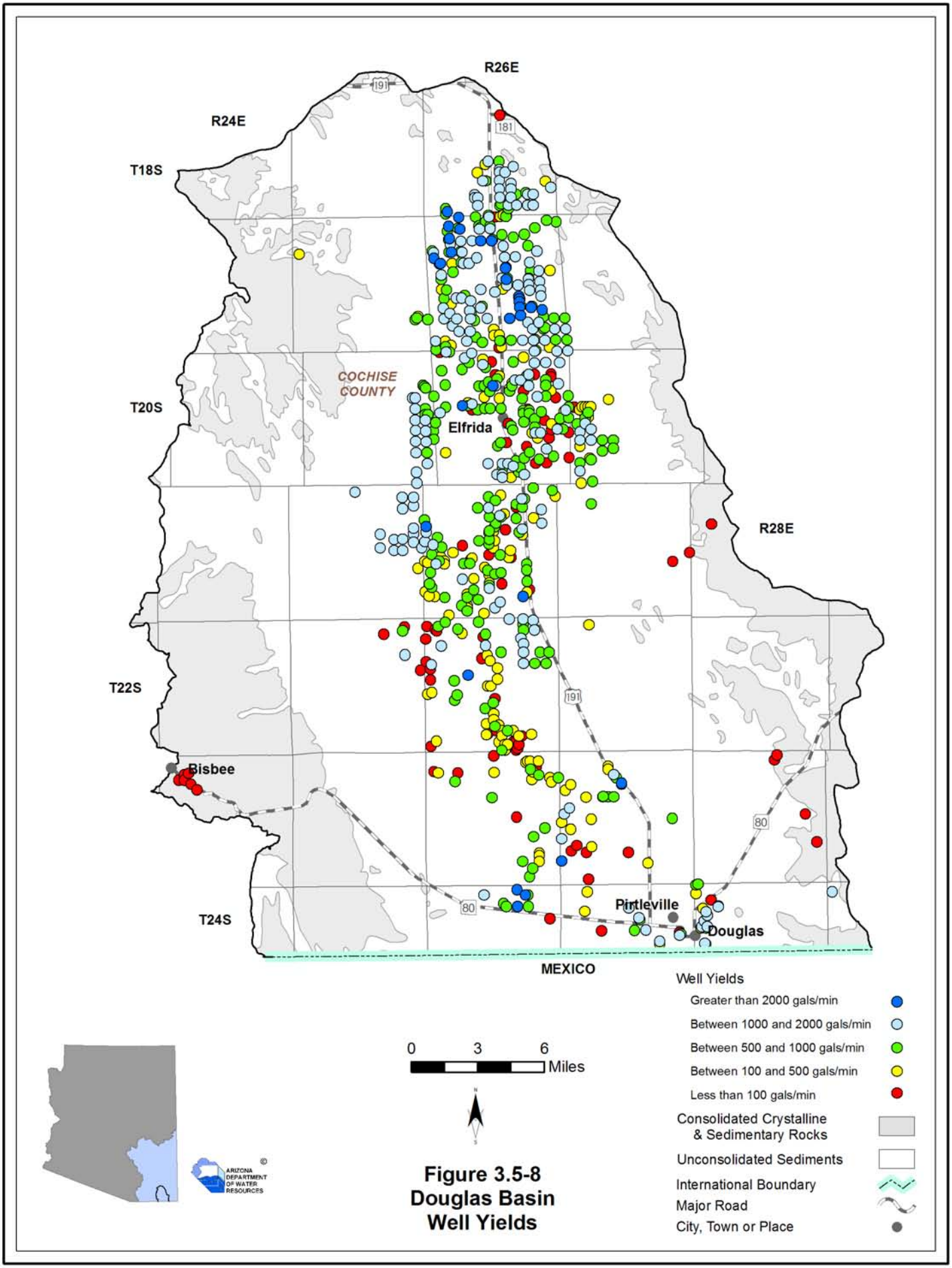


Figure 3.5-8
Douglas Basin
Well Yields

3.5.7 Water Quality of the Douglas Basin

Sites with parameter concentrations that have equaled or exceeded drinking water standard(s) (DWS), including location and parameter(s) are shown in Table 3.5-6A. 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 3.5-6B. Figure 3.5-9 shows the location of exceedences and impairment keyed to Table 3.5-7. Not all parameters were measured at all sites; selective sampling for particular constituents is common. A description of water quality data sources and methods is found in Volume 1, Appendix A.

Well, Mine or Spring sites that have equaled or exceeded drinking water standards (DWS)

- Refer to Table 3.5-6A.
- Forty-nine sites have parameter concentrations that have equaled or exceeded DWS.
- Frequently equaled or exceeded parameters include fluoride, arsenic and nitrate.

Lakes and Streams with impaired waters

- Refer to Table 3.5-6B.
- Water quality standards were exceeded in three reaches of Mule Gulch and one reach of Brewery Gulch.
- The parameter exceeded in every reach was copper. Other parameters exceeded included cadmium, zinc and pH levels.
- All impaired stream reaches in this basin are part of the ADEQ water quality improvement effort called the Total Maximum Daily Load (TMDL) program. In all four stream reaches modeling has been completed, but additional sampling is needed to create the final TMDL report.
- There is one reach of Mule Gulch, in the vicinity of Bisbee, that is effluent dependent.

Table 3.5-6 Water Quality Exceedences in the Douglas Basin[1]

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard (DWS)[2]
		Township	Range	Section	
1	Well	18 South	25 East	2	As, F
2	Well	18 South	25 East	26	F
3	Well	18 South	26 East	25	F
4	Well	18 South	26 East	32	F
5	Well	18 South	26 East	33	F
6	Well	18 South	26 East	33	F
7	Well	18 South	26 East	34	F
8	Well	18 South	26 East	35	F
9	Well	18 South	26 East	35	F
10	Well	19 South	24 East	25	NO3
11	Well	19 South	26 East	3	NO3
12	Well	19 South	26 East	3	F
13	Well	19 South	26 East	3	F
14	Well	19 South	26 East	4	F
15	Well	19 South	26 East	5	F
16	Well	19 South	26 East	7	F
17	Well	19 South	26 East	7	As, F
18	Well	19 South	26 East	8	F
19	Well	19 South	26 East	8	F
20	Well	19 South	26 East	8	F
21	Well	19 South	26 East	8	F
22	Well	19 South	26 East	18	F
23	Well	19 South	26 East	18	F
24	Well	19 South	26 East	25	F
25	Well	20 South	26 East	6	F
26	Well	20 South	26 East	6	F
27	Well	20 South	26 East	25	NO3
28	Well	20 South	27 East	9	F
29	Well	21 South	26 East	9	As, F
30	Well	21 South	26 East	18	F
31	Well	21 South	26 East	19	As, Be
32	Well	21 South	26 East	19	As
33	Well	21 South	26 East	19	As
34	Well	21 South	26 East	19	F
35	Well	21 South	27 East	29	F
36	Well	22 South	26 East	3	F
37	Well	22 South	26 East	4	F
38	Well	22 South	26 East	8	As
39	Well	22 South	27 East	5	F
40	Well	22 South	27 East	25	As
41	Well	23 South	27 East	34	As
42	Well	24 South	24 East	11	NO3
43	Well	24 South	26 East	3	As
44	Well	24 South	26 East	3	As
45	Well	24 South	26 East	5	NO3
46	Well	24 South	27 East	10	As
47	Well	24 South	27 East	10	As
48	Well	24 South	27 East	13	As
49	Well	24 South	29 East	6	As

Source: Compilation of databases from ADWR & others

Table 3.5-7 Water Quality Exceedences in the Douglas Basin (Cont)[1]

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[3]	Parameter(s) Exceeding Use Standard[2]
a	Stream	Brewery Gulch (headwaters to Mule Gulch)	1	NA	A&W	Cu
b	Stream	Mule Gulch (above Lavender Pit to Bisbee WWTP)	1	NA	A&W	Cu, pH
c	Stream	Mule Gulch (Bisbee WWTP to Hwy 80 bridge)	4	NA	A&W	Cd, Cu, pH, Zn
d	Stream	Mule Gulch (headwaters to above Lavender Pit)	4	NA	A&W	Cu

Source: ADEQ 2005e

Notes:
Because of map scale feature locations may appear different than the location indicated on the table
NA = Not applicable
[1] Water quality samples collected between 1978 and 2002.
[2] As = Arsenic
Be = Beryllium
Cd = Cadmium
Cu = Copper
F= Fluoride
NO3 = Nitrate
pH = Measurement of acidity or alkalinity
Zn = Zinc
[3] A&W = Aquatic & Wildlife

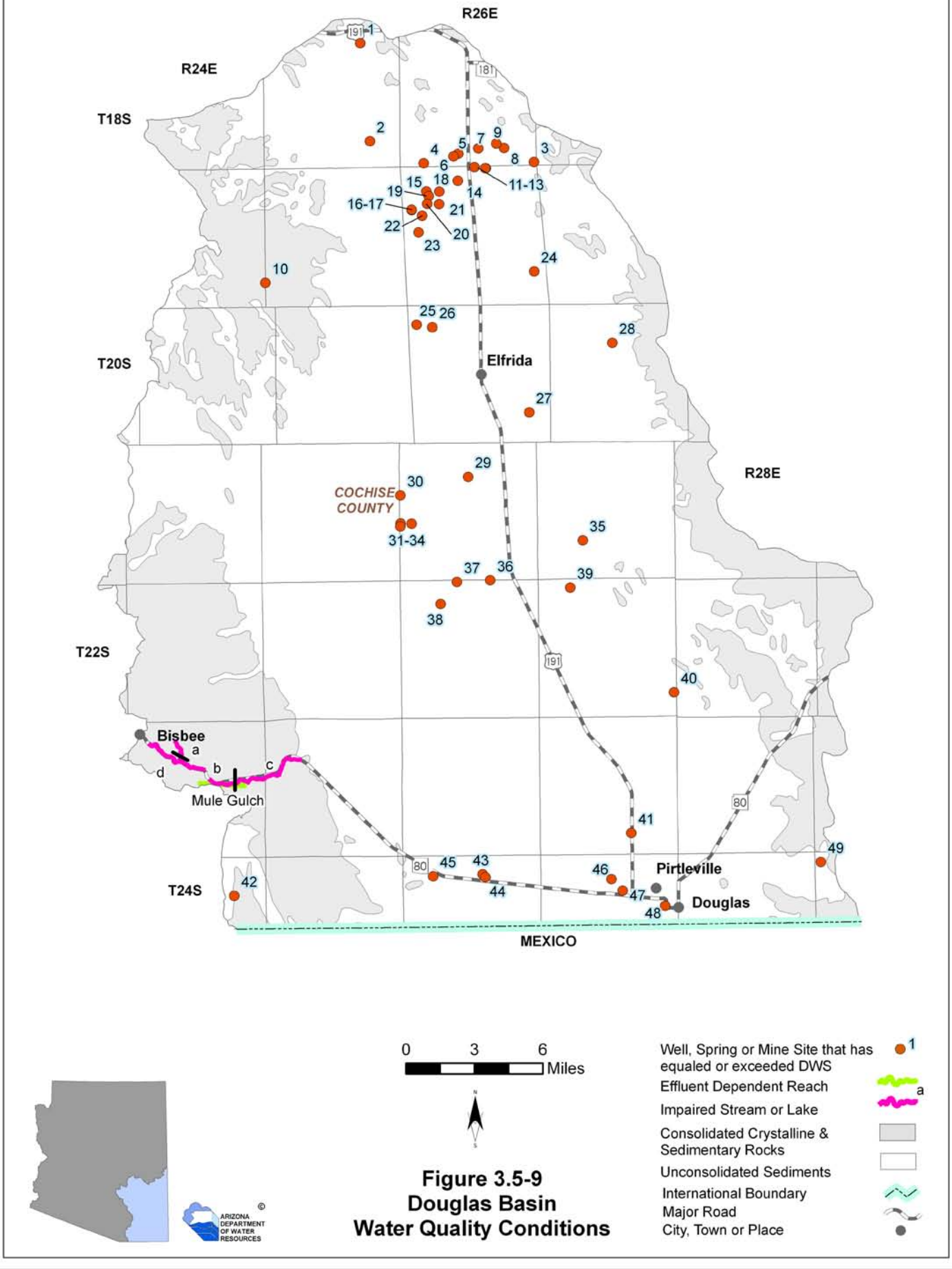


Figure 3.5-9
Douglas Basin
Water Quality Conditions

3.5.8 Cultural Water Demands in the Douglas 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 3.5-7. Effluent generation including facility ownership, location, population served and not served, volume treated, disposal method and treatment level is shown on Table 3.5-8. Figure 3.5-10 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 demands is found in Section 3.0.7.

Cultural Water Demands

- Refer to Table 3.5-7 and Figure 3.5-10.
- Population increased by an average of 500 people per year between 1980 and 2000.
- All water use in this basin is groundwater and over three-fourths of the water demand in this basin is for agriculture. Total groundwater use decreased significantly in this basin from 1971 to 1990. From 1990 to 2003, however, total groundwater has increased although not to the same level as in 1971.
- The highest concentration of municipal and industrial demand is found near Douglas and Pirtleville with smaller centers north of Pirtleville along Highway 191, north of Elfrida and west of Douglas along Highway 80.
- The majority of the agricultural demand in the basin is in the vicinity of Highway 191 and north of Elfrida.
- There are large mine facilities, including the Copper Queen Mine and the Paul Spur Quarry located along Highway 80. There is, however, no recorded industrial water use in this basin after 1990.
- As of 2005 there were 1,666 registered wells with a pumping capacity of less than or equal to 35 gallons per minute and 899 wells with a pumping capacity of more than 35 gallons per minute.

Effluent Generation

- Refer to Table 3.5-8.
- There is one wastewater treatment facility, the Douglas Wastewater Treatment Facility, located at Douglas.
- About 18,000 people are served by this facility. Almost 1,400 acre-feet of effluent per year is generated by the facility and discharged to Mexico where it is used for agricultural irrigation.

Tables 3.5-7 Cultural Water Demands in the Douglas Basin [1]

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		907[2]	795[2]	110,000			NR			ADWR (1994a)
1972										
1973										
1974										
1975										
1976				90,000			NR			
1977										
1978										
1979										
1980	16,600									
1981	17,359	107	42	61,000			NR			
1982	18,119									
1983	18,878									
1984	19,637									
1985	20,397									
1986	21,156	134	22	38,000			NR			
1987	21,915									
1988	22,674									
1989	23,434									
1990	24,193									
1991	24,396	116	17	5,400	NR	32,800	NR			USGS (2007)
1992	24,598									
1993	24,801									
1994	25,004									
1995	25,207									
1996	25,409	187	8	6,200	NR	37,100	NR			
1997	25,612									
1998	25,815									
1999	26,017									
2000	26,220									
2001	26,758	215	15	5,500	NR	47,300	NR			
2002	27,296									
2003	27,834									
2004	28,372									
2005	28,911									
2010	31,609									
2020	37,790									
2030	41,800									
WELL TOTALS:		**1,666**	**899**							

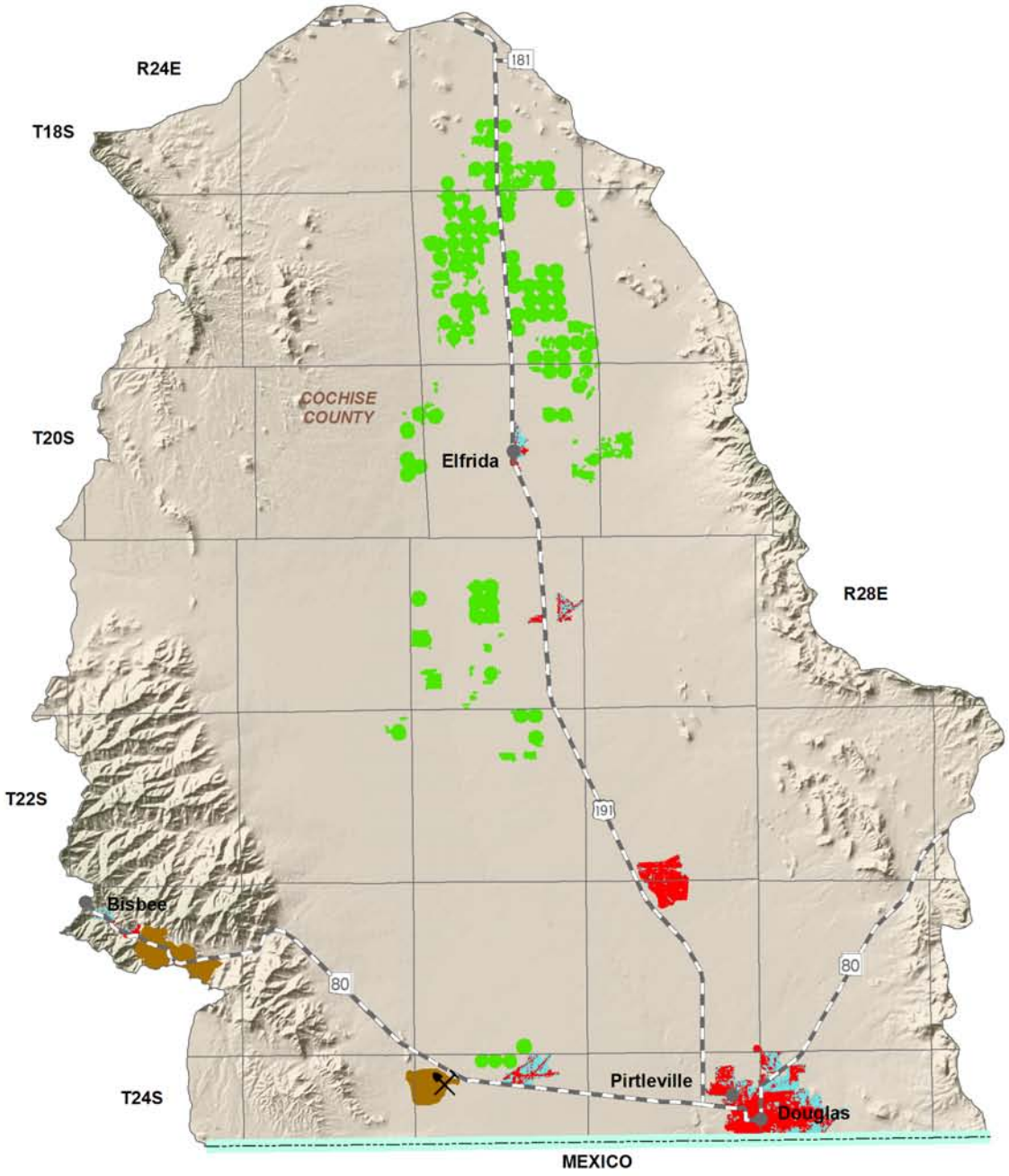
Notes:
NR = Not reported
[1] Does not include evaporation losses from stockponds and reservoirs, or effluent
[2] Includes all wells through June 1980.

Table 3.5-8 Effluent Generation in the Douglas 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	Golf Course/Turf/ Landscape	Wildlife Area	Industrial Use	Discharge to Another Facility	Infiltration Basins			
Douglas WWTF	Douglas Water & Sewer	Douglas	18,044	1,367	Mexico								Secondary	NA	2000

Source: Compilation of databases from ADWR & others

Notes:
NA: No data currently available to ADWR
WWTF: Wastewater Treatment Facility



Primary Data Source: USGS National Gap Analysis Program, 2004

0 3 6 Miles

Figure 3.5-10
Douglas Basin
Cultural Water Demand

Demand Centers

- Agriculture
- M&I - High Intensity
- M&I - Low Intensity
- Large Mine
- Small Mine\Quarry
- International Boundary
- Major Road
- City, Town or Place

3.5.9 Water Adequacy Determinations in the Douglas 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 3.5-9A. Designated water provider information is shown in Table 3.5-9B with date of application, date the designation was issued and projected demand. Figure 3.5-11 shows the locations of subdivisions keyed to the Table. A description of the Water Adequacy Program is found in Volume 1, Appendix C. Adequacy determination data sources and methods are found in Volume 1, Appendix A.

- All subdivisions receiving an adequacy determination are in Cochise County. Eight water adequacy determinations for 433 lots have been made in this basin through December 2008. Eighty-three lots, or 19%, were determined to be adequate.
- All determinations of inadequacy were because the applicant chose not to submit necessary information and/or available hydrologic data were insufficient to make a determination.

Table 3.5-9 Adequacy Determinations in the Douglas Basin[1]

A. Water Adequacy Reports

Map Key	Subdivision Name	County	Location			No. of Lots	ADWR File No.[2]	ADWR Adequacy Determination	Reason(s) for Inadequacy Determination[3]	Date of Determination	Water Provider at the Time of Application
			Township	Range	Section						
1	Cochise Industrial Park	Cochise	23 South	27 East	35	22	53-500477	Adequate		8/11/1981	Dry Lot Subdivision
2	El Dorado Suites (A Condominium Project)	Cochise	23 South	24 East	9	12	53-700231	Adequate		3/22/2007	AWC-Bisbee system
3	Harbour Property	Cochise	21 South	26 East	2	33	53-500774	Adequate		2/4/1982	Dry Lot Subdivision
4	Pueblo Court Condominiums	Cochise	23 South	24 East	7	10	53-501214	Inadequate	A1	2/4/1988	AWC-Bisbee system
5	Rancho Alegre Estates, 1-10	Cochise	24 South	28 East	15	10	53-400051	Adequate		4/21/1999	Dry Lot Subdivision
6	Sunsites Ranches	Cochise	18 South	24 East	14, 22, 24	26	53-300037	Inadequate	A1	7/28/1995	Dry Lot Subdivision
7	Sunsites Ranches Unit 4	Cochise	19 South	26 East	1,13,24,25	314	53-300157	Inadequate	A1	2/14/1996	Dry Lot Subdivision
			19 South	27 East	28,29,30,31, 32						
			20 South	27 East	4,5,6,7,9,18, 29						
8	The 400 Club	Cochise	23 South	24 East	8	6	53-700398	Adequate		11/19/2007	AWC-Bisbee system

B. Designated Adequate Water Supply

Map Key	Water Provider Name	County	Designation No.	Projected or Annual Estimated Demand	Date Application Received	Date Application Issued	Year of Projected or Annual Demand
a	City of Douglas	Cochise	40-900001.0000	No amount designated	NA	5/17/1973	No data, hydrologic study needed

Source: ADWR 2008a

Notes:

[1]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.

[2] 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.

[3] 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 unavaible;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

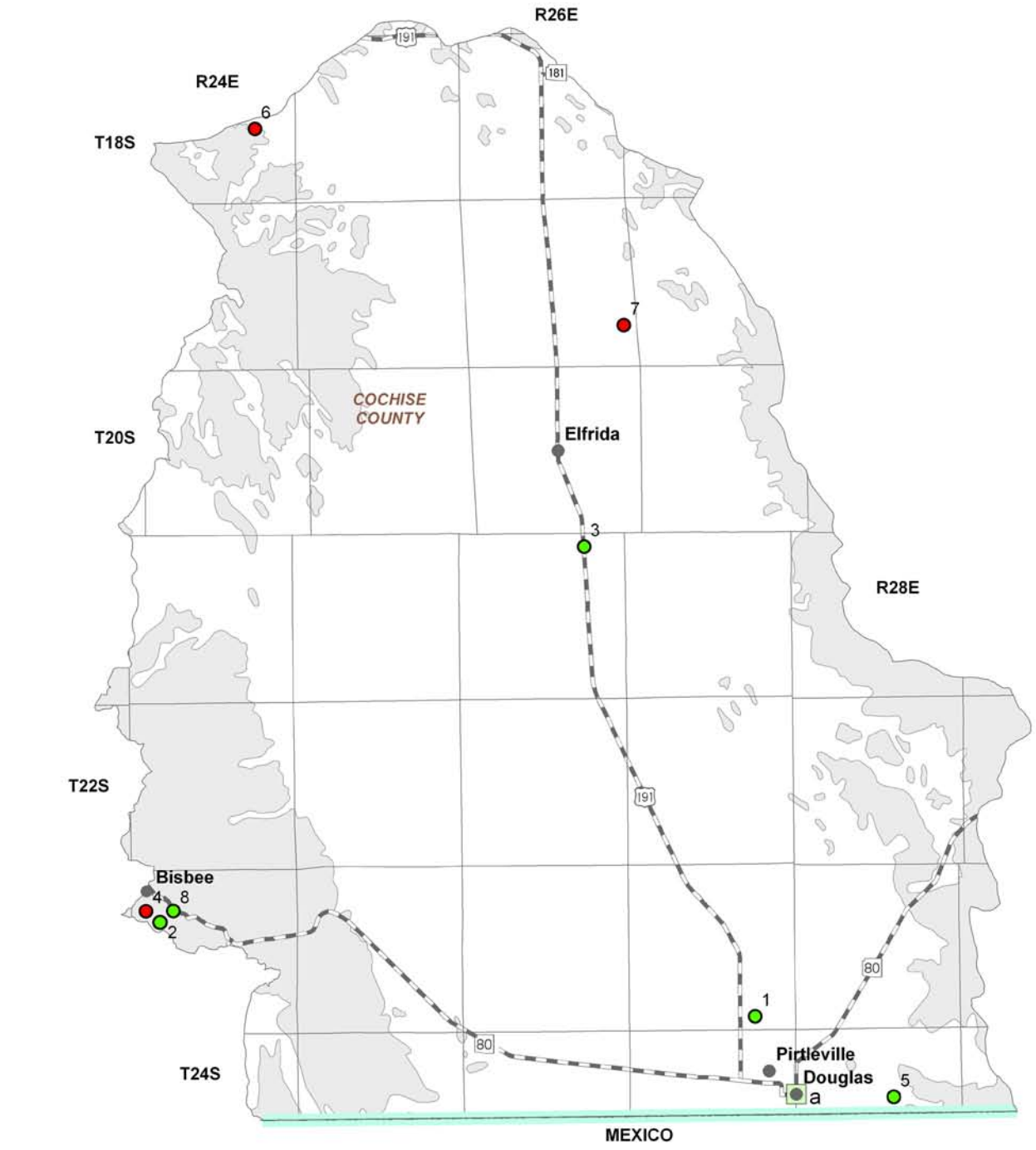


Figure 3.5-11
Douglas Basin
Adequacy Determinations

DOUGLAS BASIN

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