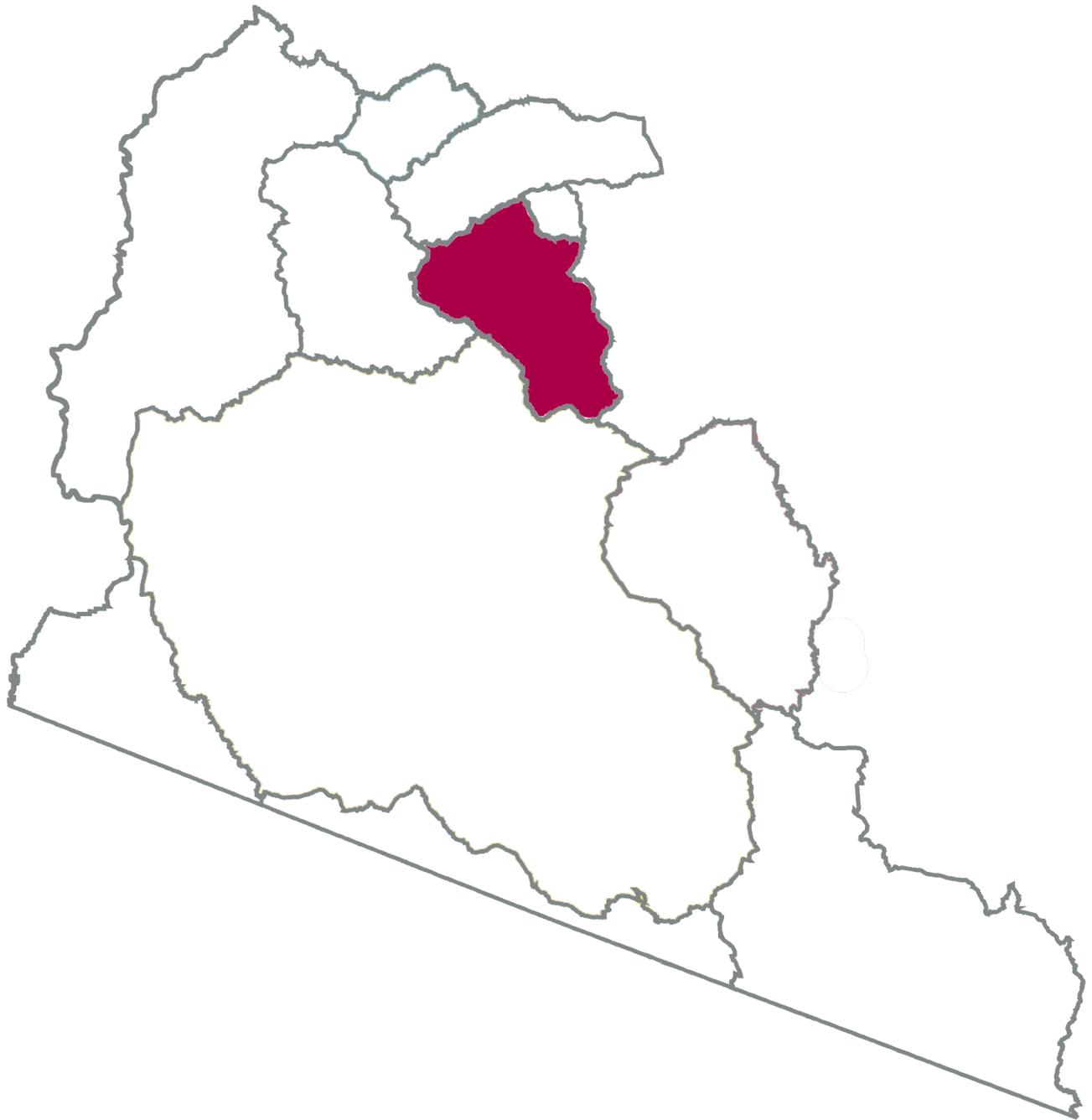


Section 7.3

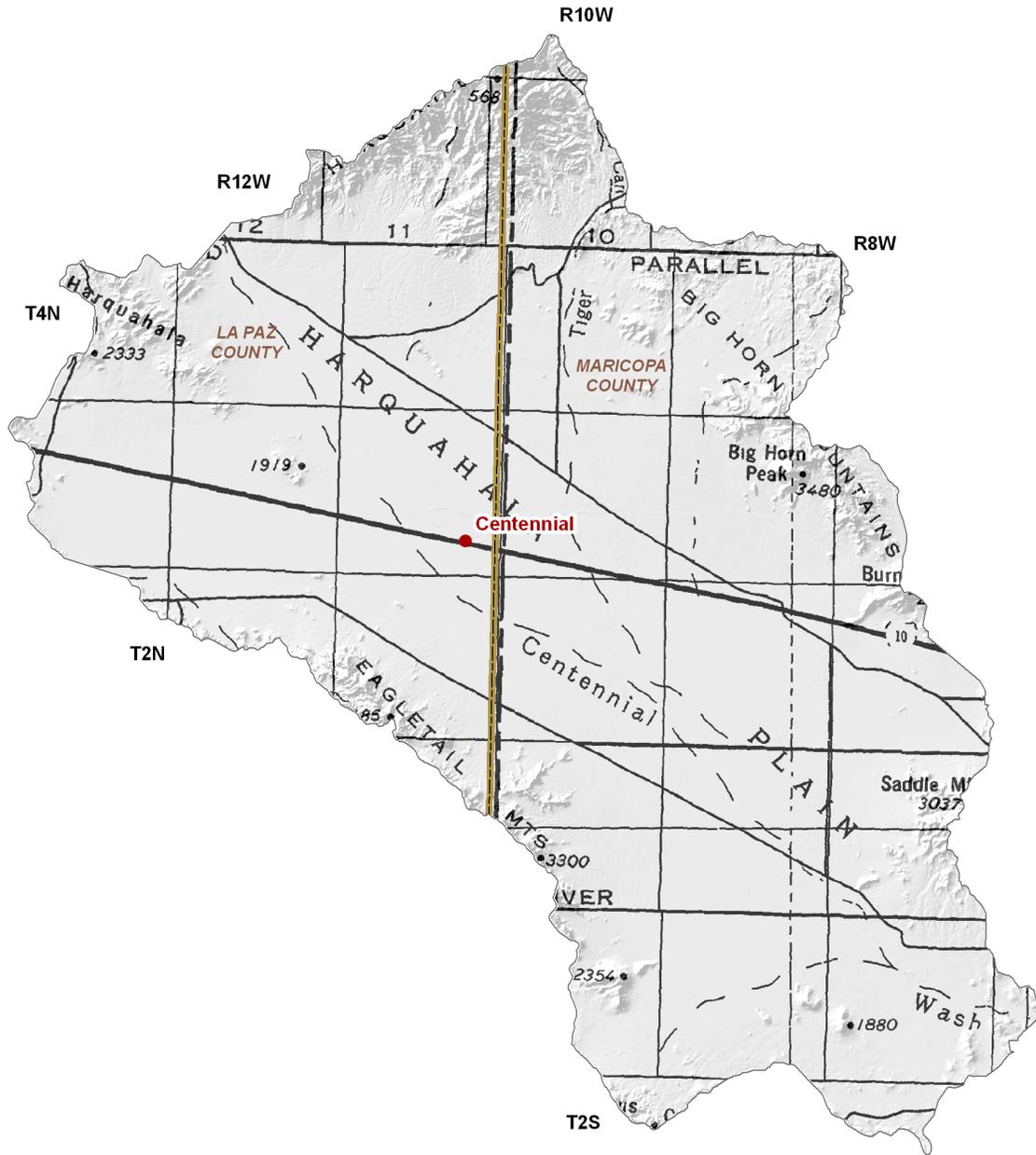
Harquahala Basin



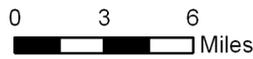
7.3.1 Geography of the Harquahala Basin

The Harquahala Basin, located in the northeastern part of the planning area, is 766 square miles in area. Geographic features and principal places are shown on Figure 7.3-1. The basin is characterized by a plain bordered by mountain ranges. Vegetation types include Lower Colorado River Valley and Arizona Uplands Sonoran desertscrub and a small amount of southwestern interior chaparral on the northern basin boundary. (See Figure 7.0-7)

- Principal geographic features shown on Figure 7.3-1 are:
 - Basin place of Centennial
 - Centennial Wash running through the center of the basin
 - The Harquahala Plain in the center of the basin bordered by the Big Horn Mountains in the east, the Little Harquahala Mountains in the north and the Eagletail Mountains in the west
 - The highest point in the basin, Big Horn Peak, at 3,480 feet in the Big Horn Mountains
- Not well shown on Figure 7.3-1 is the lowest point in the basin at 1,000 feet where Centennial Wash exits the basin in T4N R12W.



Base Map: USGS 1:500,000, 1981



COUNTY 
City, Town or Place 

Figure 7.3-1
Harquahala Basin
Geographic Features

7.3.2 Land Ownership in the Harquahala Basin

Land ownership, including the percentage of ownership by category, for the Harquahala Basin is shown in Figure 7.3-2. The principal feature of land ownership in this basin is the large amount of U.S. Bureau of Land Management Land. A description of land ownership data sources and methods is found in Volume 1, Section 1.3.8. Land ownership categories are discussed below in the order of largest to smallest percentage in the basin.

U.S. Bureau of Land Management (BLM)

- 62.2% of the land is federally owned and managed by the Lower Sonoran Field Office of the Bureau of Land Management.
- This basin contains 52,800 acres of wilderness. This includes 24,000 acres of the 100,000 acre Eagletail Mountains Wilderness, 18,000 acres of the 21,000 acre Big Horn Mountains Wilderness, 5,500 acres of the 31,000 acre Hummingbird Springs Wilderness and 5,300 acres of the 23,000 acre Harquahala Mountains Wilderness. (See Figure 7.0-9)
- Land uses include resource conservation, recreation and grazing.

Private

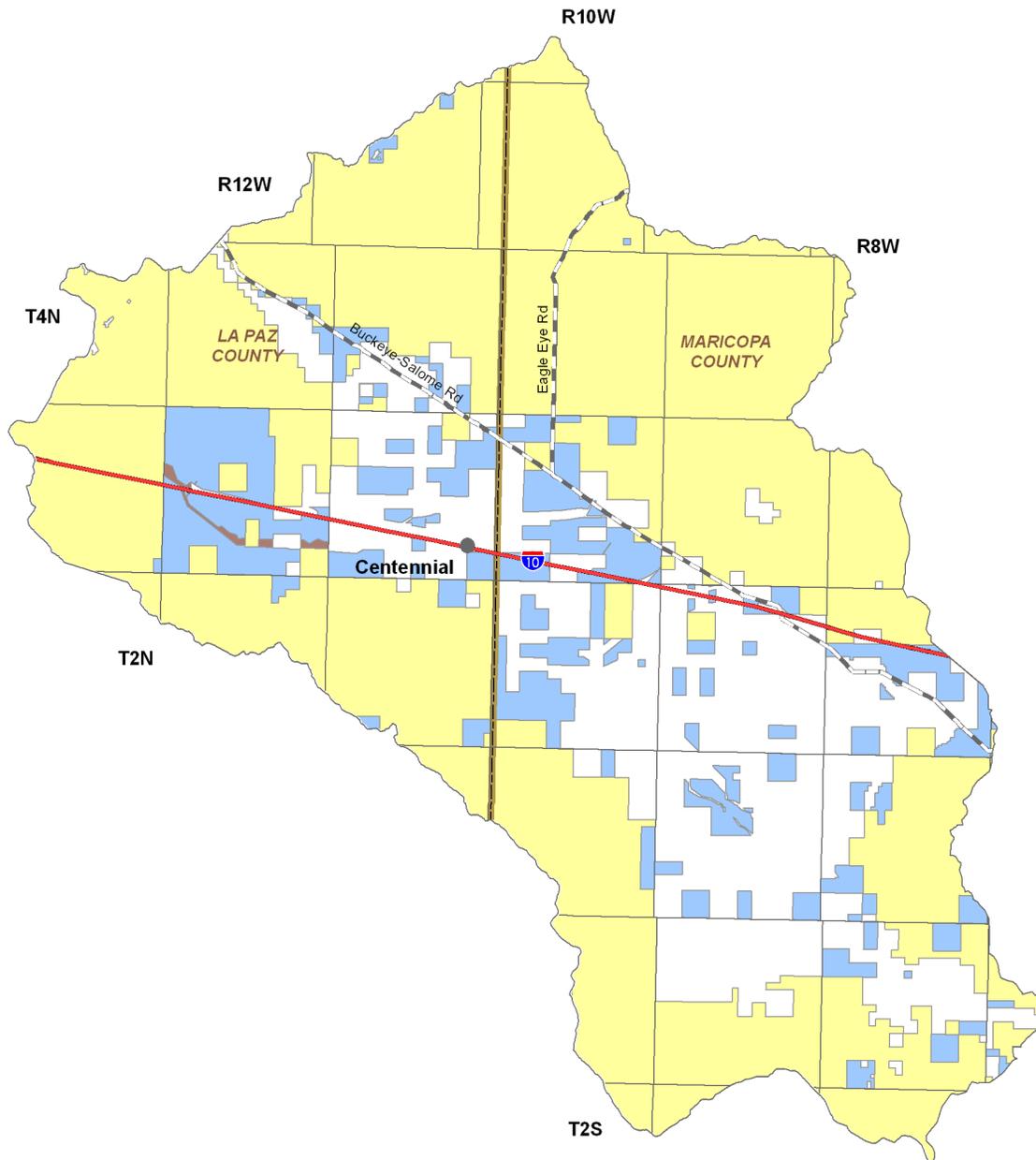
- 25.1% of the land is private.
- Land uses include domestic, commercial and grazing.

State Trust Land

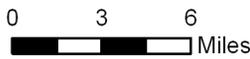
- 12.6% of the land is held in trust for the public schools, state charitable penal reform and county bonds under the State Trust Land system.
- Primary land use is grazing.

Other

- 0.1% of the land is federally owned by the U.S. Bureau of Reclamation (USBOR)
- USBOR lands are located in the western portion of the basin in the vicinity of Interstate 10 where they surround the Central Arizona Project aqueduct.



Source: ALRIS, 2004



**Figure 7.3-2
Harquahala Basin
Land Ownership**

**Land Ownership
(Percentage in Basin)**

- U.S. Bureau of Land Management (62.2%) 
- Private (25.1%) 
- State Trust (12.6%) 
- Other (0.1%) 
- COUNTY** 
- Interstate Highway 
- Major Road 
- City, Town or Place 

7.3.3 Climate of the Harquahala Basin

Climate data from NOAA/NWS Co-op Network and AZMET stations are compiled in Table 7.3-1 and the locations are shown on Figure 7.3-3. Figure 7.3-3 also shows precipitation contour data from the Spatial Climate Analysis Service (SCAS) at Oregon State University. The Harquahala Basin does not contain Evaporation Pan or SNOTEL/ Snowcourse stations. A description of the climate data sources and methods is found in Volume 1, Section 1.3.3.

NOAA/NWS Co-op Network

- Refer to Table 7.3-1A
- Temperatures at the two NOAA/NWS Co-op Network stations in the basin range from an average high of 91.0°F at Salome 17 SE to an average low of 48.0°F at Harquahala Plains.
- Average seasonal rainfall follows a bi-modal pattern with approximately one-third of the average seasonal rainfall occurring in the winter (January-March) season and one-third in the summer (July-September) season. The highest average annual rainfall in the basin is 6.36 inches at the Salome 17 SE station.

AZMET

- Refer to Table 7.3-1C
- There is one AZMET station in the basin, Harquahala. This station is at 1,150 feet and has an annual reference evapotranspiration rate of 82.13 inches.

SCAS Precipitation Data

- See Figure 7.3-3
- Additional precipitation data shows average annual rainfall as high as 18 inches in the Harquahala Mountains at the northern tip of the basin and as low as four inches in the southern and western portions of the basin.

Table 7.3-1 Climate Data for the Harquahala 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
Harquahala Plains	1220	1952 - 1979 ¹	89.5/Jul	48.0/Jan	2.03	0.31	2.10	1.71	6.14
Salome 17 SE	1600	1987 - 1998 ¹	91.0/Jul	49.1/Dec	2.49	0.43	2.06	1.38	6.36

Source: WRCC, 2003

Notes:

¹Average temperature data for period of record shown; precipitation data from 1971-2000

B. Evaporation Pan:

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

Source: WRCC, 2003

C. AZMET:

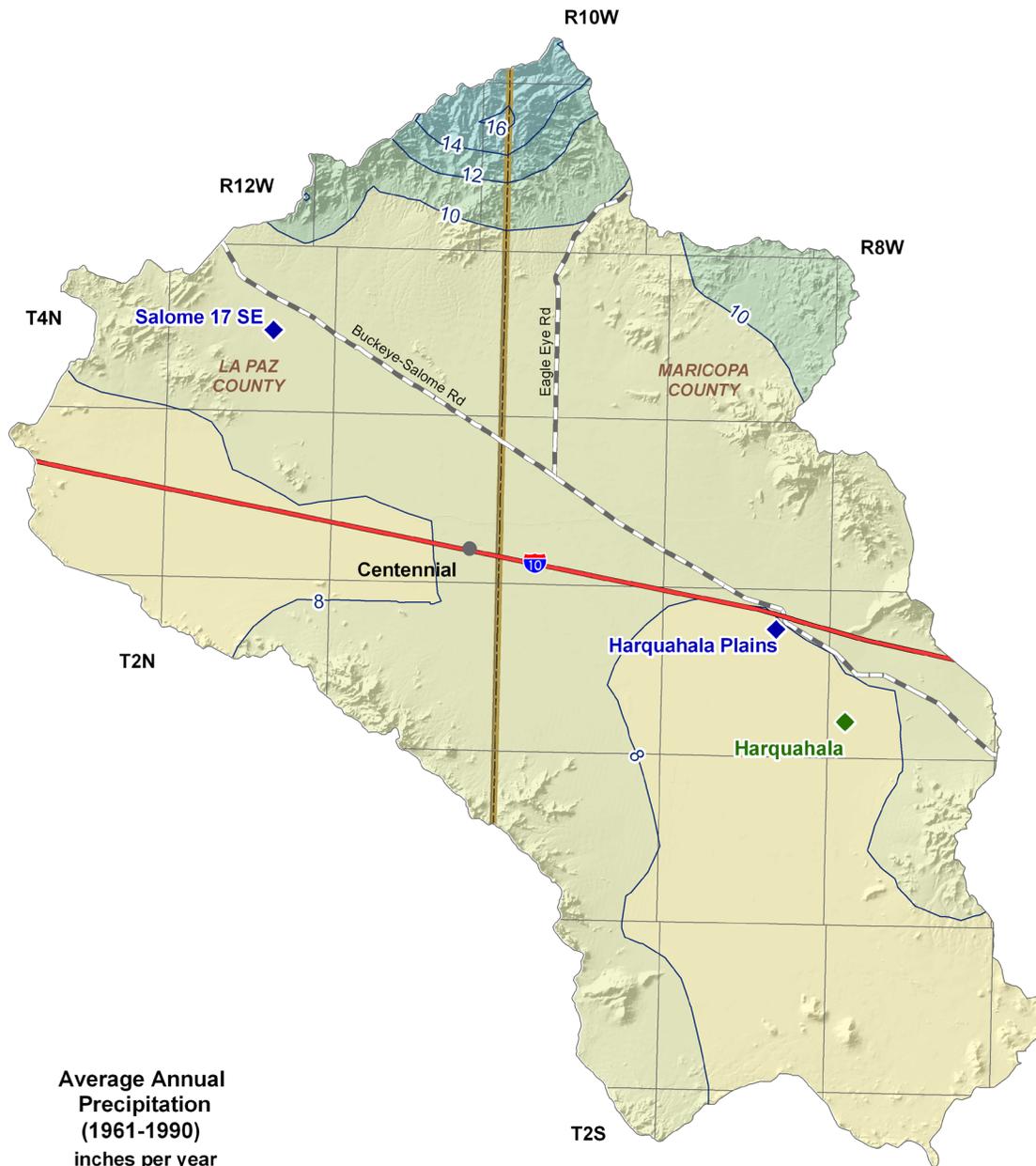
Station Name	Elevation (in feet)	Period of Record Used for Averages	Average Annual Reference Evapotranspiration, in inches (Number of years to calculate averages)
Harquahala	1,150	1996 - 2003	82.13 (6)

Source: Arizona Meteorological Network, 2005

D. SNOTEL/Snowcourse:

Station Name	Elevation (in feet)	Period of Record Used for Averages	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								

Source: NRCS, 2005

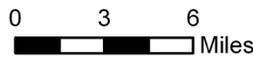


**Average Annual
Precipitation
(1961-1990)
inches per year**

- 6-8
- 8-10
- 10-12
- 12-14
- 14-16
- 16-18

Meteorological Stations

- NOAA/NWS
- AZMET
- Precipitation Contour
- COUNTY
- Interstate Highway
- Major Road
- City, Town or Place



**Figure 7.3-3
Harquahala Basin
Meteorological Stations
and Annual Precipitation**



Precipitation Data Source: Oregon State University, 1998

7.3.4 Surface Water Conditions in the Harquahala Basin

Flood ALERT equipment in the basin is shown in Table 7.3-3. Reservoir and stockpond data, including maximum storage or maximum surface area, are shown in Table 7.3-4. The location of flood ALERT equipment and large reservoirs are shown on Figure 7.3-4. There are no USGS streamflow gages or runoff contour data available for this basin. A description of stream data sources and methods is found in Volume 1, Section 1.3.16. A description of reservoir data sources and methods is found in Volume 1, Section 1.3.11. A description of stockpond data sources and methods is found in Volume 1, Section 1.3.15.

Flood ALERT Equipment

- Refer to Table 7.3-3.
- Most of the 10 ALERT gages in Harquahala Basin are located along Centennial Wash and its tributaries.

Reservoirs and Stockponds

- Refer to Table 7.3-4.
- The basin contains one large reservoir, Harquahala FRS, with a maximum storage of 8,000 acre-feet. This reservoir is used for flood control.
- Surface water is stored or could be stored in one small reservoir in the basin.
- There are 42 registered stockponds in this basin.

Table 7.3-2 Streamflow Data for the Harquahala Basin

Station Number	USGS Station Name	Drainage Area (in mi ²)	Mean Basin Elevation (in feet)	Period of Record	Average Seasonal Flow (% of annual flow)				Annual Flow/Year (in acre-feet)			Years of Record
					Winter	Spring	Summer	Fall	Minimum	Median	Maximum	
None												

Sources: USGS NWIS, USGS 1998 and USGS 2003.

Table 7.3-3 Flood ALERT Equipment in the Harquahala Basin

Station ID	Station Name	Station Type	Install Date	Responsibility
5065	Eagle Eye Rd. @ CAP	Precipitation	6/17/2003	Maricopa County FCD
5080	Buckeye @ 547th Ave.	Precipitation	6/13/2000	Maricopa County FCD
5085	Baseline @ 547th Ave.	Precipitation	5/24/2000	Maricopa County FCD
5110	Saddleback FRS	Precipitation/Stage	12/16/1988	Maricopa County FCD
5120	Centennial Levee	Precipitation/Stage	3/7/1994	Maricopa County FCD
5125	Harquahala FRS	Precipitation/Stage	9/15/1993	Maricopa County FCD
5140	Tiger Wash Fan	Weather Station	9/21/1994	Maricopa County FCD
5150	Narrows Damsite	Precipitation	9/1/1994	Maricopa County FCD
5160	Tiger Wash	Precipitation/Stage	9/15/1999	Maricopa County FCD
5185	Harquahala Mtn. Repeater	Repeater/Precipitation	2/11/1994	Maricopa County FCD

Notes:
 FCD = Flood Control District
 FRS = Flood Retention Structure

Table 7.3-4 Reservoirs and Stockponds in the Harquahala 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 ¹	JURISDICTION
1	Harquahala FRS	Maricopa County FCD	8,000	C	State

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					

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)

Total number: 1

Total surface area: 17 acres

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

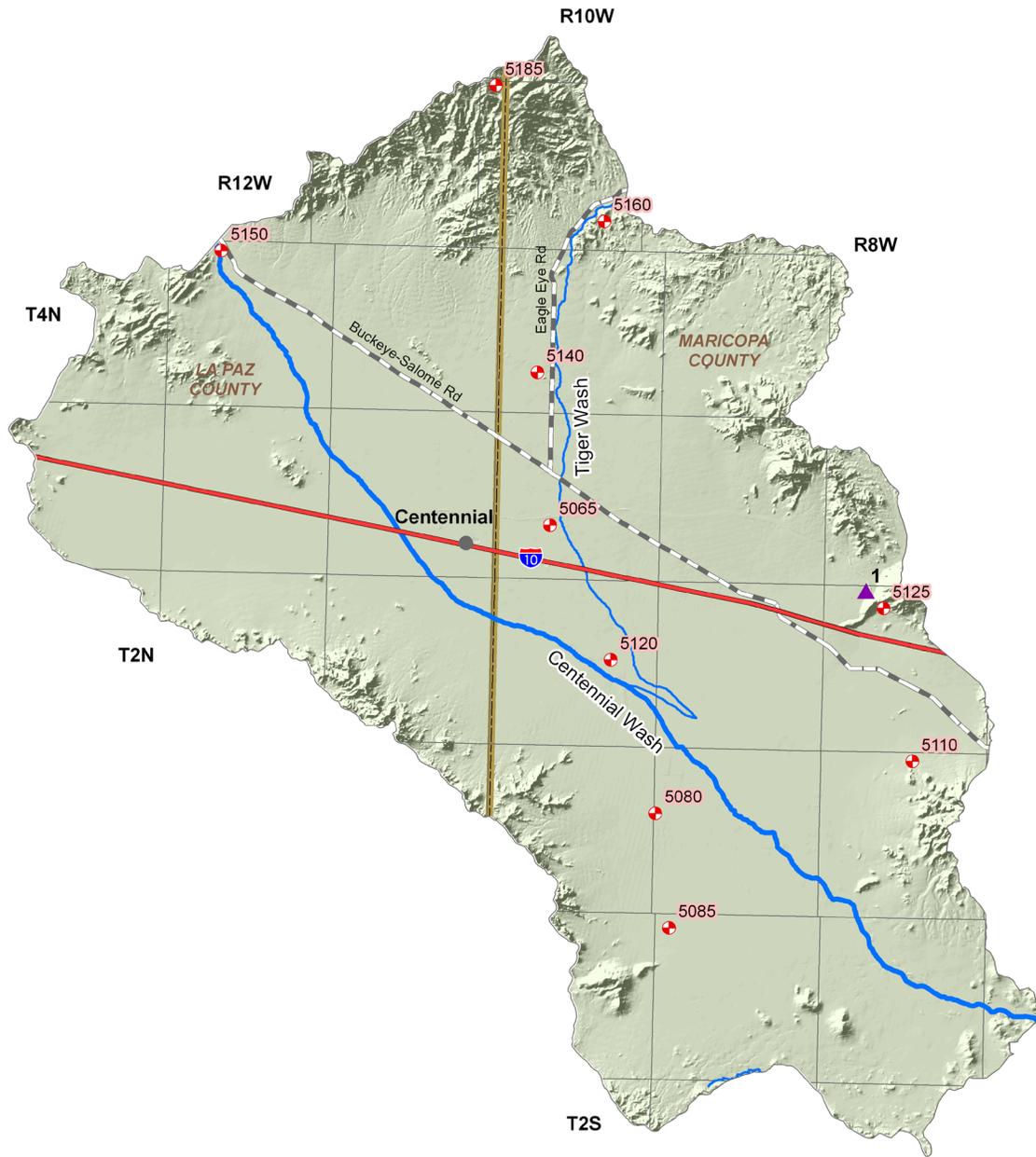
Total number: 42

Notes:

FCD = Flood Control District

FRS = Flood Retention Structure

¹C = Flood Control



Stream Data Source: ALRIS, 2005

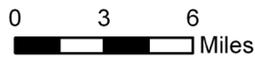


Figure 7.3-4
Harquahala Basin
Surface Water Conditions

- Stream Channel (width of line reflects stream order)
- Large Reservoir
- Flood ALERT Equip. & Station ID
- COUNTY
- Interstate Highway
- Major Road
- City, Town or Place

7.3.5 Perennial/Intermittent Streams and Major Springs in the Harquahala Basin

The total number of springs in the basin are shown in Table 7.3-5. There are no perennial or intermittent streams and no major or minor springs in the Harquahala Basin. A description of data sources and methods for intermittent and perennial reaches is found in Volume 1, Section 1.3.16. A description of spring data sources and methods is found in Volume 1, Section 1.3.14.

- The total number of springs, regardless of discharge, identified by the USGS varies from zero to one, depending on the database reference.

Table 7.3-5 Springs in the Harquahala 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)	Date Discharge Measured
	Latitude	Longitude		
None identified by ADWR at this time				

C. Total number of springs, regardless of discharge, identified by USGS (see ALRIS, 2005 and USGS, 2006): 0 - 1

7.3.6 Groundwater Conditions of the Harquahala Basin

Major aquifers, well yields, estimated water in storage, number of index wells and date of last water-level sweep are shown in Table 7.3-6. Figure 7.3-5 shows aquifer flow direction and water-level change between 1990-1991 and 2003-2004. Figure 7.3-6 contains hydrographs for selected wells shown on Figure 7.3-5. Figure 7.3-7 shows well yields in six yield categories. A description of aquifer data sources and methods is found in Volume 1, Section 1.3.2. A description of well data sources and methods, including water-level changes and well yields, is found in Volume 1, Section 1.3.19.

Major Aquifers

- Refer to Table 7.3-6 and Figure 7.3-5.
- The major aquifer in this basin is basin fill.
- Flow direction is from the basin edges to a cone of depression in the central portion of the basin.
- As shown on Figure 7.3-6, the water level in the area of the cone of depression has risen by at least one foot and as much as 30 + feet between 1990-1991 and 2003-2004 due to use of Central Arizona Project (CAP) water in place of groundwater and CAP recharge at the Vidler Water Recharge Facility west of Centennial.

Well Yields

- Refer to Table 7.3-6 and Figure 7.3-7
- As shown on Figure 7.3-7, well yields are generally between 1,000 gallons per minute (gpm) to greater than 2,000 gpm.
- One source of well yield information, based on 157 reported wells, indicates that the median well yield is 1,620 gpm.

Natural Recharge

- Refer to Table 7.3-6
- There are three estimates of natural recharge ranging from less than 1,000 acre-feet per year to less than 1,200 acre-feet per year.
- The largest source of natural recharge is runoff infiltration through the Centennial Wash alluvium (ADWR 1994).

Water in Storage

- Refer to Table 7.3-6
- There are three estimates of water in storage ranging from 13 million acre-feet to 27 million acre-feet, both to a depth of 1,200 feet.

Water Level

- Refer to Figure 7.3-5. Water levels are shown for wells measured in 2003-2004.
- The Department annually measures 34 index wells in this basin, hydrographs for 11 index wells are shown on Figure 7.3-6.
- The deepest water level shown on the map is 561 feet in the southwestern portion of the basin and the shallowest is 25 feet in T1N R8W.

Table 7.3-6 Groundwater Data for the Harquahala Basin

Basin Area, in square miles:	766	
Major Aquifer(s):	Name and/or Geologic Units	
	Basin Fill	
Well Yields, in gal/min:	Range 207-3,007 Median 1,613.5 (84 wells measured)	Measured by ADWR and/or USGS
	Range 7-3,500 Median 1,620 (157 wells reported)	Reported on registration forms for large (> 10-inch) diameter wells
	Range 300-3,000	ADWR (1990 and 1994)
	Range 0-2,500	USGS (1994)
Estimated Natural Recharge, in acre-feet/year:	<1,200 ¹	Anderson and Freethey (1995)
	1,000	Freethey and Anderson (1986)
	<1,000 ¹	Arizona Water Commission (1975)
Estimated Water Currently in Storage, in acre-feet:	15,500,000 (to 1,200 ft)	ADWR (1994)
	13,000,000 ² (to 1,200 ft)	Freethey and Anderson (1986)
	27,000,000 (to 1,200 ft)	Arizona Water Commission (1975)
Current Number of Index Wells:	34	
Date of Last Water-level Sweep:	2004 (188 wells measured)	

¹Includes Tiger Wash Basin

²Predevelopment Estimate

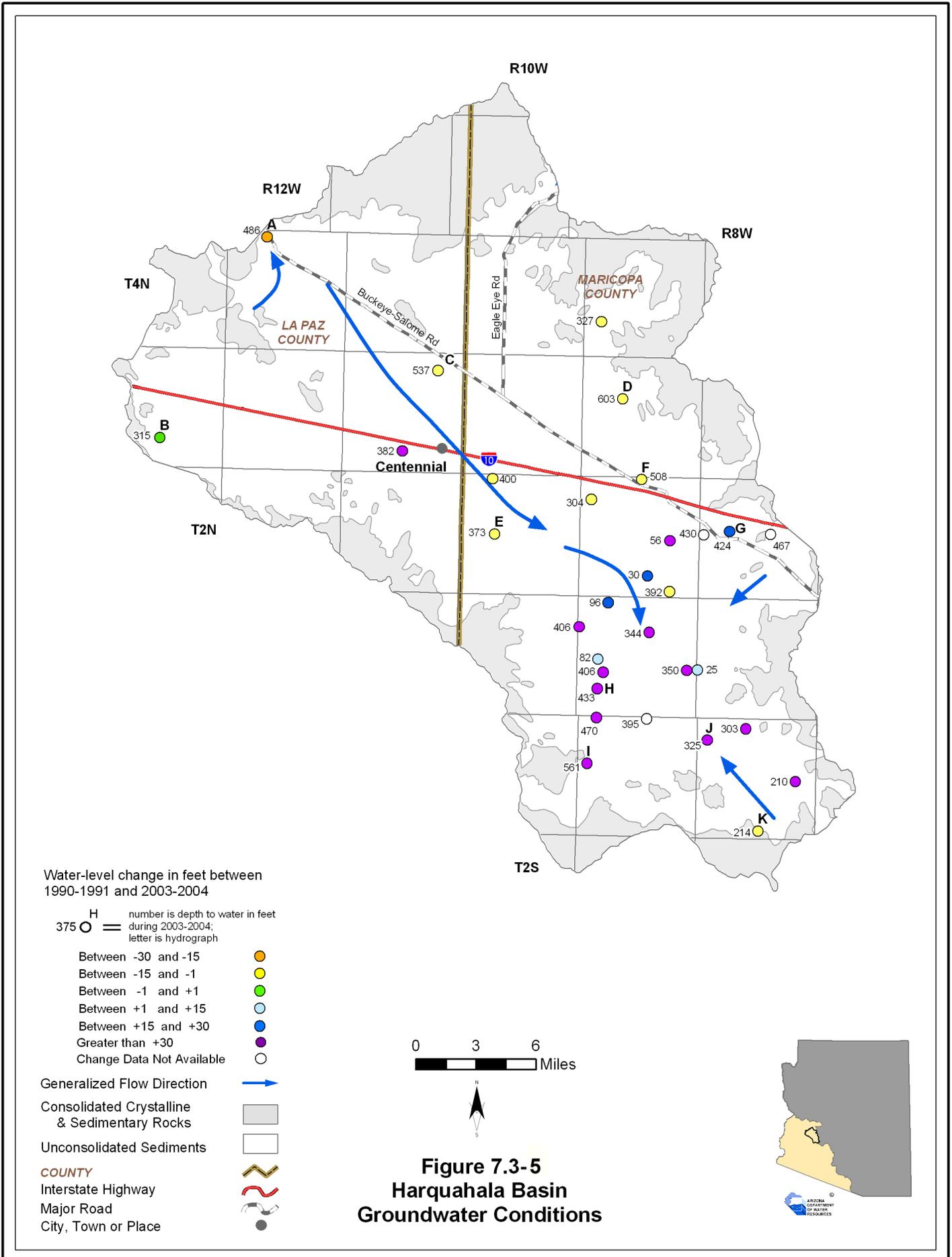


Figure 7.3-6
Harquahala Basin
Hydrographs Showing Depth to Water in Selected Wells

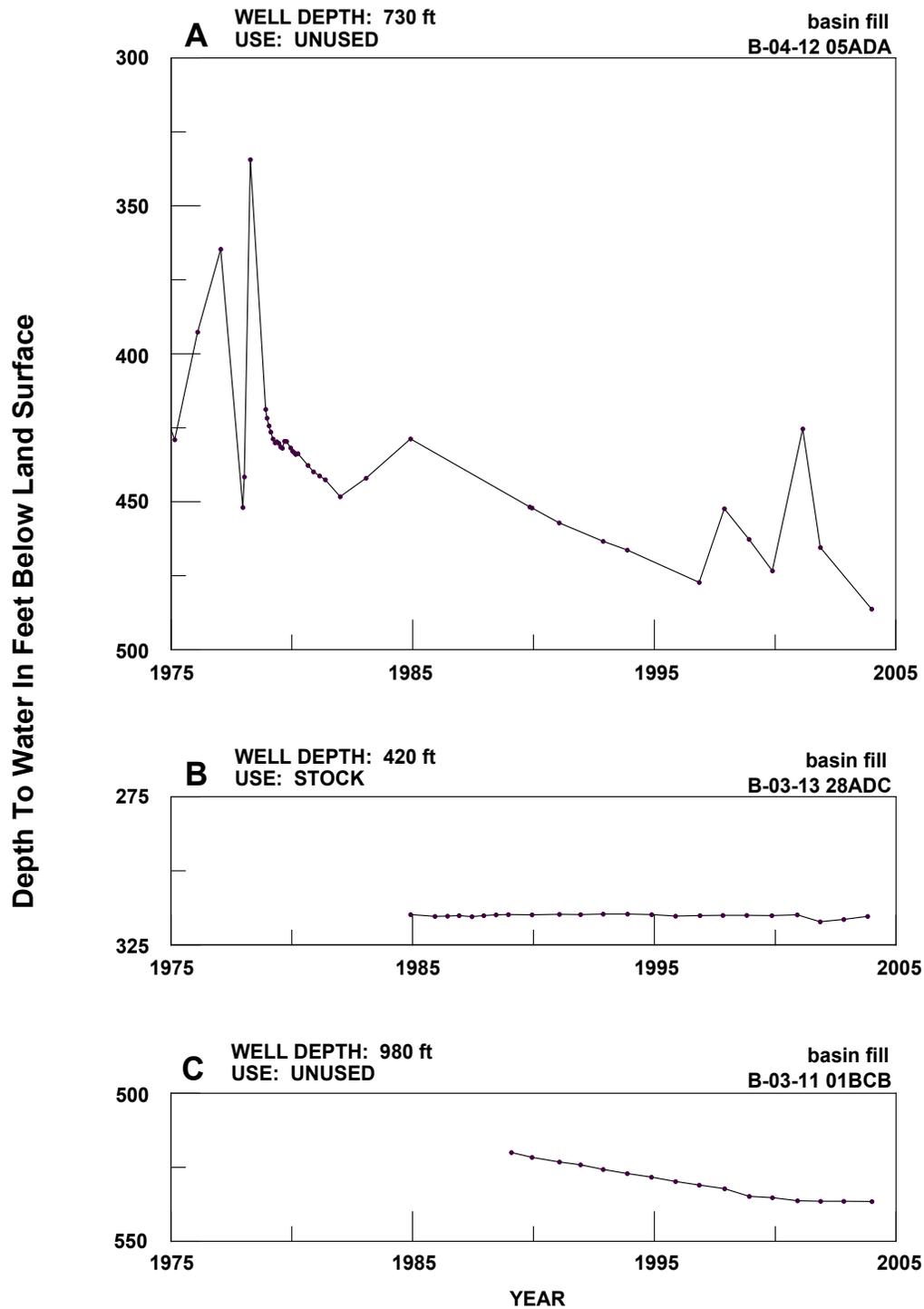


Figure 7.3-6 (cont'd)
Harquahala Basin
Hydrographs Showing Depth to Water in Selected Wells

Depth To Water In Feet Below Land Surface

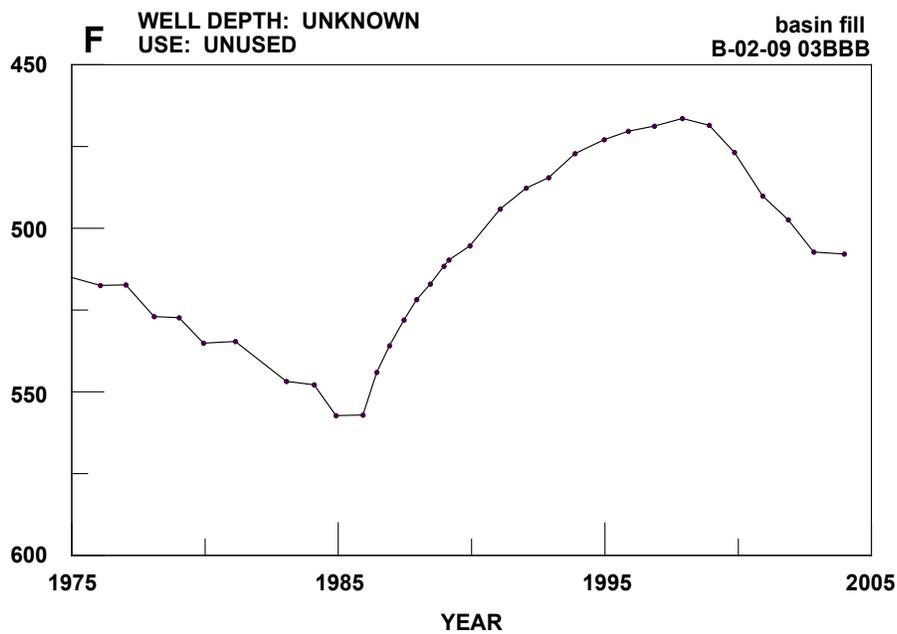
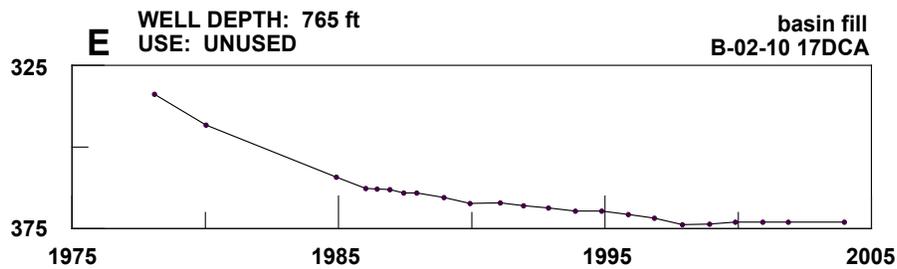
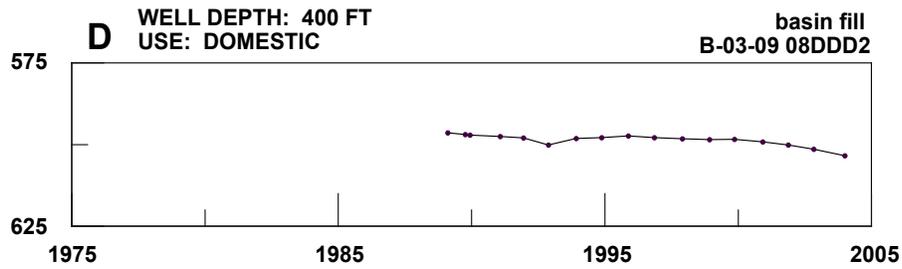


Figure 7.3-6 (cont'd)
Harquahala Basin
Hydrographs Showing Depth to Water in Selected Wells

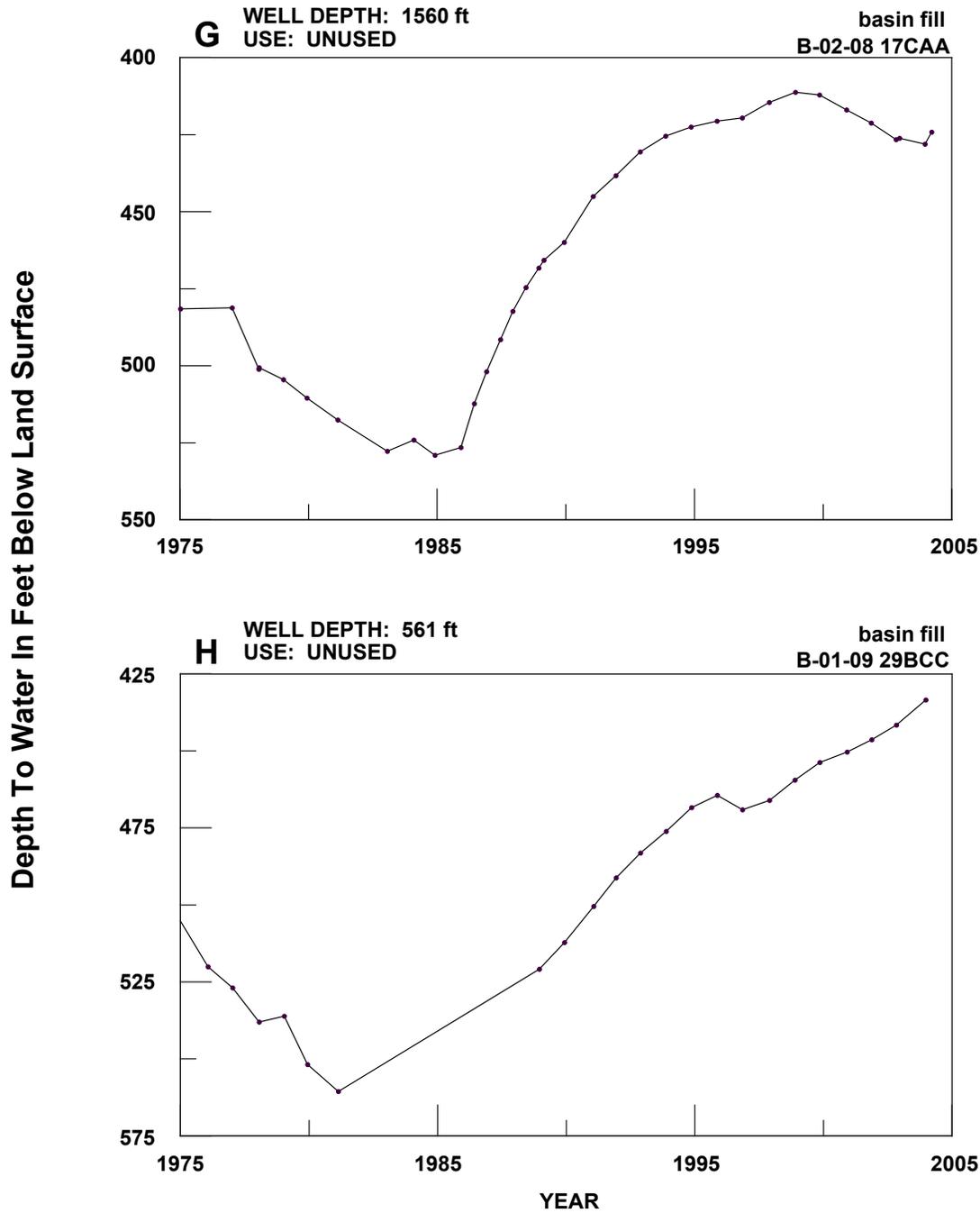


Figure 7.3-6 (cont'd)
Harquahala Basin
Hydrographs Showing Depth to Water in Selected Wells

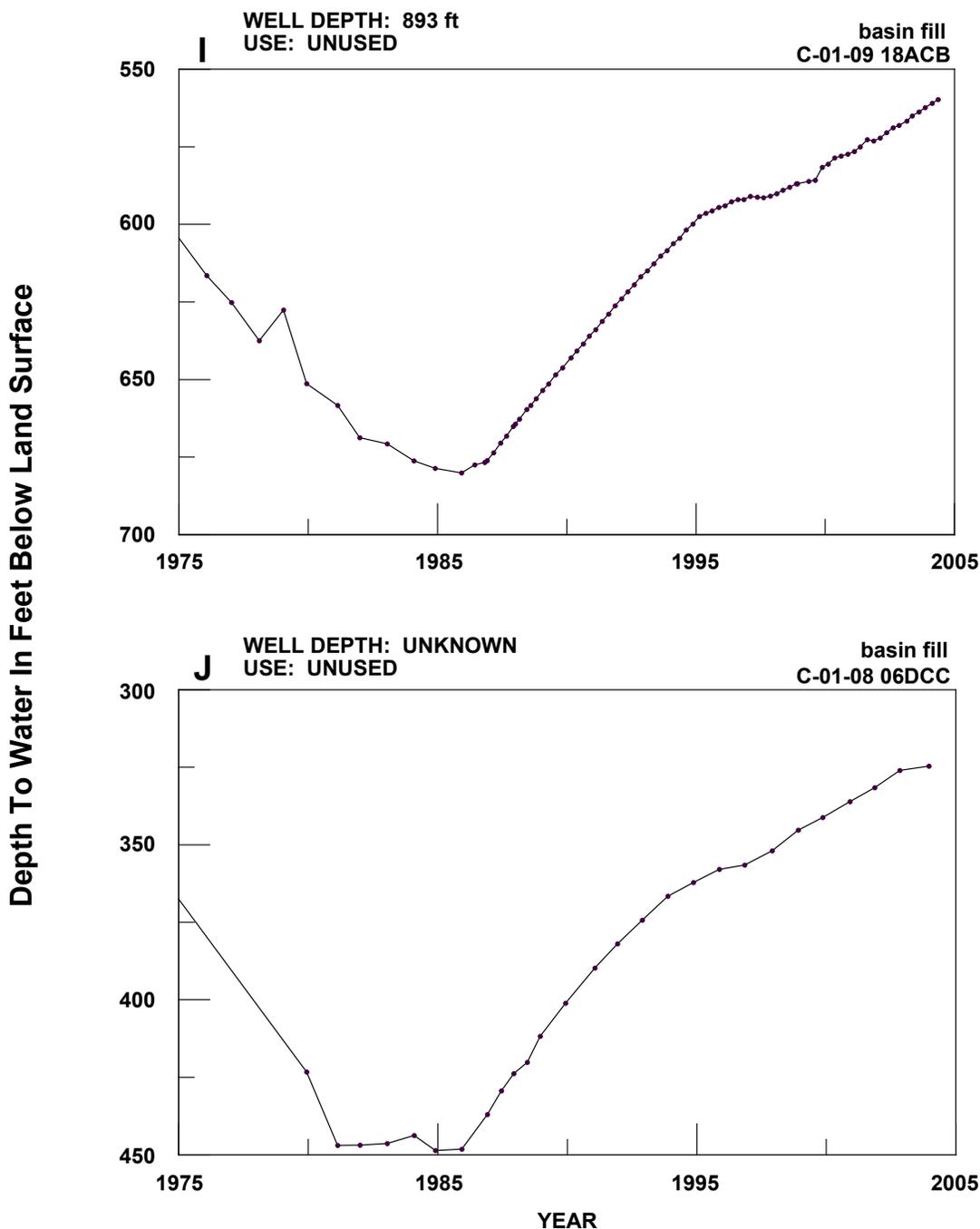
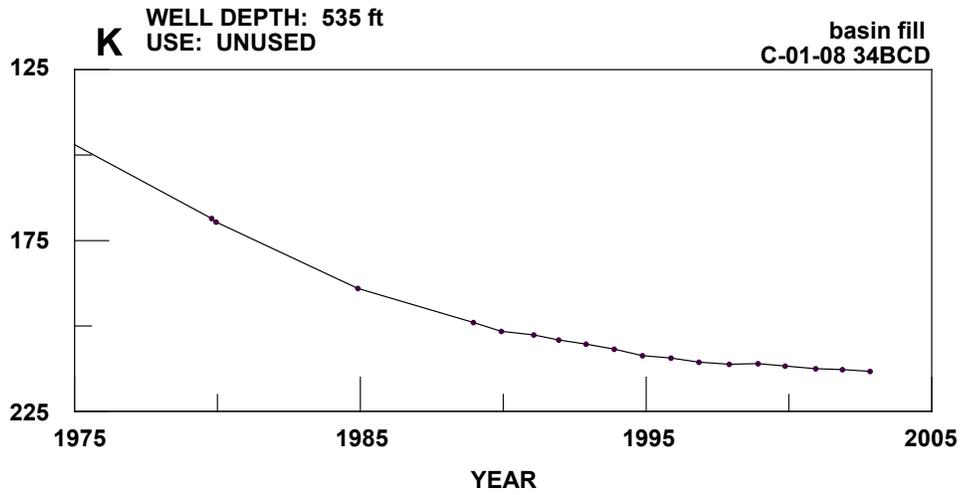
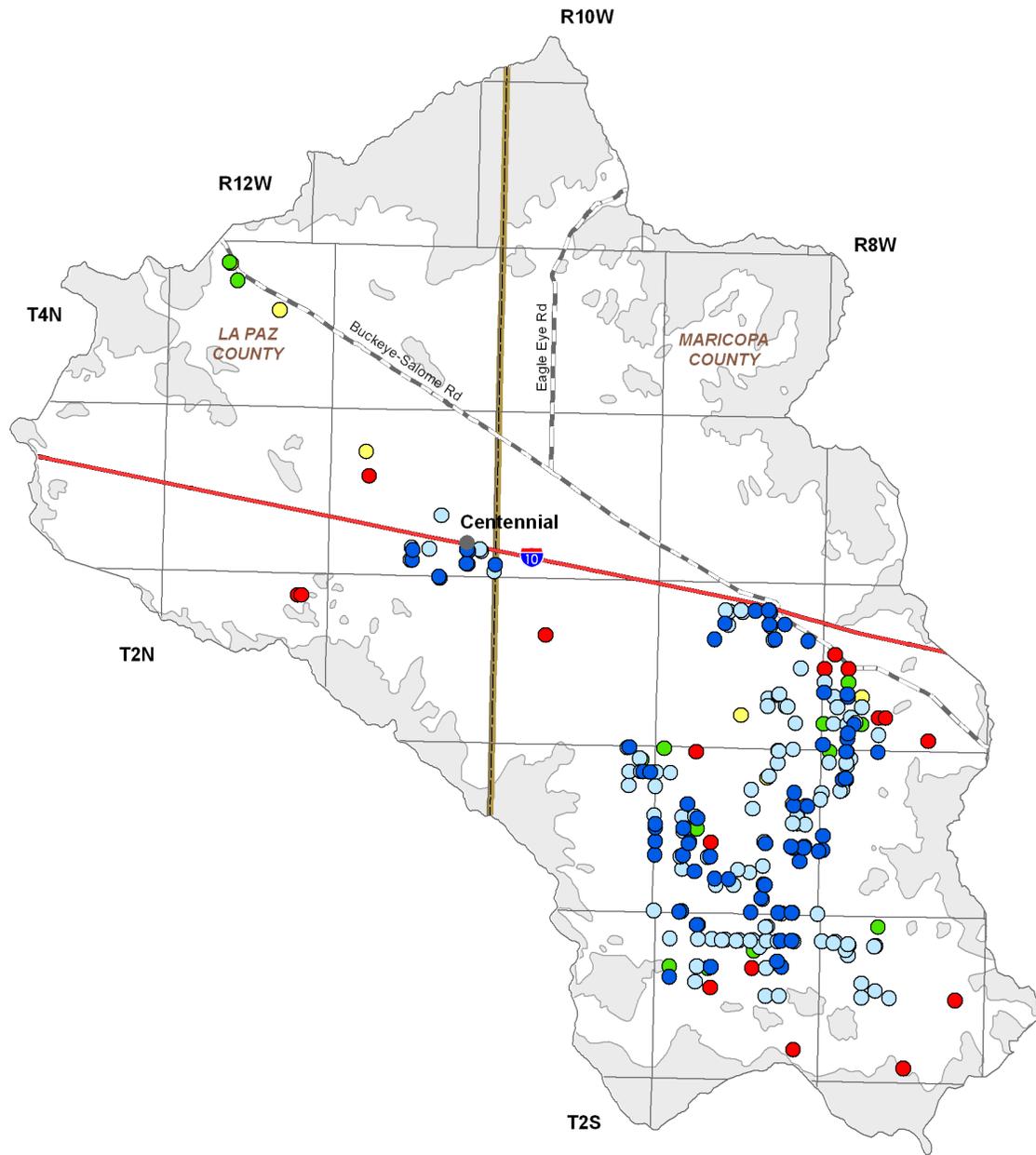


Figure 7.3-6 (cont'd)
Harquahala Basin
Hydrographs Showing Depth to Water in Selected Wells

Depth To Water In Feet Below Land Surface





Well Yields

- Greater than 2000 gals/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

- Interstate Highway —
- Major Road —
- City, Town or Place ●

0 3 6 Miles



**Figure 7.3-7
Harquahala Basin
Well Yields**



7.3.7 Water Quality of the Harquahala 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 7.3-7A. There are no impaired lakes or streams in this basin. Figure 7.3-8 shows the location of water quality occurrences keyed to Table 7.3-7. A description of water quality data sources and methods is found in Volume 1, Section 1.3.18. Not all parameters were measured at all sites; selective sampling for particular constituents is common.

Wells, Springs and Mine Sites

- Refer to Table 7.3-7A.
- Eighty-two wells have parameter concentrations that have equaled or exceeded drinking water standards.
- Eighty-four percent of the wells measured equaled or exceeded the parameter for fluoride.
- Other parameters equaled or exceeded include arsenic, lead, chromium, total dissolved solids and nitrates.

Table 7.3-7 Water Quality Exceedences in the Harquahala Basin¹

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	4 North	9 West	30	F
2	Well	4 North	12 West	9	F
3	Well	4 North	12 West	14	NO3
4	Well	3 North	9 West	8	F
5	Well	3 North	10 West	31	F
6	Well	3 North	11 West	8	F, Hg
7	Well	3 North	11 West	13	F
8	Well	3 North	12 West	19	F
9	Well	2 North	8 West	17	F
10	Well	2 North	8 West	19	As
11	Well	2 North	8 West	28	F
12	Well	2 North	8 West	30	As, NO3
13	Well	2 North	9 West	3	F
14	Well	2 North	9 West	11	As
15	Well	2 North	9 West	11	NO3
16	Well	2 North	9 West	13	F
17	Well	2 North	9 West	14	As, F, NO3, TDS
18	Well	2 North	9 West	16	F
19	Well	2 North	9 West	24	As
20	Well	2 North	9 West	26	F
21	Well	2 North	9 West	26	As
22	Well	2 North	9 West	26	F, TDS
23	Well	2 North	9 West	35	F
24	Well	2 North	10 West	17	F
25	Well	2 North	10 West	26	F
26	Well	2 North	10 West	26	F
27	Well	2 North	11 West	2	F
28	Well	1 North	8 West	6	F, NO3
29	Well	1 North	8 West	7	F
30	Well	1 North	8 West	19	F, NO3, TDS
31	Well	1 North	8 West	19	As, F, NO3
32	Well	1 North	9 West	4	F
33	Well	1 North	9 West	5	NO3
34	Well	1 North	9 West	6	F
35	Well	1 North	9 West	11	F
36	Well	1 North	9 West	12	F, NO3
37	Well	1 North	9 West	12	F
38	Well	1 North	9 West	13	F
39	Well	1 North	9 West	16	F
40	Well	1 North	9 West	17	TDS
41	Well	1 North	9 West	17	F
42	Well	1 North	9 West	17	F
43	Well	1 North	9 West	17	F, Pb
44	Well	1 North	9 West	18	F
45	Well	1 North	9 West	20	F, NO3
46	Well	1 North	9 West	21	F
47	Well	1 North	9 West	21	F
48	Well	1 North	9 West	22	F
49	Well	1 North	9 West	22	F
50	Well	1 North	9 West	23	F, NO3
51	Well	1 North	9 West	24	F

Table 7.3-7 Water Quality Exceedences in the Harquahala Basin (cont'd.)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	
52	Well	1 North	9 West	26	F
53	Well	1 North	9 West	31	As, F
54	Well	1 North	9 West	36	F
55	Well	1 North	10 West	1	F
56	Well	1 North	10 West	1	F
57	Well	1 North	10 West	12	F
58	Well	1 South	7 West	19	F
59	Well	1 South	8 West	4	F
60	Well	1 South	8 West	6	As, Pb
61	Well	1 South	8 West	6	As, F
62	Well	1 South	8 West	6	F
63	Well	1 South	8 West	8	Cr, F
64	Well	1 South	8 West	8	F
65	Well	1 South	8 West	9	As, F, Pb
66	Well	1 South	8 West	14	F
67	Well	1 South	8 West	14	As
68	Well	1 South	8 West	20	F
69	Well	1 South	8 West	22	F
70	Well	1 South	8 West	27	F
71	Well	1 South	8 West	27	F
72	Well	1 South	8 West	27	F
73	Well	1 South	9 West	1	F
74	Well	1 South	9 West	2	F
75	Well	1 South	9 West	2	NO3
76	Well	1 South	9 West	3	Pb, NO3
77	Well	1 South	9 West	5	F
78	Well	1 South	9 West	7	F
79	Well	1 South	9 West	10	F
80	Well	1 South	9 West	11	F
81	Well	1 South	9 West	11	F
82	Well	1 South	9 West	11	F

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	Parameter(s) Exceeding Use Standard
None identified by ADWR at this time						

Notes:

- ¹ Water quality samples collected between 1978 and 1991.
- ² As = Arsenic
- Cr = Chromium
- NO3 = Nitrate/ Nitrite
- F = Fluoride
- Pb = Lead
- TDS = Total Dissolved Solids

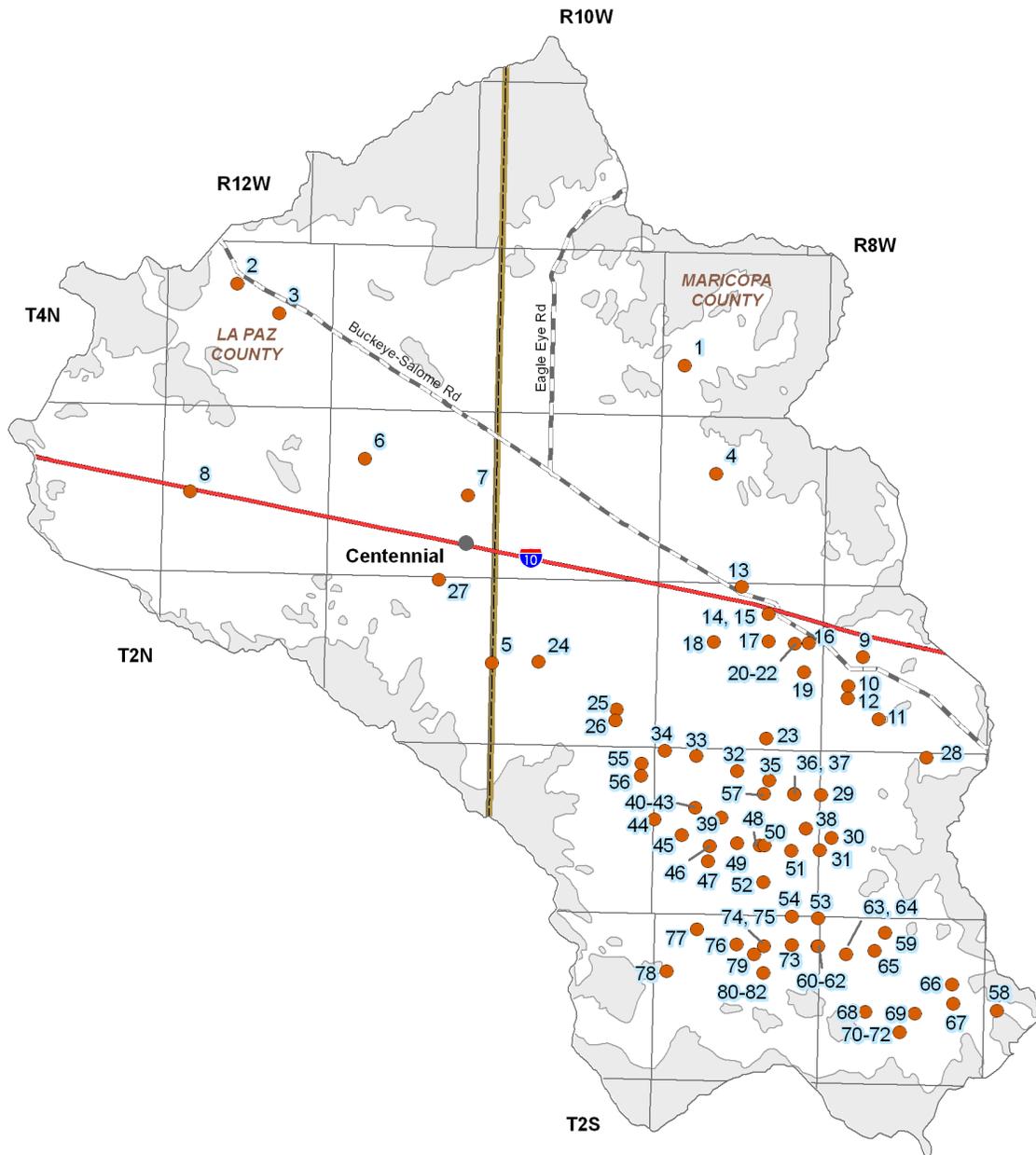


Figure 7.3-8
Harquahala Basin
Water Quality Conditions

- Well, Spring or Mine Site that has Equaled or Exceeded DWS ● 1
- Consolidated Crystalline & Sedimentary Rocks
- Unconsolidated Sediments
- COUNTY —
- Interstate Highway —
- Major Road —
- City, Town or Place ●

7.3.8 Cultural Water Demands in the Harquahala 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 7.3-8. Figure 7.3-9 shows the location of demand centers. There is no recorded effluent generation in this basin. A description of cultural water demand data sources and methods is found in Volume 1, Section 1.3.5. More detailed information on cultural water demands is found in Section 5.0.7.

Cultural Water Demands

- Refer to Table 7.3-8 and Figure 7.3-9.
- Population in this basin increased from 359 in 1980 to 609 in 2000 and projections suggest an increase through 2050.
- Most cultural water use is for irrigation in the southern and northwestern portions of the basin.
- Groundwater use for agriculture increased more than 200% from 1991 to 2003, however, in general agricultural groundwater use declined 73% from 1971 to 2003. The entire Harquahala Basin is within an Irrigation Non-Expansion Area (INA). The Harquahala INA was created in 1981; no new agricultural lands can be irrigated with groundwater in an INA.
- Surface water use for irrigation began in 1986 with deliveries of Central Arizona Project water to the basin. Agricultural surface water demand increased 13% from 1986 to 2003.
- There was no reported industrial groundwater demand prior to 2001-2003. The Harquahala Generating Project began operating in 2001. This plant used an average of 1,900 acre-feet per year from 2001 to 2003.
- Municipal groundwater demand is small and increased 5% from 1991 to 2003.
- As of 2003 there were 187 registered wells with a pumping capacity of less than or equal to 35 gallons per minute and 156 wells with a pumping capacity of more than 35 gallons per minute.

Table 7.3-8 Cultural Water Demands in the Harquahala Basin¹

Year	Recent (Census) and Projected (DES) Population	Number of Registered Water Supply Wells Drilled		Average Annual Demand (in acre-feet)						Data Source
		Q ≤ 35 gpm	Q > 35 gpm	Well Pumpage			Surface-Water Diversions			
				Municipal	Industrial ³	Irrigation	Municipal	Industrial	Irrigation	
1971		111 ²	152 ²	117,000			NR			ADWR (1994) USGS (2005)
1972										
1973										
1974										
1975										
1976										
1977				111,000			NR			
1978										
1979										
1980	359									
1981	405									
1982	451	13	3	79,000			NR			
1983	498									
1984	544									
1985	590									
1986	636									
1987	682	10	0	6,000			79,000			
1988	729									
1989	775									
1990	821									
1991	800									
1992	779	5	0	900	NR	9,500	NR	NR	47,500	
1993	757									
1994	736									
1995	715									
1996	694									
1997	673	19	0	950	NR	23,500	NR	NR	85,000	
1998	651									
1999	630									
2000	609									
2001	630	29	1	950	1,900	31,000	NR	NR	90,000	
2002	651									
2003	673									
2010	821									
2020	1,114									
2030	1,511									
2040	2,050									
2050	2,780									
WELL TOTALS:		187	156							

¹ Does not include evaporation losses from stockponds and reservoirs.

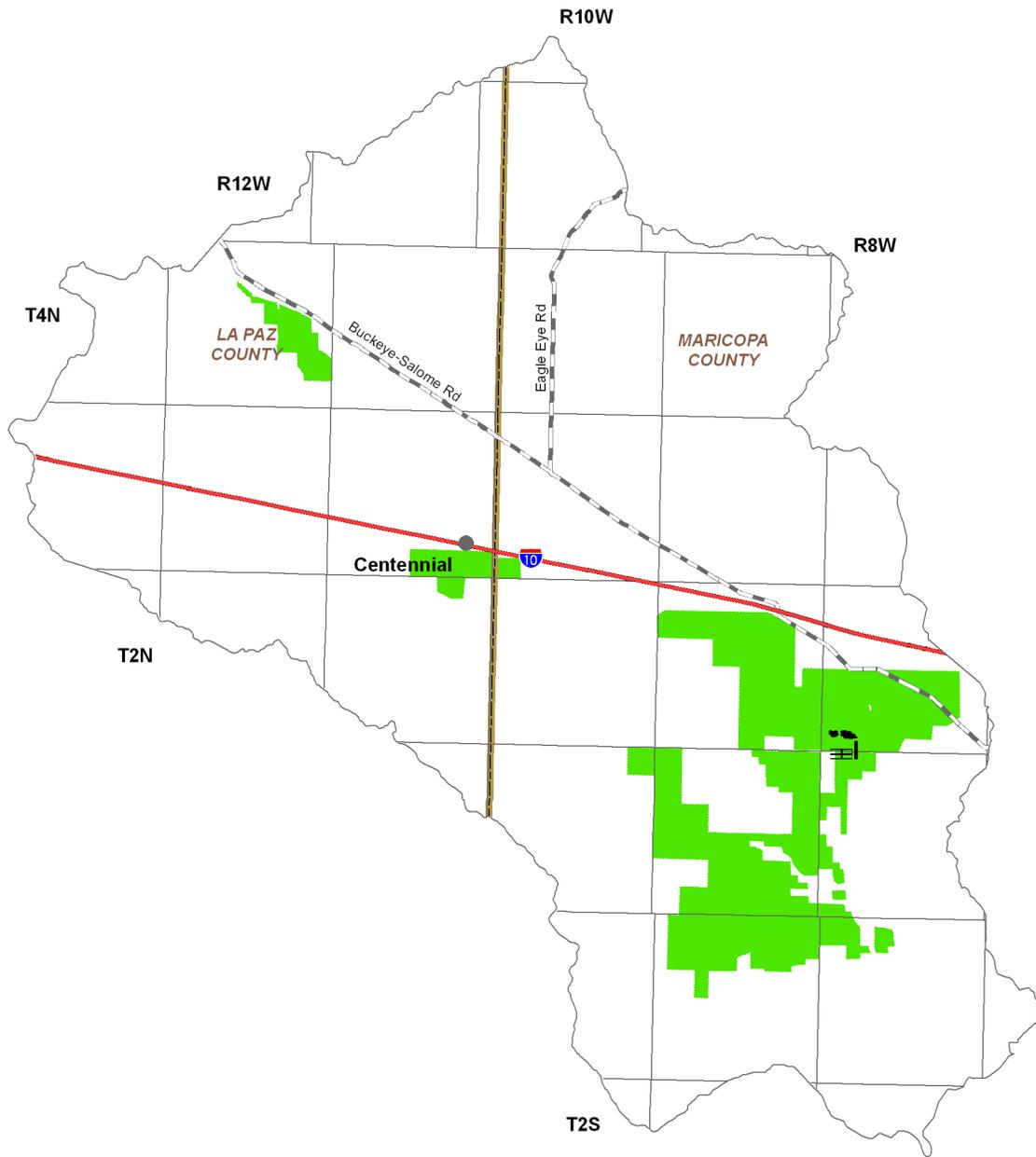
² Includes all wells through 1980.

³ Industrial demand 1971-1990 includes a small amount of well pumpage in the Tiger Wash Basin.

NR - Not reported

Table 7.3-9 Effluent Generation in the Harquahala Basin

Facility Name	Ownership	City/Location Served	Population Served	Volume Treated/Generated (acre-feet)	Disposal Method						Current Treatment Level	Population Not Served	Year of Record
					Water-course	Evaporation Pond	Irrigation	Golf Course	Wildlife Area	Discharged to Another Facility			
No Waste Water Treatment Facilities Identified by ADWR in this Basin													



Primary Data Source: USGS National Gap Analysis Program, 2004

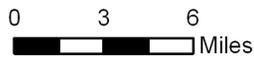


Figure 7.3-9
Harquahala Basin
Cultural Water Demand

Demand Centers

- Agriculture 
- Power Plant 
- COUNTY 
- Interstate Highway 
- Major Road 
- City, Town or Place 

7.3.9 Water Adequacy Determinations in the Harquahala Basin

Water adequacy determination information including the subdivision name, location, number of lots, adequacy determination, reason for an inadequacy determination, date of determination and subdivision water provider are shown in Table 7.3-10. Figure 7.3-10 shows the general locations of subdivisions (to the section level) keyed to the Table. A description of the Water Adequacy Program is found in Volume 1, Appendix A. Adequacy determination data sources and methods are found in Volume 1, Sections 1.3.1.

Water Adequacy Reports

- See Table 7.3-10
- As of May 2005, three subdivisions have been reviewed for an adequacy determination. All subdivisions are in Maricopa County.
- Of the 65 lots in two subdivisions for which lot information is available, 35 lots or 54% were determined to be adequate.
- One subdivision received a determination of inadequacy because of an insufficient supply.

Table 7.3-10 Adequacy Determinations in the Harquahala Basin¹

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	Big Horn Farms	Maricopa	1 North	9 West	31	30	22-300288	Inadequate	A2	05/12/97	NA
2	Harquahala Ranchitos Units 1 & 2	Maricopa	2 North	8 West	36	35	22-300114	Adequate		02/26/96	Dry Lot Subdivision
3	Rose View Estates	Maricopa	1 North	8 West	36	NA		Adequate		04/06/95	Water Utility of Greater Tonopah, Inc.

Notes:

¹Each 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 regulations.
² Prior to February 1995, ADWR did not assign file numbers to applications for adequacy determination.

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 unavailable; for groundwater, depth-to-water exceeds criteria)

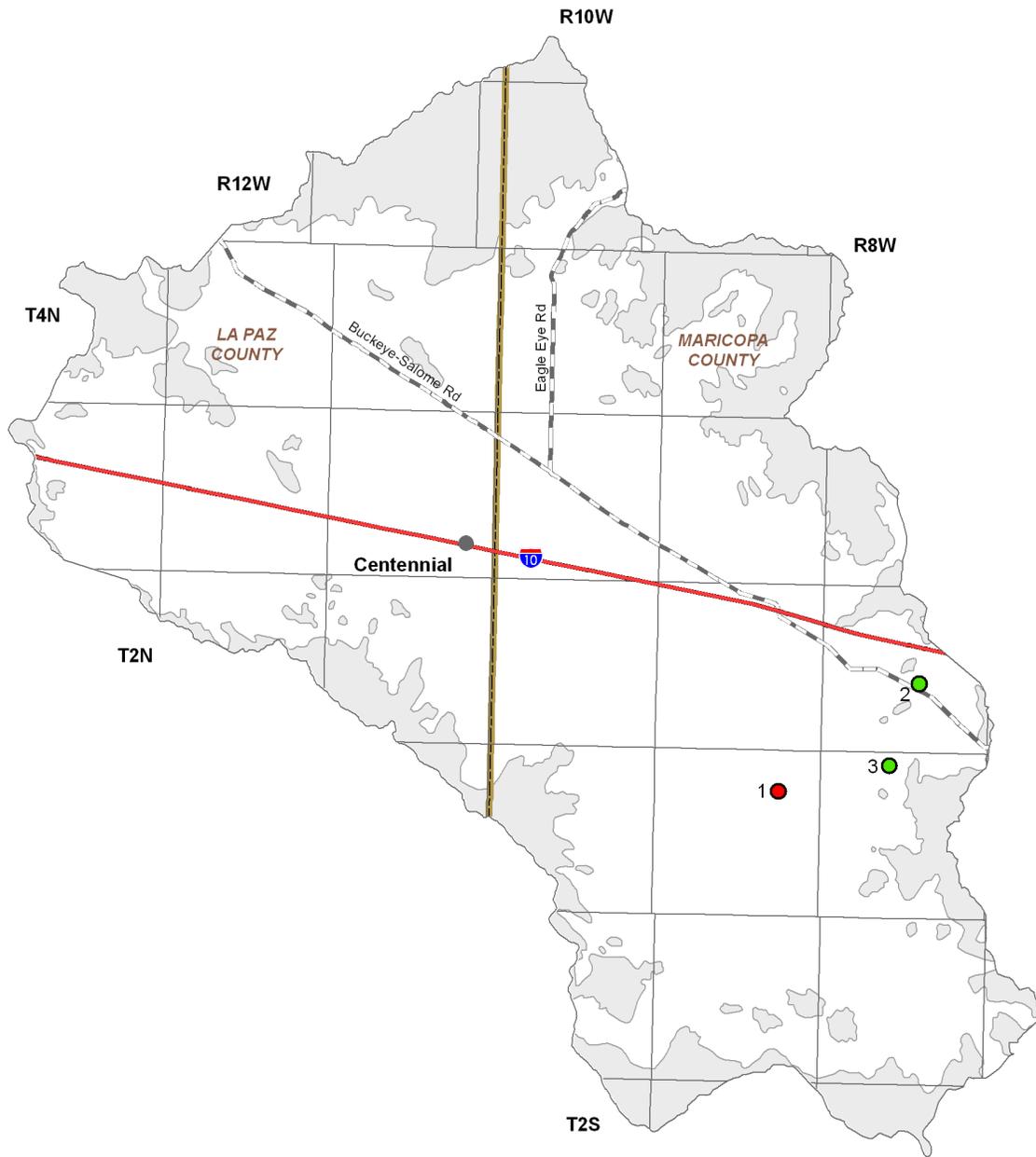
3) Insufficient Infrastructure (distribution system is insufficient to meet demands or applicant proposed water hauling)

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 = Data not currently available to ADWR



Adequacy Determinations

- Adequate ●
- Inadequate ●

- Consolidated Crystalline & Sedimentary Rocks
- Unconsolidated Sediments

- COUNTY
- Interstate Highway
- Major Road
- City, Town or Place

0 3 6 Miles



Figure 7.3-10
Harquahala Basin
Adequacy Determinations



Harquahala Basin

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