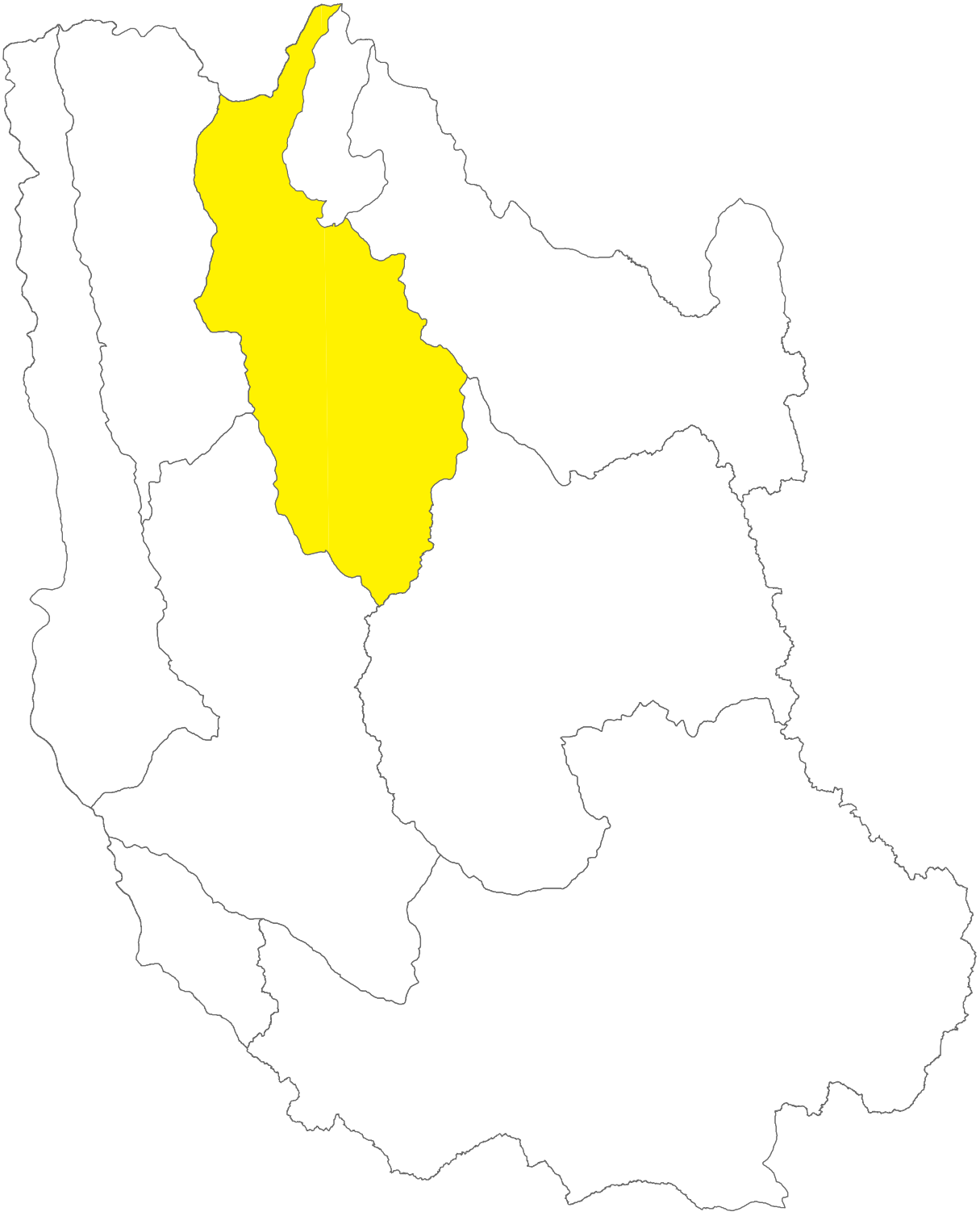
Section 4.4
Hualapai Valley Basin



4.4.1 Geography of the Hualapai Valley Basin

The Hualapai Valley Basin is a medium-size basin in the north central part of the planning area at 1,212 square miles. Geographic features and principal communities are shown on Figure 4.4-1. The basin is characterized by a wide north-south trending valley, mountains along the west basin margins and cliffs and plateau on the eastern basin boundary. Vegetation types include Mohave desertscrub, semi-desert grassland, interior chaparral, conifer woodlands and conifer forest. (see Figure 4.0-9)

- Principal geographic features shown on Figure 4.4-1 are:
    - Principal community of New Kingman-Butler, the small community of Hackberry and the national park service facilities at South Cove.
    - Hualapai Valley running through the center of the basin
    - Red Lake, a dry lake in the center of the basin
    - Truxton Wash running from the southeast near Hackberry to Red Lake
    - The Cerbat Mountains on the southwestern basin boundary with the highest point in the basin, Cherum Peak at 6,978 feet
    - Mt. Tipton on the western basin boundary in the Cerbat Mountains
    - The lowest point in the basin is at Lake Mead at approximately 1,100 feet
    - The Grand Wash Cliffs located along the eastern basin boundary
    - The White Hills located along the northwest basin boundary

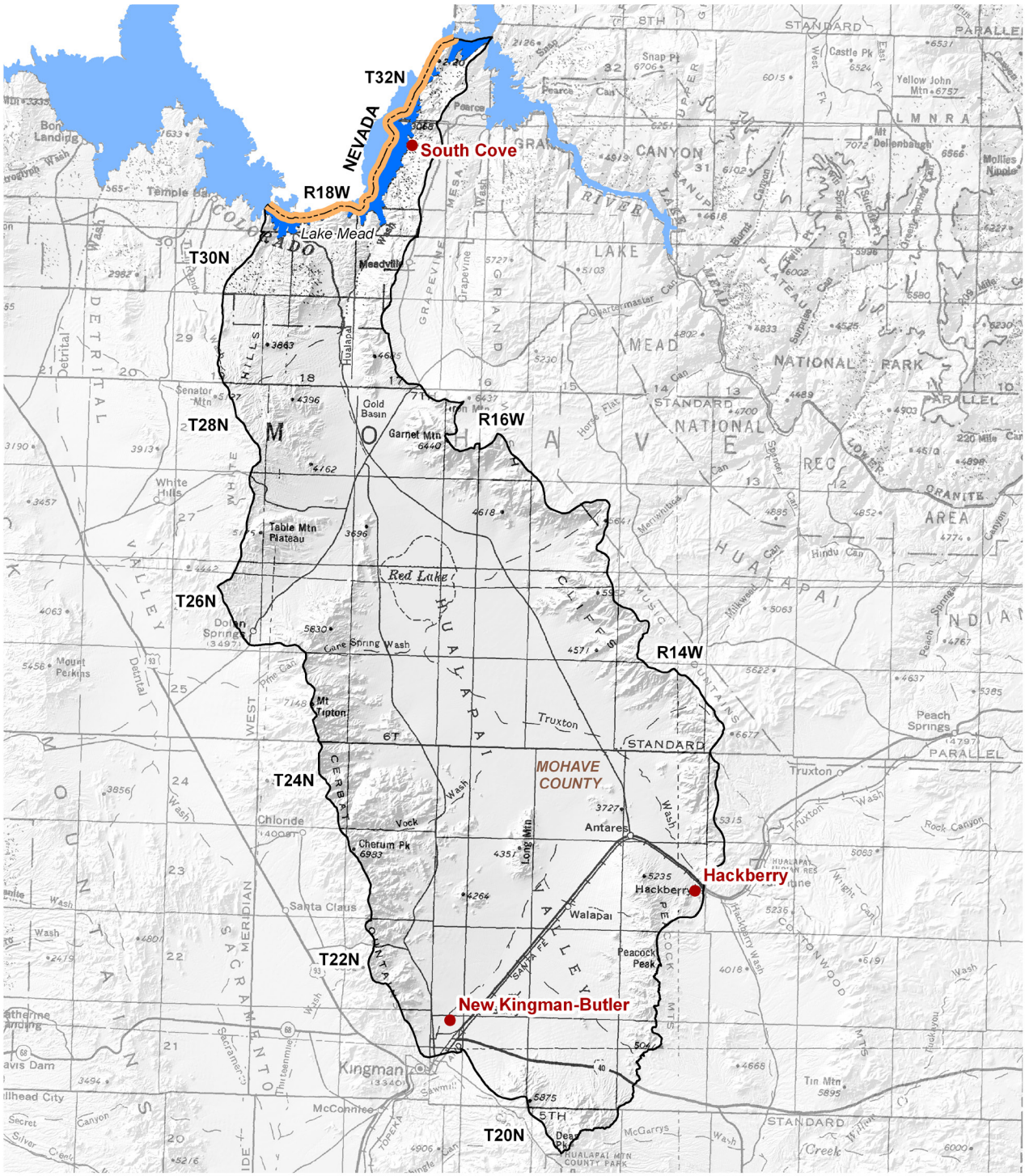


Figure 4.4-1
Hualapai Valley Basin
Geographic Features

4.4.2 Land Ownership in the Hualapai Valley Basin

Land ownership, including the percentage of ownership by category, for the Hualapai Valley Basin is shown in Figure 4.4-2. The principal feature of land ownership in this basin is the checkerboard land ownership pattern. For a discussion of how this land pattern was created see section 4.0.9. A description of land ownership data sources and methods is found in Volume 1, Appendix A. More detailed information on protected areas is found in Section 4.0.4. Land ownership categories are discussed below in the order from largest to smallest percentage in the basin.

Private

- 43.4% of the land is private.
- Many of the private lands in the basin are interspersed in a checkerboard pattern with BLM and state trust lands. There are also a number of larger parcels of contiguous private lands around New Kingman-Butler and north of Highway 66.
- This basin contains the largest percentage of private land in the planning area.
- Land uses include domestic, commercial and ranching.

U.S. Bureau of Land Management (BLM)

- 39.1% of the land is federally owned and managed by the Kingman Field Office of the Bureau of Land Management.
- BLM lands in this basin are partially contiguous and partially found in a checkerboard pattern with private land and some state and tribal lands.
- Primary land uses are recreation and grazing.

National Park Service (NPS)

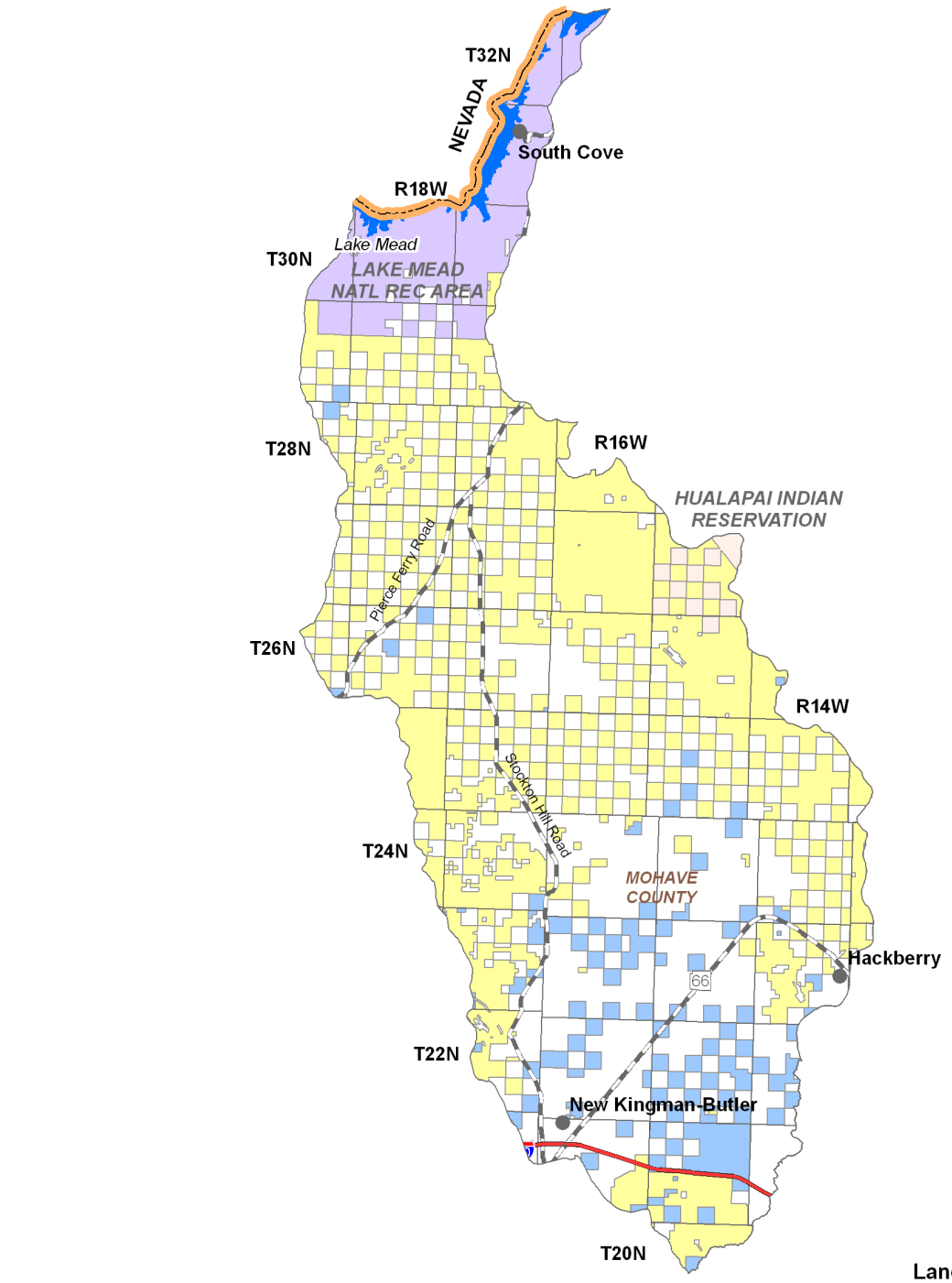
- 9.0% of the land is federally owned and managed by the National Park Service (NPS) as the Lake Mead National Recreation Area.
- All NPS lands are located along the northern basin boundary.
- Primary land use is recreation.

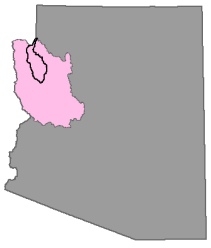
State Trust Land

- 7.5% of the land in this basin is held in trust for the public schools under the State Trust Land system.
- Most state lands are in the southern portion of the basin and are interspersed with private lands.
- Primary land use is grazing.

Indian Reservation

- 1.0% of the land is under ownership of the Hualapai Tribe
- Most of the Indian land is in T27N, R15W and is interspersed with BLM lands.
- Primary land use is grazing.





Source: ALRIS, 2004

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0 3 6
Miles

Land Ownership (Percentage in Basin)

- Private (43.4%)
- U.S. Bureau of Land Management (39.1%)
- National Park Service (9.0%)
- State Trust (7.5%)
- Indian Reservation (1.0%)

- Nevada State Boundary
- Interstate Highway
- Major Road
- City, Town or Place

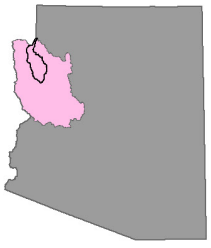
Figure 4.4-2
Hualapai Valley Basin
Land Ownership

4.4.3 Climate of the Hualapai Valley Basin

The Hualapai Valley Basin does not contain any NOAA/NWS Co-op Network, Evaporation Pan, AZMET or SNOTEL/Snowcourse stations. The precipitation figures shown in Figure 4.4-3 are from the Spatial Climatic Analysis Service (SCAS) at Oregon State University. More detailed information on climate in the planning area is found in Section 4.0.3. A description of this and other climate data sources and methods is found in Volume 1, Appendix A.

SCAS Precipitation Data

- Average annual precipitation is as high as 14 inches at the southernmost tip of the basin in the Hualapai Mountains and as low as four inches in the northern portion of the basin along the boundary with Nevada.



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Precipitation Data Source: Oregon State University, 1998

Figure 4.4-3
Hualapai Valley Basin
Meteorological Stations and Annual Precipitation

4.4.4 Surface Water Conditions in the Hualapai Valley Basin

Streamflow was not measured in this basin. Flood ALERT equipment in the basin is shown in Table 4.4-1. Reservoir and stockpond data, including maximum storage or maximum surface area, are shown in Table 4.4-2. The location of flood ALERT equipment, USGS runoff contours and large reservoirs are shown on Figure 4.4-4. Descriptions of stream, reservoir and stockpond data sources and methods are found in Volume 1, Appendix A.

Flood ALERT Equipment

- Refer to Table 4.4-1.
- As of October 2005 there were six stations in the basin.

Reservoirs and Stockponds

- Refer to Table 4.4-2.
- The basin borders one large reservoir, Lake Mead, with a maximum capacity of 29,755,000 acre-feet. The dam that creates Lake Mead, Hoover Dam, is in the Lake Mohave Basin.
- Other large reservoirs in the basin include Red Lake with a maximum surface area of 13,412 acres. Red Lake is a dry lake and its use is unknown.
- Surface water is stored or could be stored in two small reservoirs in the basin.
- There are 72 registered stockponds in this basin.

Runoff Contour

- Refer to Figure 4.4-4.
- Average annual runoff is 0.5 inches per year, or 26.65 acre-feet per square mile, in the southwest corner of the basin around New Kingman-Butler and decreases to 0.1 inches, or 5.33 acre-feet per square mile, in the center of the basin.

Table 4.4-1 Flood ALERT Equipment in the Hualapai Valley Basin

Station ID	Station Name	Station Type	Install Date	Responsibility
1600	Mohave Wash	Precipitation/Stage	12/4/2001	Mohave County FCD
1670	Kingman ADOT	Weather Station	12/3/2001	Mohave County FCD
7400	Devlin Wash	Precipitation/Stage	NA	Mohave County FCD
7440	Archibald Wash	Precipitation/Stage	NA	Mohave County FCD
7510	Diagonal Wash	Precipitation/Stage	NA	Mohave County FCD
7660	Bull Mountain	Precipitation	NA	Mohave County FCD

Source: ADWR 2005b

Notes:
FCD = Flood Control District
NA = Not available

Table 4.4-2 Reservoirs and Stockponds in the Hualapai Valley 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
None	Mead (Hoover Dam)[2]	Bureau of Reclamation	29,755,000[3]	C,H,I,RR,S,R	Federal

B. Other Large Reservoirs (50 acre surface area or greater)[4]

MAP KEY	RESERVOIR/LAKE NAME (Name of dam, if different)	OWNER/OPERATOR	MAXIMUM SURFACE AREA (acres)	USE[1]	JURISDICTION
1	Red[5]	Bureau of Land Management/Private	13,412	U	Landowner

Source: Compilation of databases from ADWR & others

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

Total number: 1
Total maximum storage: 145 acre-feet

D. Other Small Reservoirs (between 5 and 50 acres surface area)[4]

Total number: 1
Total surface area: 12 acres

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

Total number: 72 (from water right filings)

Notes:

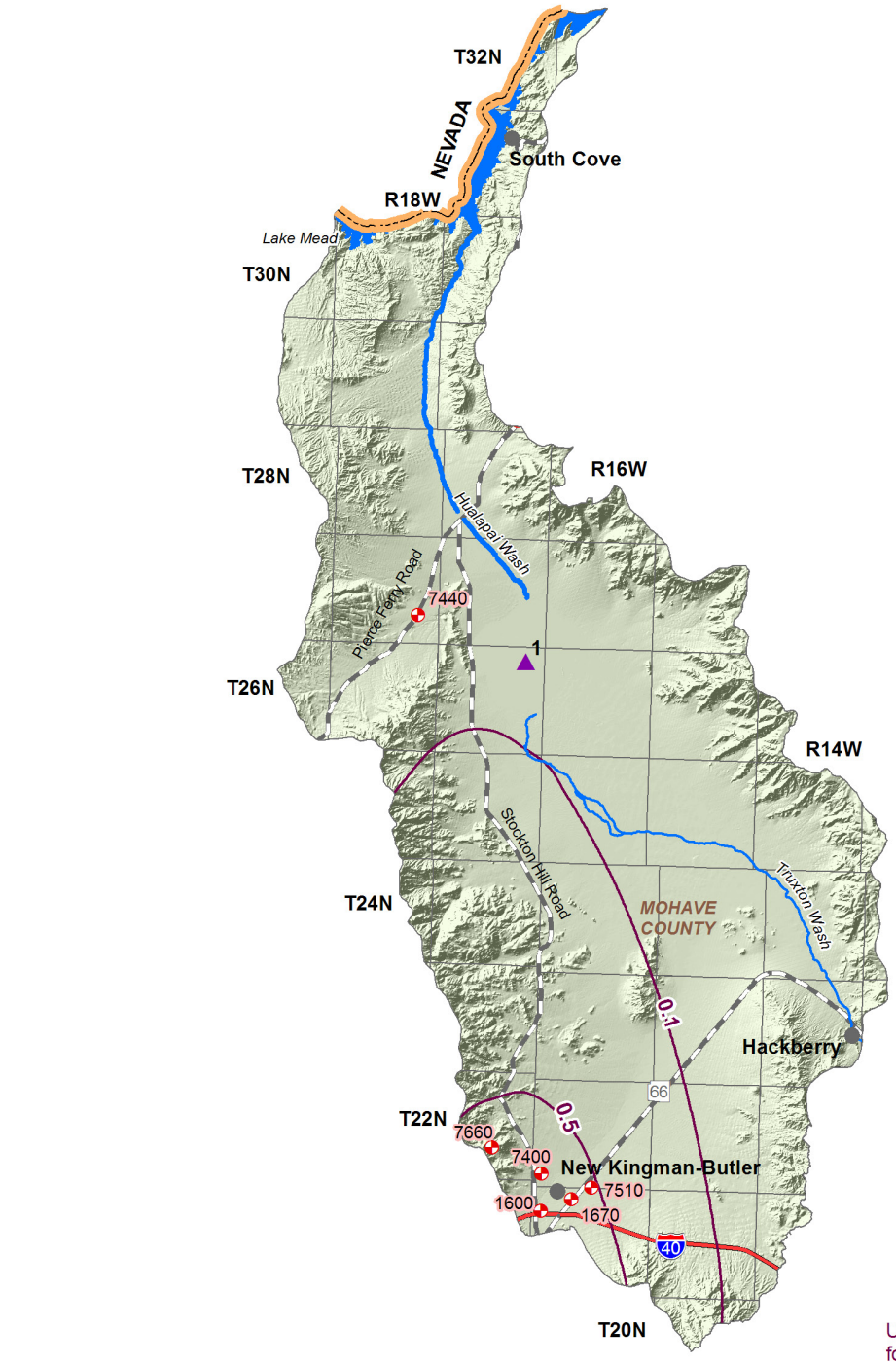
[1] C=flood control; H=hydroelectric; I=irrigation; R=recreation; RR=river regulation; S=water supply; U=Unknown

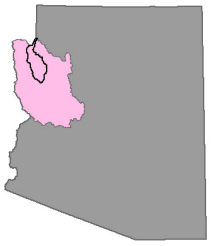
[2] Dam is located in Lake Mohave Basin and lake storage is located in Lake Mohave, Detrital Valley, Hualapai Valley and Meadview Basins.

[3] Includes 2,378,000 acre-feet of dead storage.

[4] Capacity data not available to ADWR

[5] Dry lake





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Stream Data Source: ALRIS, 2005b

Figure 4.4-4
Hualapai Valley Basin
Surface Water Conditions

USGS Annual Runoff Contour for 1951-1980 (in inches) — 2

Stream Channel (width of line reflects stream order)

Large Reservoir — 1

Stream Gages

Flood ALERT Equip. & Station ID — 9999

Nevada State Boundary

Interstate Highway

Major Road

City, Town or Place

4.4.5 Perennial/Intermittent Streams and Major Springs in the Hualapai Valley 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 4.4-3. The locations of major springs as well as perennial and intermittent streams are shown on Figure 4.4-5. 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, the Colorado River, located along the northern basin boundary.
- There are three major springs with a measured discharge of 10 gallons per minute (gpm) or greater at any time. The largest discharge rate is 25 gpm for an unnamed spring in the northern portion of the basin.
- Springs with measured discharge of 1 to 10 gpm are not mapped but coordinates are given in Table 4.4-3B. There are 19 minor springs identified in this basin.
- Listed discharge rates may not be indicative of current conditions. Only four springs have been measured since 1980.
- The total number of springs identified by the USGS varies from 70 to 72, depending on the database reference.

Table 4.4-3 Springs in the Hualapai Valley Basin

A. Major Springs (10 gpm or greater):

Map Key	Name	Location		Discharge (in gpm)[1]	Date Discharge Measured
		Latitude	Longitude		
1	Unnamed	360031	1140902	25	2/9/1976
2	Clay (middle)	354346	1135202	18	6/10/1993
3	Unnamed	352512	1140726	10	During or prior to 1964

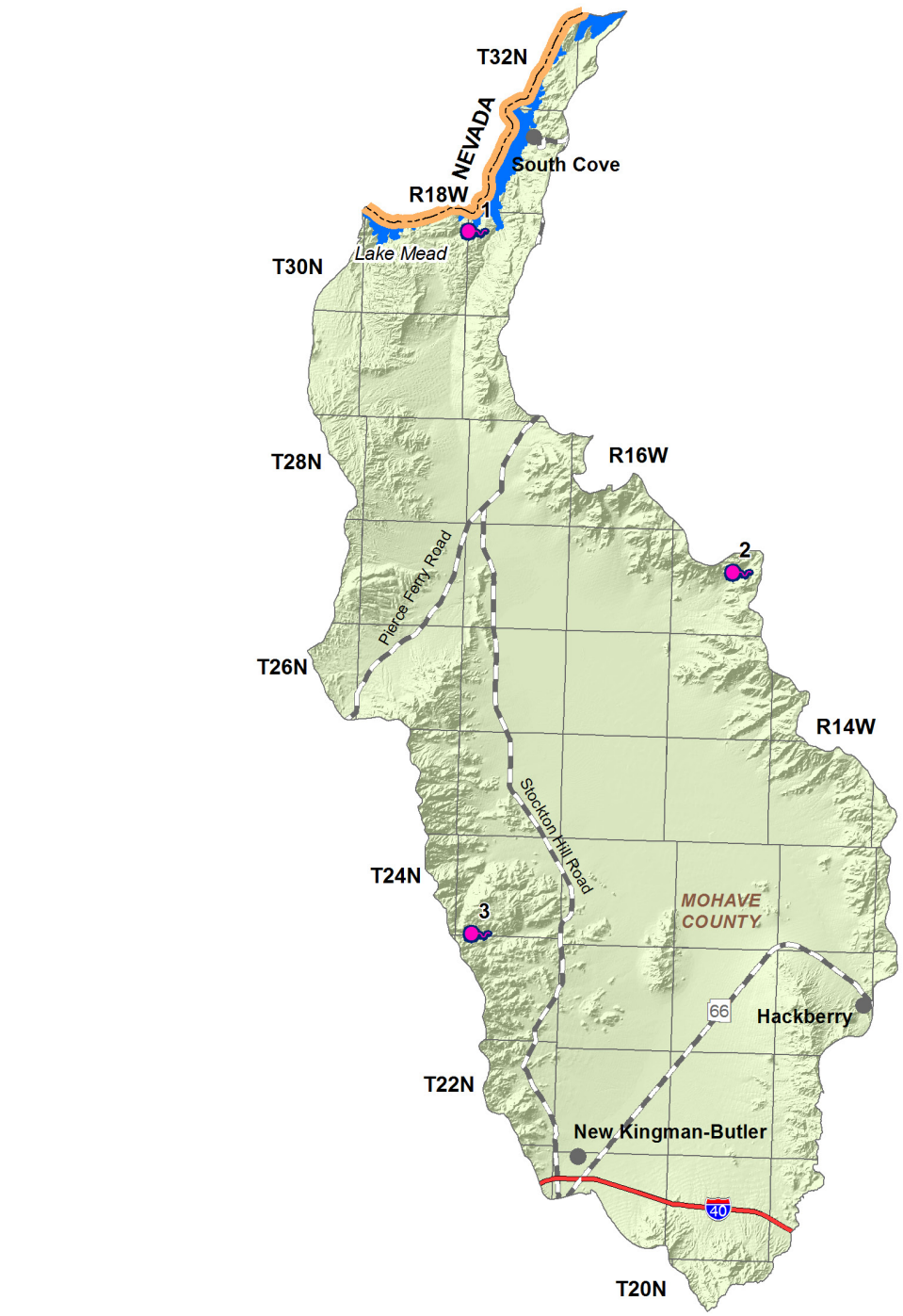
B. Minor Springs (1 to 10 gpm):

Name	Location		Discharge (in gpm)[1]	Date Discharge Measured
	Latitude	Longitude		
Unnamed	351100	1135120	7	1/1940
Unnamed	352429	1134301	6	During or prior to 1950
Unnamed	360042	1140949	5	6/1973
Unnamed	352058	1134348	3	1/1965
Clay #1	354352	1135203	3	9/23/1980
Upper Stone Corral	352728	1134253	3	9/23/1980
Unnamed	350756	1135151	3	2/1965
Unnamed	351534	1140412	3	2/1965
Unnamed	352744	1134239	3[2]	During or prior to 1965
Unnamed	355920	1141525	2	1/5/1975
Unnamed	352225	1134940	2	5/1965
Unnamed	352133	1140357	2	During or prior to 1965
Unnamed	350743	1135318	2	2/1965
Unnamed	350838	1135359	1	2/1965
Unnamed	352255	1140823	1	1/1965
Unnamed	352121	1140626	1	During or prior to 1965
Unnamed	353044	1134321	1	During or prior to 1965
Unnamed	353152	1140826	1	During or prior to 1964
Cedar	354638	1135808	1	9/23/1980

Source: Compilation of databases from ADWR & others

C. Total number of springs, regardless of discharge, identified by USGS (see ALRIS, 2005a and USGS, 2006a): 70 to 72

Notes:
[1]Most recent measurement identified by ADWR
[2]Discharge measurements vary. Shown is greatest measured discharge; most recent measurement < 1 gpm



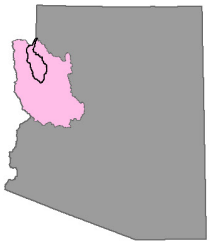


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Figure 4.4-5
Hualapai Valley Basin
Perennial/Intermittent Streams and Major (>10 gpm) Springs

Springs 1
Nevada State Boundary
Interstate Highway
Major Road
City, Town or Place

4.4.6 Groundwater Conditions of the Hualapai Valley 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 4.4-4. Figure 4.4-6 shows aquifer flow direction and water-level change between 1990-1991 and 2003-2004. Figure 4.4-7 contains hydrographs for selected wells shown on Figure 4.4-6. Figure 4.4-8 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 4.4-4 and Figure 4.4-6.
- The major aquifers include basin fill, sedimentary rock and volcanic rock.
- Flow direction is from the south to the north in most of the basin and east to west near New Kingman-Butler.

Well Yields

- Refer to Table 4.4-4 and Figure 4.4-8.
- As shown on Figure 4.4-8 well yields in this basin range from less than 100 gpm to greater than 2,000 gpm.
- One source of well yield information, based on 33 reported wells, indicates that the median well yield in this basin is 900 gpm.

Natural Recharge

- Refer to Table 4.4-4.
- Natural recharge estimates range from 2,000 acre-feet per year (AFA) to 3,000 AFA.
- Recharge to the aquifers comes principally from streambed infiltration.

Water in Storage

- Refer to Table 4.4-4.
- Storage estimates for this basin range from 3.0 million acre-feet to 5.3 million acre-feet to a depth of 1,200 feet.
- The USGS (1971) estimates that the basin has between 10.5 and 21 million acre-feet in storage to a depth of 1,500 feet.

Water Level

- Refer to Figure 4.4-6. Water levels are shown for wells measured in 2003-2004.
- The Department annually measures 16 index wells in this basin, hydrographs for six of these wells are shown on Figure 4.4-7.
- The Department measures water levels four times daily at one automated groundwater monitoring site in the southern portion of the basin.
- The deepest recorded water level in the basin is 924 feet east of New Kingman-Butler and the shallowest is 257 feet east of Stockton Hill Road in the center of the basin.

Table 4.4-4 Groundwater Data for the Hualapai Valley Basin

Basin Area, in square miles:	1,212	
Major Aquifer(s):	**Name and/or Geologic Units**	
	Basin Fill	
	Sedimentary Rock (Muddy Creek and Chemehueve Formations)	
	Volcanic Rock	
Well Yields, in gal/min:	Range 20-2,128 Median 966.5 (10 wells measured)	Measured by ADWR (GWSI) and/or USGS
	Range 5-6,000 Median 900 (33 reported)	Reported on registration forms for large (>10-inch) diameter wells (Wells55)
	Range 30-1,500	ADWR (1990 and 1994b)
	Range 0-2,500	Anning and Duet (1994)
Estimated Natural Recharge, in acre-feet/year:	3,000	Freethey and Anderson (1986)
	2,000 - 2,500	Remick (1981) (HMS 4)
Estimated Water Currently in Storage, in acre-feet:	5,000,000 - 5,300,000 (to 1,200 ft)	ADWR (1990 and 1994b)
	5,000,000[1] (to 1,200 ft)	Freethey and Anderson (1986)
	3,000,000 (to 1,200 ft)	Arizona Water Commission (1975)
	10,500,00 - 21,000,000 (to 1,500 ft)	Gillespie and Bentley (1971)
Current Number of Index Wells:	16	
Date of Last Water-level Sweep:	2006 (101 wells measured)	

Notes:
[1] Predevelopment Estimate

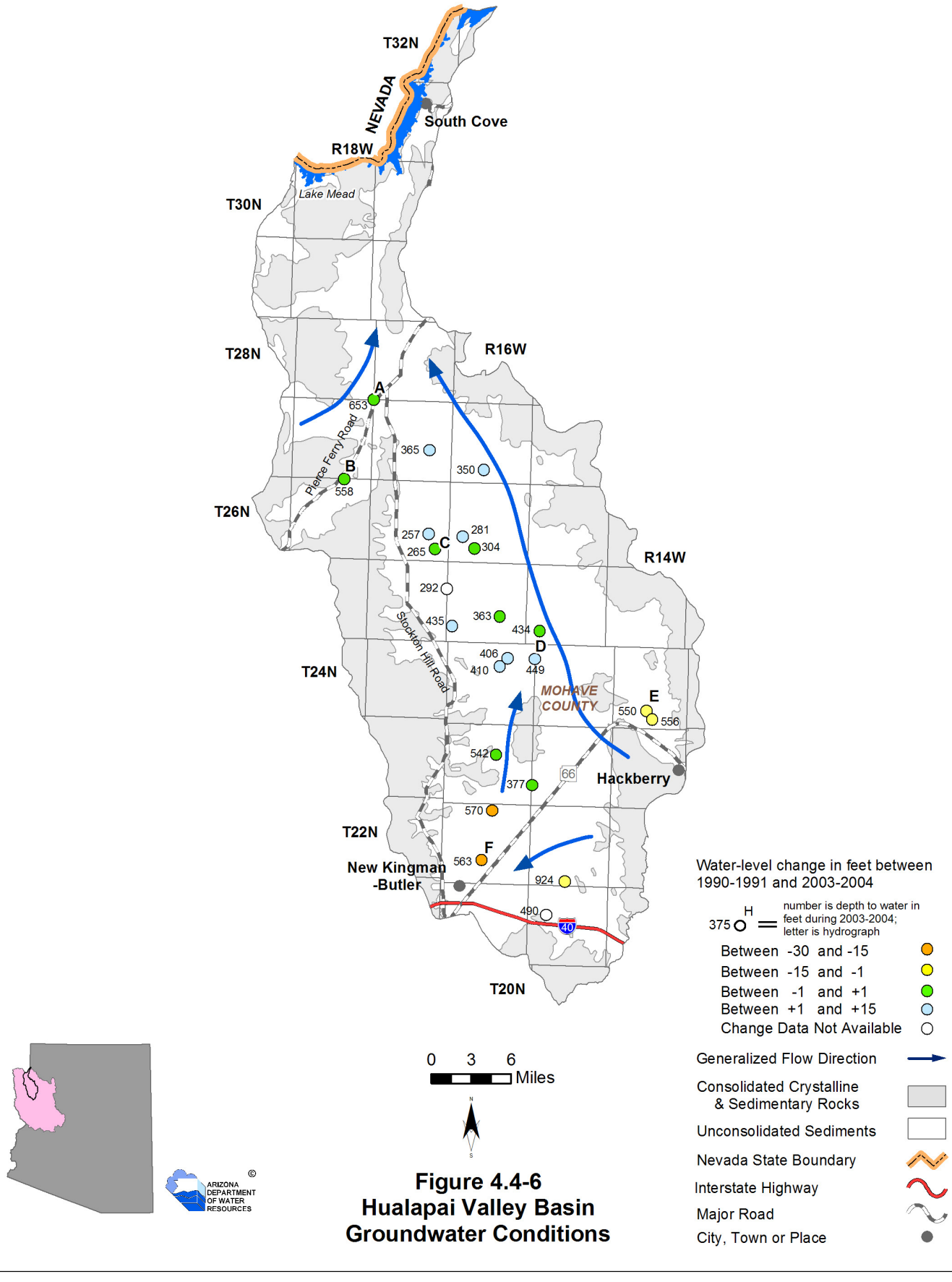


Figure 4.4-6
Hualapai Valley Basin
Groundwater Conditions

Figure 4.4-7
Hualapai Valley Basin
Hydrographs Showing Depth to Water in Selected Wells

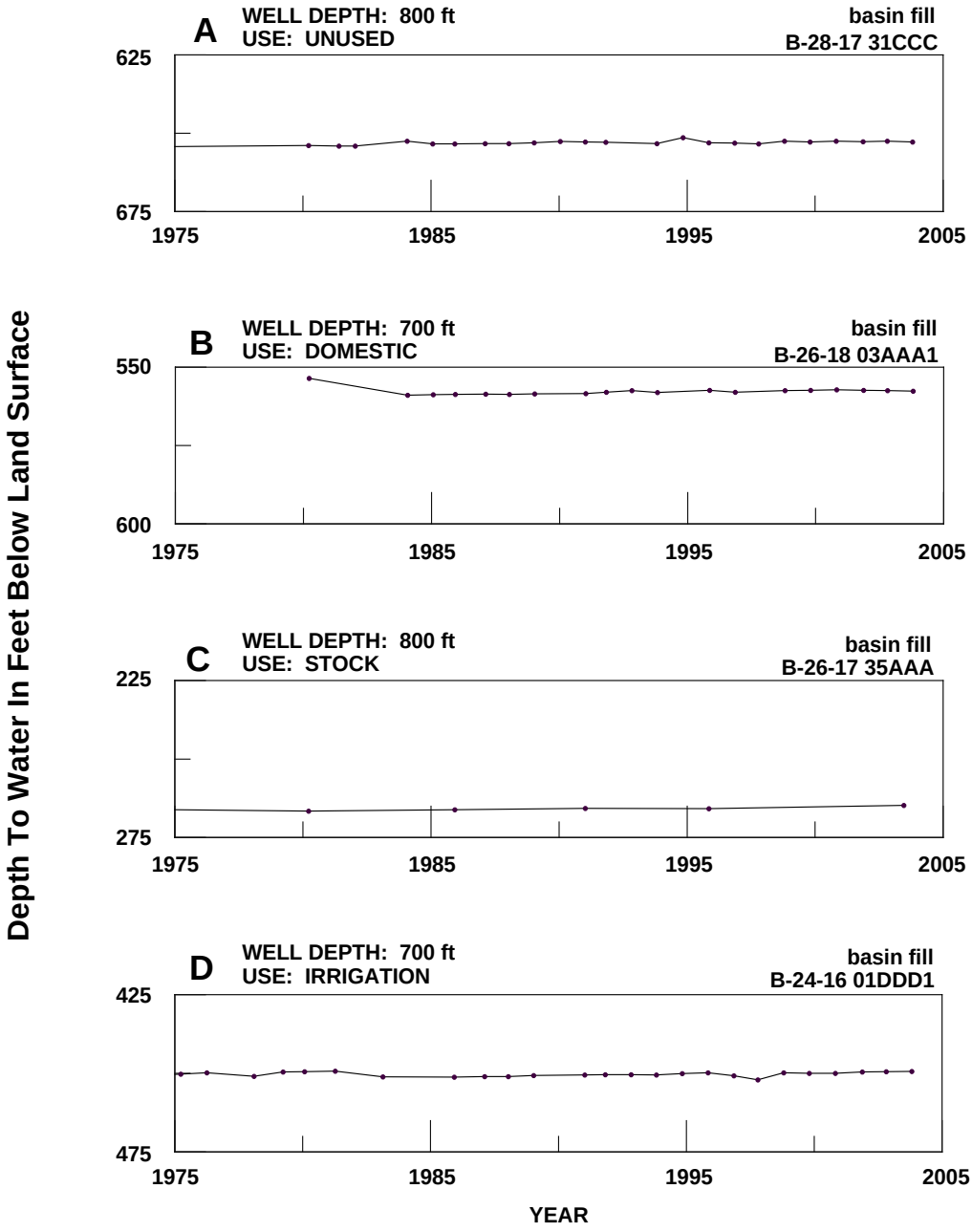
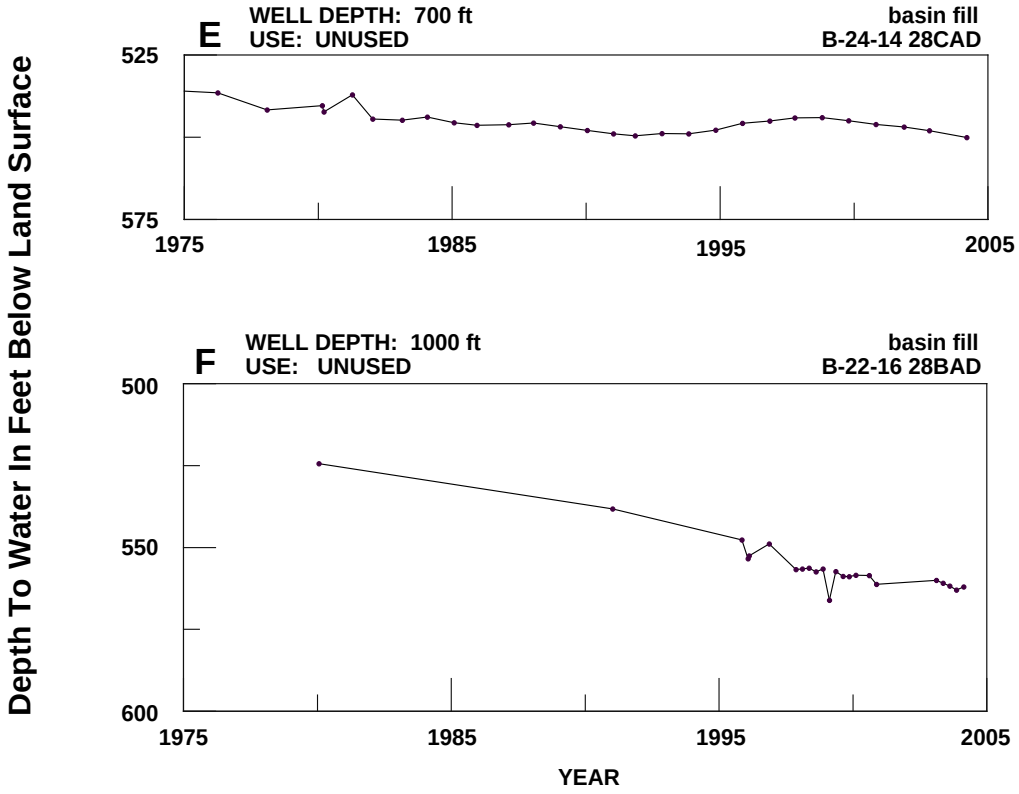


Figure 4.4-7 (Con't)
Hualapai Valley Basin
Hydrographs Showing Depth to Water in Selected Wells



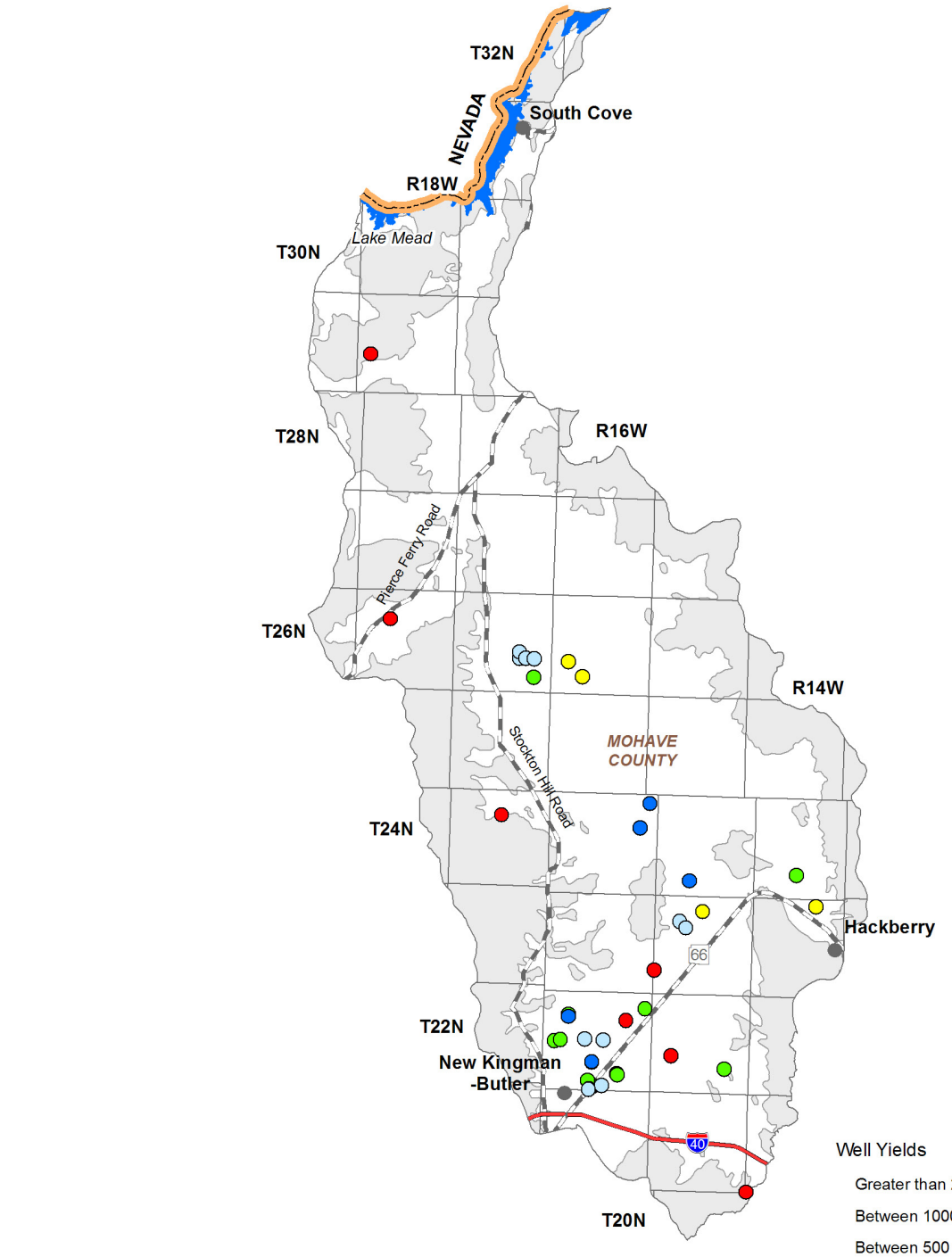


Figure 4.4-8
Hualapai Valley Basin
Well Yields

4.4.7 Water Quality of the Hualapai Valley Basin

Sites with parameter concentrations that have equaled or exceeded drinking water standard(s) (DWS), including location and parameter(s) are shown in Table 4.4-5A. There are no impaired lakes or streams in this basin. Figure 4.4-9 shows the location of exceedences keyed to Table 4.4-5A. 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. 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 4.4-5A.
- Thirty-one sites have parameter concentrations that have equaled or exceeded DWS.
- Frequently equaled or exceeded parameters include fluoride and radionuclides
- Other parameters commonly equaled or exceeded in the sites measured in this basin were arsenic, lead and nitrates.

Table 4.4-5 Water Quality Exceedences in the Hualapai Valley Basin[1]

A. Wells, Springs and Mines

Map Key	Site Type	Site Location			Parameter(s) Concentration has Equaled or Exceeded Drinking Water Standard[2]
		Township	Range	Section	
1	Spring	30 North	17 West	7	F
2	Well	28 North	16 West	34	Rad
3	Well	28 North	16 West	34	Rad
4	Spring	28 North	17 West	24	F
5	Spring	27 North	15 West	17	F
6	Well	26 North	14 West	30	F
7	Well	26 North	16 West	29	F
8	Well	26 North	17 West	19	NO3
9	Well	26 North	17 West	35	Be
10	Well	25 North	14 West	9	Sb, As, Rad
11	Well	24 North	14 West	19	F
12	Well	24 North	16 West	1	As
13	Spring	24 North	17 West	33	Rad
14	Spring	23 North	14 West	27	Rad
15	Well	23 North	15 West	4	F
16	Well	23 North	16 West	7	NO3
17	Well	23 North	16 West	19	NO3
18	Well	23 North	16 West	29	NO3
19	Spring	23 North	17 West	9	As, Rad
20	Spring	23 North	17 West	11	As, Rad
21	Spring	23 North	17 West	26	As
22	Well	23 North	17 West	35	F
23	Well	22 North	14 West	19	Rad
24	Well	22 North	15 West	13	As
25	Well	22 North	16 West	27	Cr, Pb
26	Well	22 North	16 West	28	Pb
27	Well	22 North	16 West	33	Pb
28	Well	22 North	16 West	33	Pb
29	Well	22 North	16 West	34	Pb
30	Well	21 North	16 West	24	Rad
31	Well	20 North	15 West	6	Rad

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

Notes:

[1] Water quality samples collected between 1976 and 2000.

[2] Sb = Antimony
As = Arsenic
Be = Beryllium
Cr = Chromium
F = Fluoride
Pb = Lead
NO3 = Nitrate
Rad = One or more of the following radionuclides - Gross Alpha, Gross Beta, Radium, and Uranium

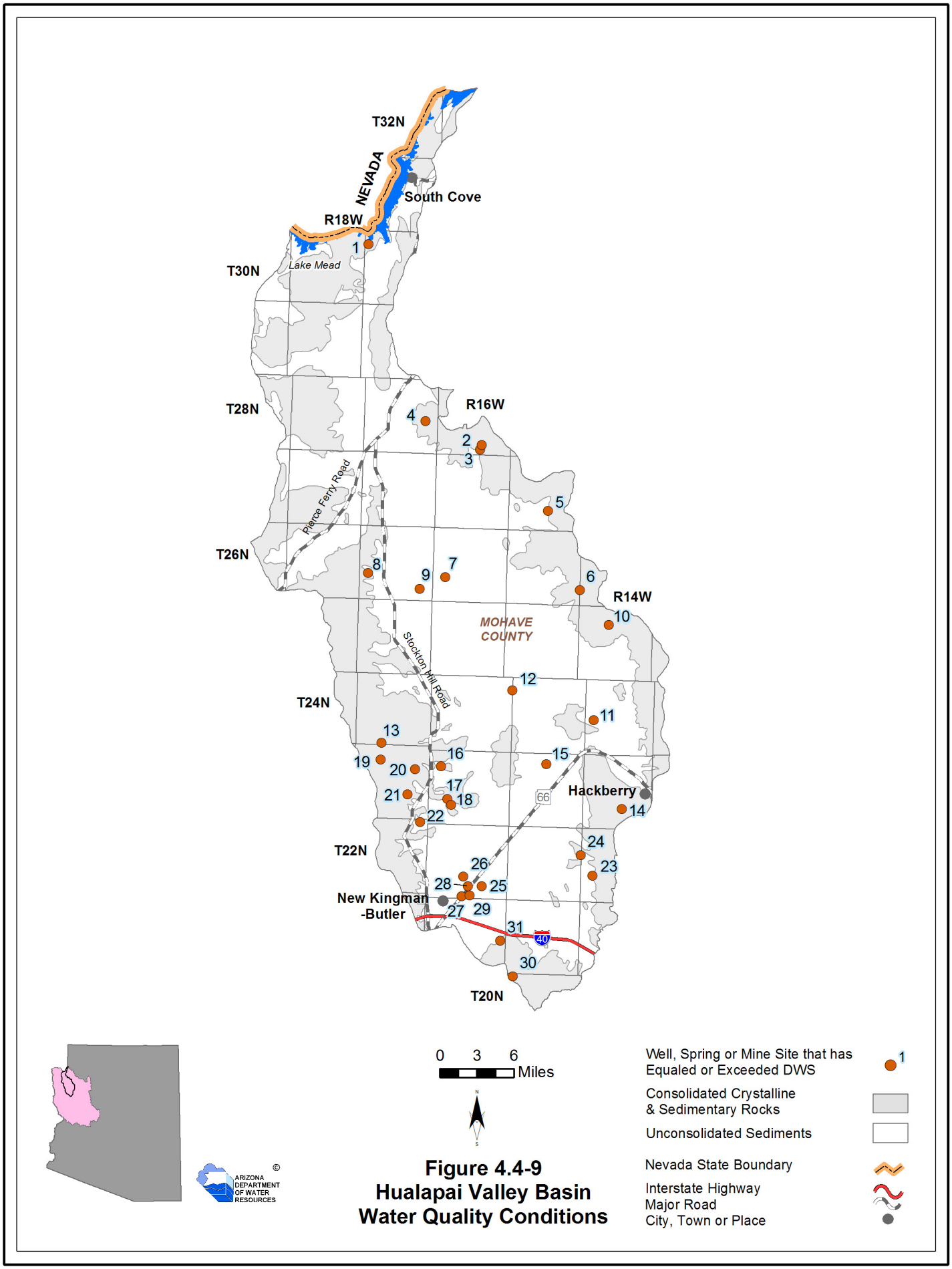


Figure 4.4-9
Hualapai Valley Basin
Water Quality Conditions

4.4.8 Cultural Water Demand in the Hualapai Valley 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 4.4-6. Effluent generation including facility ownership, location, population served and not served, volume treated, disposal method and treatment level is shown in Table 4.4-7. Figure 4.4-10 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 demand is found in Section 4.0.7.

Cultural Water Demand

- Refer to Table 4.4-6 and Figure 4.4-10.
- Population in this basin has tripled since 1980, increasing from 11,361 in 1980 to 37,544 in 2000.
- There are no recorded surface water diversions in this basin. Groundwater use has increased in this basin since 1971, with an average of 3,850 AFA from 1971-1975 to an average of 9,050 AFA from 2001-2005. The majority of this demand, 8,900 AFA, is for municipal use. The City of Kingman, in the Sacramento Valley Basin, obtains most of its water from well fields in this basin.
- Most of the municipal and industrial demand is in the vicinity of New Kingman-Butler with a smaller portion of municipal demand along Pierce Ferry Road.
- Industrial groundwater demand is minimal in this basin, less than 300 AFA from 1991-2005. All industrial groundwater demand is for mining.
- There are three small mines or quarries in the basin, two north of Pierce Ferry Road and one on the basin boundary north of New Kingman-Butler.
- As of 2005 there were 918 registered wells with a pumping capacity of less than or equal to 35 gpm and 91 wells with a pumping capacity of more than 35 gpm.

Effluent Generation

- Refer to Table 4.4-7.
- There are two wastewater treatment facilities in this basin, Desert Fountain Wastewater Treatment Plant, which serves a subdivision in the New Kingman-Butler area and Kingman – Hilltop, which serves the City of Kingman and New Kingman-Butler.
- Information on population served and effluent generation was only available for the Kingman – Hilltop facility. This facility serves over 16,000 people and generates almost 1,800 acre-feet of effluent per year.
- The Kingman – Hilltop facility discharges to an evaporation pond and a wildlife area.

Table 4.4-6 Cultural Water Demand in the Hualapai Valley 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[2]	Industrial	Agricultural	Municipal	Industrial	Agricultural	
1971		150[3]	45[3]	3,850			NR			ADWR (1994a)
1972										
1973										
1974										
1975										
1976				4,850			NR			
1977										
1978										
1979										
1980	11,361									
1981	12,221	53	5	4,850			NR			
1982	13,081									
1983	13,941									
1984	14,800									
1985	15,660									
1986	16,520	49	15	4,850			NR			
1987	17,380									
1988	18,240									
1989	19,100									
1990	19,960									
1991	21,718	121	6	5,500	<300	NR	NR			USGS (2007)
1992	23,476									
1993	25,235									
1994	26,993									
1995	28,752									
1996	30,510	191	6	7,300	<300	NR	NR			
1997	32,269									
1998	34,027									
1999	35,786									
2000	37,544									
2001	38,143	354	14	8,900	<300	NR	NR			
2002	38,742									
2003	39,341									
2004	39,940									
2005	40,539									
2010	43,533									
2020	55,261									
2030	64,789									
	WELL TOTALS:	**918**	**91**							

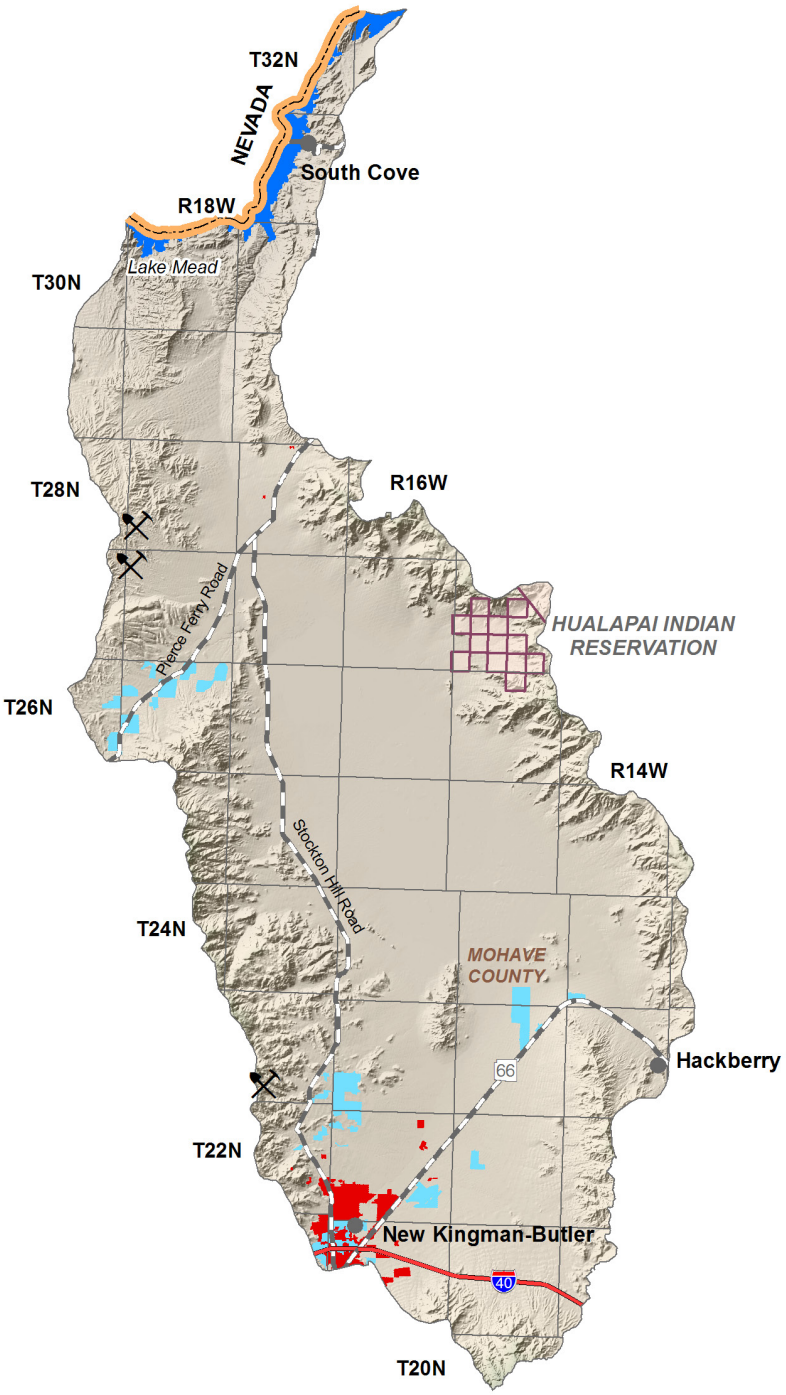
Notes:
NR = Not reported
[1] Does not include effluent or evaporation losses from stockponds and reservoirs.
[2] The City of Kingman in the Sacramento Valley Basin obtains most of its water from well fields in this basin.
[3] Includes all wells through 1980.

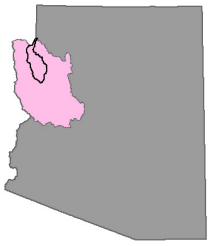
Table 4.4-7 Effluent Generation in the Hualapai Valley Basin

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	Discharged to Another Facility	Infiltration Basin			
Desert Fountain WWTP	NA	New Kingman-Butler	NA											
Kingman - Hilltop	City of Kingman	Kingman	16,010	1,792		X			X			Adv. Tr. 1	3,000	2004

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
WWTP: Wastewater Treatment Plant





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Primary Data Source: USGS National Gap Analysis Program, 2004

Figure 4.4-10
Hualapai Valley Basin
Cultural Water Demand

4.4.9 Water Adequacy Determinations in the Hualapai Valley 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 4.4-8A and B for water reports and analysis of adequate water supply. Figure 4.4-11 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 Mohave County. Fifty water adequacy determinations have been made in this basin through December 2008. Of the 19,387 lots in 49 subdivisions for which lot information is available 10,969 lots, or 57%, were determined to be adequate.
- The most common reason for an inadequacy determination was because the applicant decided not to submit necessary information and/or available hydrologic data were insufficient to make a determination.
- Six analysis of Adequate Water Supply applications, for a total of 259,966 lots, have been approved for this basin.

Table 4.4-8 Adequacy Determinations in the Hualapai Valley 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	Amatista Acres, Sunward Ho! Rn	Mohave	23 North	16 West	29	17	53-500264	Inadequate	A1	9/19/1991	Dry Lot Subdivision
2	Arizona West Tract 1112	Mohave	23 North	15 West	11	256	53-500295	Inadequate	A1	9/17/1987	Truxton Canyon Water Company
3	Cedar Ridge Estates	Mohave	22 North	17 West	11, 14	38	53-300512	Inadequate	A2	9/4/1998	Dry Lot Subdivision
4	Cerbat Ranches Unit 1	Mohave	22 North	17 West	12	125	53-500434	Adequate		11/14/1980	Cerbat Water Company, Inc.
5	Esmeralda Acres/Sunward Ho!	Mohave	23 North	16 West	31	19	53-500619	Inadequate	A1	9/19/1991	Dry Lot Subdivision
6	Fountain Hills Estates	Mohave	22 North	17 West	13	66	53-300087	Adequate		9/26/1996	Cerbat Water Company, Inc.
7	Greater Kingman Industrial Park	Mohave	22 North	15 West	5, 17	200	53-500728	Adequate		7/27/1973	Dry Lot Subdivision
8	Greater Kingman Industrial Park B	Mohave	22 North	15 West	5, 17	19	53-300156	Inadequate	A2	6/14/1996	Dry Lot Subdivision
10	Hillview Ranches	Mohave	23 North	16 West	7	9	53-400741	Inadequate	A1, A2	7/2/2002	Dry Lot Subdivision
11	Hualapai Vista Estates, Tract 3811	Mohave	22 North	16 West	12, 13	41	53-400832	Inadequate	A1, A2	10/17/2002	Dry Lot Subdivision
12	Joshua Park Unit #1	Mohave	28 North	17 West	9	48	53-300558	Inadequate	A2	10/29/1998	Dry Lot Subdivision
13	Joshua Park Unit 1	Mohave	28 North	17 West	9	141	53-402005	Inadequate	A1	1/26/2006	Dry Lot Subdivision
14	Joshua Park Unit No. 1	Mohave	28 North	17 West	9	80	53-500019	Inadequate	A1	6/11/2007	Dry Lot Subdivision
15	Lake Juniper	Mohave	22 North	17 West	11,14	16	53-400872	Inadequate	A1,A2	1/31/2003	Lake Juniper HOA & Mohave County
16	Lake Juniper Estates	Mohave	22 North	17 West	11, 14	197	53-500876	Adequate		2/22/1991	Lake Juniper Water Company
17	Lake Mead Rancheros	Mohave	25 North	15 West	3	259	53-500036	Inadequate	A1	11/30/2006	Dry Lot Subdivision
18	Lake Mead Rancheros	Mohave	25 South	15 East	21	324	53-500061	Inadequate	A1	3/12/2007	Dry Lot Subdivision
			25 North	15 West	19						
19	Lake Mead Rancheros #1-12	Mohave	25 North	15 West	27, 29, 31	1,606	53-500880	Inadequate	A1, A2	2/13/1986	Dry Lot Subdivision
20	Lake Mead Rancheros, Unit 1	Mohave	25 North	15 West	13	121	53-700390	Inadequate	A1	8/9/2007	Dry Lot Subdivision
21	Lake Mead Rancheros, Units 3, 8, 14, 16	Mohave	25 North	15 West	5, 9, 17, 27	332	53-700401	Inadequate	A1	10/3/2007	Dry Lot Subdivision
22	Lake Mead Ranchos Unit 2	Mohave	28 North	18 West	13	95	53-700458	Inadequate	A1	12/31/2007	Dry Lot Subdivision
23	Lake Mead Ranchos Unit 3	Mohave	28 North	18 West	11	592	53-300328	Inadequate	A1	7/23/1997	Dry Lot Subdivision
24	Lake Mead Ranchos Unit 4	Mohave	28 North	18 West	1	491	53-500020	Inadequate	A1	3/14/2007	Dry Lot Subdivision
25	Lake Mead Ranchos Unit 5	Mohave	29 North	18 West	25	541	53-400713	Inadequate	A1, A2	5/21/2002	Dry Lot Subdivision
26	Lake Mead Ranchos, Unit 6	Mohave	29 North	18 West	27	402	53-402006	Inadequate	A1	1/26/2006	Dry Lot Subdivision
27	Lake Mead Ranchos Unit 7	Mohave	29 North	18 West	23	567	53-400714	Inadequate	A1,A2	5/21/2002	Dry Lot Subdivision
28	Lake Mead Ranchos Unit 7	Mohave	29 North	18 West	23	569	53-402007	Inadequate	A1	1/26/2006	Dry Lot Subdivision
29	Lake Mead Rancheros Unit 10	Mohave	25 North	15 West	31	39	53-700278	Inadequate	A1	4/18/2007	Dry Lot Subdivision

Table 4.4-8 Adequacy Determinations in the Hualapai Valley Basin (Cont)[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						
30	Lake Mohave Ranchos D	Mohave	26 North	18 West	1, 3, 5, 7, 9, 11, 13, 15	NA	53-500886	Inadequate	A2,A3	11/23/1977	Dry Lot Subdivision
31	Lake Mohave Ranchos, Unit 6	Mohave	26 North	19 West	25	6	53-401294	Inadequate	D	4/26/2004	NA
32	Mead-O-Rama	Mohave	29 North	18 West	35	421	53-401651	Adequate		3/4/2005	Dry Lot Subdivision
33	Mead-O-Rama #2	Mohave	29 North	19 West	27	221	53-500942	Inadequate	A2,A3	8/31/1984	Dry Lot Subdivision
34	Mead-O-Rama #3	Mohave	29 North	18 West	35	141	53-500943	Inadequate	A2,A3	8/31/1984	Dry Lot Subdivision
35	Mead-O-Rama #4	Mohave	29 North	17 West	31	441	53-500944	Inadequate	A2,A3	8/31/1984	Dry Lot Subdivision
39	Pinion Pines Estates #2	Mohave	20 North	15 West	6	21	53-501174	Inadequate	A2,A3	3/1/1977	Dry Lot Subdivision
40	Quail Valley Estates	Mohave	22 North	17 West	12	32	53-501241	Adequate		11/24/1981	Cerbat Water Company, Inc.
41	Realsite Arizona Ranchettes Units 1,3,4,6,7,8, and 9	Mohave	25 North	16 West	1, 11, 23, 25, 35	252	53-700403	Inadequate	A1	10/18/2007	Dry Lot Subdivision
			26 North	15 West	19, 31						
43	Red Wing Canyon Estates	Mohave	23 North	17 West	23	30	53-501292	Inadequate	A1	5/4/1989	Dry Lot Subdivision
44	Shadow Mountain Acres Unit Two & Three	Mohave	24 North	14 West	27, 35	93	53-400424	Inadequate	A1,A2	11/29/2000	Dry Lot Subdivision
45	Sunny Highlands Estates, Tract 1132, Phase 1-20 Lots	Mohave	23 North	14 West	3	20	53-700505	Inadequate	A1	4/14/2008	Dry Lot Subdivision
46	Sunnyvale Acres, Sunward Ho! Ranches #2	Mohave	23 North	16 West	9	22	53-300075	Inadequate	A1,A2	11/12/1995	Dry Lot Subdivision
47	Sunrise Mountain Estates	Mohave	23 North	16 West	33	35	53-501511	Inadequate	A1,A2,A3	1/14/1992	Dry Lot Subdivision
48	Sunward Ho! Ranches	Mohave	23 North	16 West	19, 30, 31, 33	430	53-300439	Inadequate	A1	4/3/1998	Dry Lot Subdivision
49	Sunward Ho! Ranches Turquesa Acres	Mohave	23 North	16 West	30	35	53-501527	Inadequate	A1	9/19/1991	Dry Lot Subdivision
51	Toro Acres, Sunward Ho! #2	Mohave	23 North	16 West	18, 19	31	53-501567	Inadequate	A1	9/19/1991	Dry Lot Subdivision
52	Valle Vista	Mohave	23 North	15 West	34	1,200	53-501596	Adequate		6/7/1973	Truxton Canyon Water Company
53	Valle Vista #1A,3A	Mohave	23 North	15 West	10, 15	8,728	53-501597	Adequate		3/19/1975	Truxton Canyon Water Company
54	Valle Vista Unit 3- Tract 1204	Mohave	24 North	16 West	34	10	53-400514	Inadequate	A1	7/10/2001	Truxton Canyon Water Company
55	Valle Vista Unit 2 Tract 1200, Lots 860, 861, 999, 1078,1709, 1631, and 1907	Mohave	23 North	15 West	3	7	53-500096	Inadequate	A1	1/24/2007	Truxton Canyon Water Company
56	Zafiro Acres-Sunward Ho Ranches	Mohave	22 North	16 West	5	7	53-400065	Inadequate	A1	5/11/1999	Dry Lot Subdivision

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				
9	Hafley Ranch	Mohave	24 North	15 West	19, 30, 31	13,993	43-402284	8/17/2007	Undetermined
36	Nugent Ranch	Mohave	24 North	16 West	3, 5, 9	19,328	43-402288	8/17/2007	Undetermined
			25 North	16 West	4				

Table 4.4-8 Adequacy Determinations in the Hualapai Valley Basin (Cont)[1]

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				
37	Peacock Highlands	Mohave	22 North	14 West	19, 21, 29-31	39,397	43-402287	8/17/2007	Undetermined
			22 North	15 West	1, 19, 21, 25, 27, 29, 31, 33, 35				
38	Peacock Vistas	Mohave	23 North	14 West	7	9,012	43-402286	8/18/2007	Undetermined
			23 North	15 West	1, 11, 13, 14				
42	Red Lake	Mohave	25 North	17 West	1, 3, 5, 7, 9, 15, 17 19, 21, 28-31	155,236	43-402285	11/2/2007	Undetermined
			26 North	17 West	3, 5, 7, 9, 13-17, 19, 21, 23-27, 29, 31, 33, 35				
			26 North	18 West	13, 23, 25, 35				
			26 North	16 West	5, 7, 17-20, 28- 31				
			27 North	16 West	31				
			27 North	17 West	1, 3, 13, 15, 17, 19, 21, 23, 25, 29, 31, 35				
			28 North	17 West	23, 25, 27, 35				
50	The Mardian Ranch	Mohave	27 North	18 West	1, 3, 5, 7, 9, 11, 13, 15, 17, 19, 21, 23, 25, 29, 31, 33, 35	23,000	43-402028	1/8/2007	Undetermined
			28 North	18 West	13, 23, 25, 31, 33, 35				
			28 North	17 West	7, 19, 21, 29, 31, 33				
			27 North	19 West	1, 13, 25, 35				

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 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

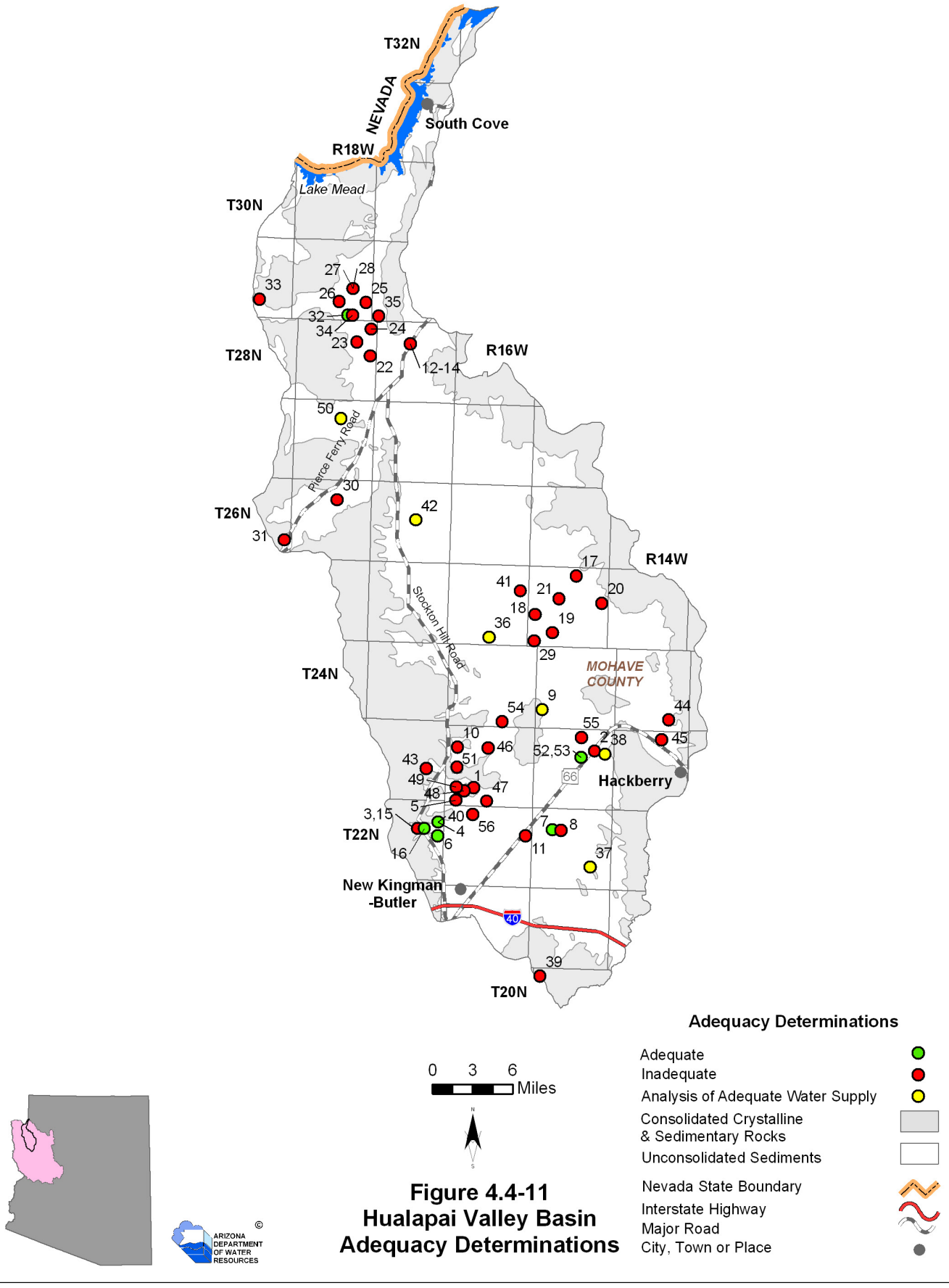

Figure 4.4-11
Hualapai Valley Basin
Adequacy Determinations

Hualapai Valley Basin
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