

Prepared in cooperation with the
ARIZONA DEPARTMENT OF WATER RESOURCES

Ground-Water Occurrence and Movement, 2006, and Water-Level Changes in the Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona



Scientific Investigations Report 2007–5182

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By David W. Anning, Margot Truini, Marilyn E. Flynn, and William H. Remick

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FRONT COVER—Clockwise from left: Windmill and well north of Long Mountain, Hualapai Valley (USGS photo by David W. Anning); view north across the City of Kingman, Hualapai Valley (USGS photo by Donald J. Bills); desert rangeland in southern Hualapai Valley with Long Mountain in the distance (USGS photo by David W. Anning); and water tank in Sacramento Valley (USGS photo by David W. Anning).

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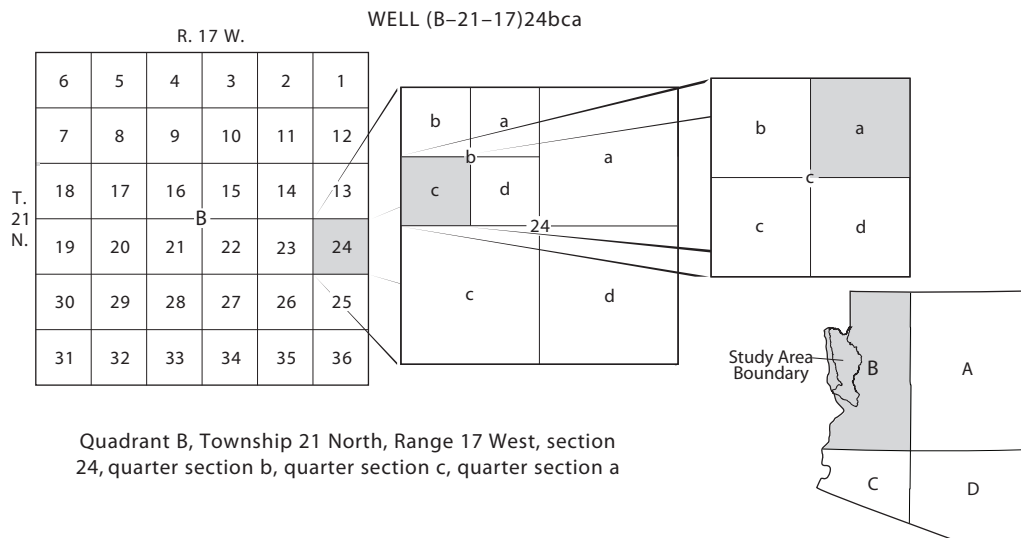
Conversion Factors and Datums

Multiply	By	To obtain
Length		
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
Area		
acre-foot (acre-ft)	1,233	cubic meter (m ³)
acre-foot (acre-ft)	0.001233	cubic hectometer (hm ³)

Temperature in degrees Fahrenheit (°F) may be converted to degrees Celsius (°C) as follows: $^{\circ}\text{C}=(^{\circ}\text{F}-32)/1.8$

Vertical coordinate information is referenced to the North American Vertical Datum of 1988 (NAVD 88). Altitude, as used in this report, refers to distance above the vertical datum. Horizontal coordinate information is referenced to the North American Datum of 1983 (NAD 83).

ARIZONA WELL-NUMBERING AND NAMING SYSTEM



The well numbers used by the U.S. Geological Survey in Arizona are in accordance with the Bureau of Land Management's system of land subdivision. The land survey in Arizona is based on the Gila and Salt River meridian and base line, which divide the State into four quadrants and are designated by capital letters A, B, C, and D in a counterclockwise direction beginning in the northeast quarter. The first digit of a well number indicates the township, the second the range, and the third the section in which the well is situated. The lowercase letters a, b, c, and d after the section number indicate the well location within the section. The first letter denotes a particular 160-acre tract, the second the 40-acre tract and the third the 10-acre tract. These letters also are assigned in a counterclockwise direction beginning in the northeast quarter. If the location is known within the 10-acre tract, three lowercase letters are shown in the well number. Where more than one well is within a 10-acre tract, consecutive numbers beginning with 1 are added as suffixes. In the example shown, well number (B-21-17)24bca designates the well as being in the NE $\frac{1}{4}$, SW $\frac{1}{4}$, NW $\frac{1}{4}$, section 24, Township 21 North, and Range 17 West.

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Ground-Water Occurrence and Movement, 2006, and Water-Level Changes for the Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona

By David W. Anning, Margot Truini, Marilyn E. Flynn, and William H. Remick¹

Abstract

Ground-water levels for water year 2006 and their change over time in Detrital, Hualapai, and Sacramento Valley Basins of northwestern Arizona were investigated to improve the understanding of current and past ground-water conditions in these basins. The potentiometric surface for ground water in the Basin-Fill aquifer of each basin is generally parallel to topography. Consequently, ground-water movement is generally from the mountain front toward the basin center and then along the basin axis toward the Colorado River or Lake Mead. Observed water levels in Detrital, Hualapai, and Sacramento Valley Basins have fluctuated during the period of historic water-level records (1943 through 2006). In Detrital Valley Basin, water levels in monitored areas have either remained the same, or have steadily increased as much as 3.5 feet since the 1980s. Similar steady conditions or water-level rises were observed for much of the northern and central parts of Hualapai Valley Basin. During the period of historic record, steady water-level declines as large as 60 feet were found in wells penetrating the Basin-Fill aquifer in areas near Kingman, northwest of Hackberry, and northeast of Dolan Springs within the Hualapai Valley Basin. Within the Sacramento Valley Basin, during the period of historic record, water-level declines as large as 55 feet were observed in wells penetrating the Basin-Fill aquifer in the Kingman and Golden Valley areas; whereas small, steady rises were observed in Yucca and in the Dutch Flat area.

Introduction

Detrital, Hualapai, and Sacramento Valley Basins are broad, intermountain desert basins in Mohave County, northwestern Arizona, and are home to residents in the City of Kingman and several rural communities (fig. 1). The spatial extent of these basins is defined by the Arizona Department of Water

Resources' (ADWR) ground-water basin boundaries. Ground water is the primary source of water in these basins and is essential for many economic and cultural activities. As in many parts of the western United States, population growth in these basins is substantial. From 2000 to 2005, the population of Kingman grew from 20,100 to 25,900 — an increase of 29 percent (Arizona Department of Economic Security, 2006). During the same time period, the population of Mohave County increased by 21 percent. Management of the available ground-water resources in these basins, guided by a comprehensive scientific understanding of the area's natural resources, can help the growing communities to meet their water needs in a sustainable manner.

In 2005, the U.S. Geological Survey (USGS) began hydrogeologic investigations in the Detrital, Hualapai, and Sacramento Valley Basins in cooperation with ADWR as part of the Rural Watershed Initiative Program. The program, which was established by the State of Arizona and is managed by the ADWR, includes 17 areas throughout rural parts of the State. The overall objective of this investigation is to improve the understanding of the hydrogeologic systems of Detrital, Hualapai, and Sacramento Valley Basins. This investigation will be accomplished by:

- Evaluating current and past conditions of ground-water levels and ground-water movement.
- Evaluating ground-water quality for key water uses.
- Developing a better understanding of the extent and lithology of geologic units and structures, and their relation to the storage and movement of ground water.
- Developing improved estimates for ground-water budget terms, including recharge, discharge, and total water in storage.
- Establishing a hydrologic-monitoring network to detect and characterize changes in aquifer conditions.
- Informing the hydrologic community and basin residents about hydrologic conditions.

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Physical and Hydrogeologic Setting

Detrital, Hualapai, and Sacramento Valley Basins are three large, distinct northwest-southeast trending alluvial basins in northwestern Arizona (fig. 1). The valley floors of Detrital and Hualapai Valley Basins generally slope downward to the north, and the valley floor of Sacramento Valley Basin generally slopes downward to the south. Valley-floor elevations range from about 3,500 ft near Kingman, Arizona, to about 500 ft at the mouth of Sacramento Wash. Mountain crests typically are more than 1,000 ft above the valley floors, and in the case of the Hualapai Mountains, the crest is as much as 5,500 ft above the floor of Sacramento Valley.

The climate of the basins is arid to semiarid with maximum daily temperatures in the valley floors typically ranging from 90 to 110°F during the summer, and from 50 to 70°F during the winter (Western Regional Climate Center, 2005). Average annual precipitation on the valley floors ranges from about 5 to 10 in. (Western Regional Climate Center, 2005) whereas precipitation in the mountains is as much as 16 in. and is strongly correlated to elevation (Western Regional Climate Center, 2007). The valley floors generally are covered with sparse desert vegetation owing to the hot temperatures and little precipitation. Moderate to thick stands of shrubs and trees cover mountain slopes and peaks in the higher elevations where temperatures are cooler and precipitation is greater.

The structural basins of Detrital, Hualapai, and Sacramento Valley Basins were formed during the Basin and Range disturbance, during which mountain ranges and basins were formed on adjacent sides of high-angle normal faults (Scarborough and Pierce, 1978). The bedrock of the mountains that separate the valleys consists of volcanic, granitic, metamorphic, and consolidated sedimentary rocks (pl. 1). Where unfractured, bedrock is relatively impermeable compared to the basin fill and can form a barrier to ground-water movement where it separates adjacent Basin-Fill aquifers. Fractured bedrock, however, can form water-bearing zones and allow ground water to flow from one area to another. The structural basins of Detrital, Hualapai, and Sacramento Valley Basins contain unconsolidated and semi-consolidated sediments that range in thickness from thin veneers along the mountain fronts to more than 5,000 ft in parts of each basin (Freethy and others, 1986). This basin-fill material is divided into older, intermediate, and younger alluvium (Gillespie and Bentley, 1971).

Older alluvium is stratigraphically the oldest and deepest deposit, and consists of moderately consolidated fragments of rocks eroded from the surrounding mountains in a silty-clay or sandy matrix (Gillespie and Bentley, 1971). Older alluvium generally corresponds to units mapped as QTs and Tsy in plate 1. The sediments are moderately consolidated, and the grain size decreases from boulder- and pebble-size fragments in the fanglomerate near the mountains to coarse sand and interbedded clay and silt in the basin center (Gillespie and Bentley, 1971). Each basin has large areas of older alluvium where the sediments are primarily fine grained (Freethy and others, 1986). In the northern part of the Detrital Valley Basin

and central part of Hualapai Valley Basin, massive evaporite deposits occur in the older alluvium (Gillespie and Bentley, 1971; Laney, 1973; Freethy and others, 1986). In the northern parts of Detrital and Hualapai Valley Basins, clastic sediments, limestone, and basalt flows of the Muddy Creek Formation (Laney, 1973; Laney, 1977) are included in the older alluvium and correspond to units mapped as Tsy in plate 1.

The intermediate alluvium contains boulder- to pebble-size fragments in the fanglomerates near the mountains and gravel, sand, and silt in the middle of the valleys (Gillespie and Bentley, 1971). Intermediate alluvium generally corresponds to the units mapped as Qo in plate 1. In contrast to the older alluvium, the intermediate alluvium generally is less consolidated and the thickness of the intermediate alluvium is on the order of a few hundred feet rather than a few thousand feet (Gillespie and Bentley, 1971).

The younger alluvium consists of Holocene and Pleistocene weakly consolidated piedmont, stream, and playa deposits. Younger alluvium generally corresponds to units mapped as Qy and Q in plate 1. Younger alluvium is less thick than the intermediate and older alluvium (Gillespie and Bentley, 1971). In the northern parts of Detrital and Hualapai Valley Basins, the younger alluvium contains the Chemehueve Formation, which consists of locally derived alluvial fan material from nearby mountains and silt, sand, and clay transported by the Colorado River (Laney, 1973; Laney, 1977). The Chemehueve Formation overlays the older alluvium (Laney, 1973; Laney, 1977) and generally corresponds to units mapped as Q in plate 1.

Water-saturated sediments that fill the structural basins in the Detrital, Hualapai, and Sacramento Valley Basins form the principal aquifer and for consistency in this report will be referred to as the Basin-Fill aquifer. The older alluvium is the principal aquifer in the Detrital, Hualapai, and Sacramento Valley Basins (Gillespie and Bentley, 1971; Laney, 1973; and Dillenburg, 1987). The intermediate alluvium and younger alluvium are above the water table in most areas of all three basins (Gillespie and Bentley, 1971; Remick, 1981; Dillenburg, 1987; and Rascona, 1991).

Water-bearing zones occur in volcanic, granitic, metamorphic, and consolidated sedimentary rocks in parts of the mountain that surround the margins of all three valleys (Gillespie and Bentley, 1971; Laney, 1977). Volcanic rocks (Tb and Tv in plate 1), divided into younger and older volcanic rocks by Gillespie and Bentley (1971), crop out along the mountain fronts bordering Detrital, Hualapai, and Sacramento Valleys and in the Kingman area. These volcanic rocks are also interbedded with older alluvium in places in Hualapai and Sacramento Valleys (Gillespie and Bentley, 1971). The older volcanic rocks are mostly a thick sequence of andesite and latite flows and tuff beds, while the younger volcanic rocks are mostly basalt flows, basaltic and andesitic flows and tuff, and rhyolitic tuff (Gillespie and Bentley, 1971). In the Kingman area, volcanic rocks are locally permeable near two fault zones, and ground-water stored in the fractures is used as part of the municipal water supply and for many domestic



Figure 1. Physiography and location of Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona.

wells (Gillespie and Bentley, 1971). Ground water stored in consolidated sediments and granitic and metamorphic rocks serves as a water supply in some areas, especially where rocks are faulted, fractured, and weathered (Gillespie and Bentley, 1971; Remick, 1981; Dillenberg, 1987; and Rascona, 1991). Several springs issue from these consolidated rocks, and in some cases the springs serve as water supplies for livestock and wildlife.

The combined annual ground-water withdrawal for the three valleys was about 6,600 acre-ft in 1991, almost all of which was from Hualapai and Sacramento Valleys (Tadayon, 2005). By 2000, withdrawals had nearly doubled to about 11,000 acre-ft (Tadayon, 2005). The ground-water withdrawals were used primarily for municipal, domestic, and industrial uses and to a lesser extent for livestock and agriculture.

Purpose and Scope

As noted in the Introduction section, one of the objectives of this investigation is to describe ground-water levels and their change over time in the Detrital, Hualapai, and Sacramento Valley Basins of northwestern Arizona in order to improve the understanding of current and past conditions in the ground-water systems in these basins. The purpose of this report is to document (1) depth to water and ground-water altitude data measured during water year 2006 for wells in the Detrital, Hualapai, and Sacramento Valley Basins, (2) the potentiometric surface of the Basin-Fill aquifers and the ground-water movement in these basins, and (3) long-term changes in ground-water levels over time in these basins.

Approach and Data

Measurements of ground-water levels in 306 wells were collected during water year 2006 (October 1, 2005, through September 30, 2006) to develop a potentiometric surface map of the Basin-Fill aquifers in the Detrital, Hualapai, and Sacramento Valley Basins. These data were supplemented with water-level measurements collected from 24 wells, from October through December of 2006, to aide in the development of the potentiometric-surface map. The distribution of the combined 330 water-level measurements by basin is 67 wells in Detrital Valley Basin, 100 wells in Hualapai Valley Basin, and 163 wells in Sacramento Valley Basin. Where available, driller's logs were examined to determine the representative aquifer or water-bearing zone (basin fill, crystalline, limestone, or volcanic rock) in each well.

Long-term water-level changes were assessed by using two analysis methods. The first method was to visually examine trends apparent in ground-water level hydrographs for wells that had 10 or more water-level measurements that spanned a minimum of 10 years. Within the study area, 35 wells met these analysis criteria. Water-level and time scales for the 35 hydrographs were made consistent to facilitate comparison of trends by well.

The second method of analyzing long-term trends in water-level changes was to examine net water-level changes that were computed for individual wells. Net water-level changes were computed by subtracting the water-levels measured during a particular time period from the water-levels measured in 2006. Net water-level changes were interpreted as indicating declines for values less than -1.0 ft, no change for values between -1.0 ft and 1.0 ft, and increases for values greater than 1.0 ft. The analysis examined net water-level changes in the three basins for the following three time periods: (1) water year 1996, which had data for 116 wells; (2) water years 1979–80, which had data for 64 wells; and (3) 1964–65, which had data for 28 wells. These were the most data-rich periods for comparison of 2006 and previous years' water levels for the three basins. More net water-level change data were available for wells in the Hualapai and Sacramento Valley Basins than for wells in the Detrital Valley Basin.

Depth-to-water data usually are measured in the field to one-tenth or one-hundredth of a foot, and they are reported in the appendixes (available only online at <http://pubs.usgs.gov/sir/2007/5182/appendixes/>) to one-tenth of a foot. On plate 1, depth-to-water data are listed to the nearest foot to ease visual analysis of data. Net water-level change data are computed from depth-to-water data, and therefore, are also reported to the tenth of a foot in the appendixes. Water-level altitude data are computed from the depth-to-water data and the altitude of the well on the land surface. The well altitude typically is taken from a topographic map, which generally has 20-ft altitude contours. Assuming the well location is correct, the well-altitude data typically have an accuracy of about 1–10 ft, and, therefore, reported in the appendixes and on plate 1 to the nearest foot.

Previous studies have reported ground-water conditions in Detrital, Hualapai, and Sacramento Valley Basins (table 1). Much of the water-level data used in the net water-level change analysis were reported by these studies. Water-level and well-location data presented in this report are tabulated in appendixes 1–4. These data are available on request from the USGS National Water Information System and the ADWR Ground Water Site Information databases.

Ground-Water Levels and Movement, Water Year 2006

Ground-water altitudes in water-bearing zones of volcanic, granitic, metamorphic, and consolidated sedimentary rocks in the mountains typically are higher than ground-water altitudes of nearby wells in the Basin-Fill aquifer and indicate the potential for ground-water movement from the basin margins towards the Basin-Fill aquifers in the basins. The flow path through these consolidated rock units and the hydraulic connection to the Basin-Fill aquifer is dependant on the location and density of fractures within the rock units. In the Basin-Fill aquifer, ground-water movement is through sedi-

Table 1. Summary of previous ground-water investigations in Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona. [X, data or information included in report; — data or information not included or a minor part of report]

Report about investigation results	Primary study period	Basin(s) in study area	Types of data or information presented in report					
			Well data, including water-levels	Spring data	Ground-water chemistry data	Well hydro-graphs	Potential-metric surface map	Hydro-geologic information
Gillespie and others (1966)	Generally through 1965	Hualapai, Sacramento, and northern part of Big Sandy	X	X	X	X	X	—
Gillespie and Bently (1971)	Generally through 1967	Hualapai and Sacramento	X	X	X	X	X	X
Laney (1973)	Generally through 1979	Northern part of Detrital	X	X	X	—	—	X
Laney (1977)	Generally through 1979	Northern part of Hualapai	X	X	X	—	—	X
Pfaff and Clay (1981)	1979	Sacramento	X	X	X	X	X	—
Remick (1981)	1980	Hualapai and parts of adjacent areas	X	X	X	X	X	—
Dillenburg (1987)	1987	Detrital	X	X	X	—	X	—
Rascona (1991)	1990	Sacramento	X	X	X	X	X	—

ment pore-spaces along paths from the mountain front towards the basin center, and then along the basin axis north to Lake Mead or south to the Colorado River. The potentiometric surface of the Basin-Fill aquifer in the three basins is characterized by areas with flat gradients altering with areas with steep gradients, which may reflect different hydraulic conductivities and (or) cross-sectional areas of the aquifer in each area.

Ground-water altitudes in the Basin-Fill aquifer along the axis of Detrital Valley Basin range from greater than 2,200 ft in the southern part of the basin to less than 1,300 ft in the northern part of the basin near Lake Mead (pl. 1). At the northern end of Detrital Valley, Lake Mead onlaps rock units of the Basin-Fill aquifer. Laney (1977) and data from the few wells in this area suggest that water levels in the aquifer in this area fluctuate with the water level in the lake. Depth-to-water measurements range from less than 100 ft below land surface in the mountains and near Lake Mead, to as much as 984 ft below land surface in the southern part of the basin.

The potentiometric surface of the Basin-Fill aquifer in the southern part of the Detrital Valley Basin is relatively

flat, and ground-water altitudes range from 2,220 to 2,249 ft. Ground-water altitudes less than 2,100 ft in wells in the northern part of T. 26 N., R. 20 W. indicate that flow in the southern part of Detrital Valley Basin generally is towards the north (pl. 1). Ground-water altitudes of 2,097, 2,141, and 2,154 ft in three wells in T. 23 N., R. 18 W. of the adjacent Sacramento Valley Basin, however, indicate a potential for some flow southward across the basin boundary (pl. 1). A ground-water divide that separates northward flow and southward flow occurs in the southern part of Detrital Valley Basin or at the basin boundary with Sacramento Valley Basin. However, the exact location of the ground-water divide cannot be determined because of the lack of ground-water altitude data near the basin boundary, and because the range in water-level altitudes qualitatively is not substantially greater than the uncertainty of water-level altitude data.

Near the community of White Hills, wells having ground-water altitudes between 3,001 and 3,023 ft indicate potential for ground-water movement northwestward from this area

toward Detrital Wash. Ground-water in these wells comes from the Basin-Fill aquifer and from water-bearing units in crystalline rocks (pl. 1); and the similar ground-water altitudes indicate a hydraulic connection between these hydrogeologic units. Similar hydraulic connections occur elsewhere in Detrital Valley Basin, as well as parts of Hualapai and Sacramento Valley Basins.

In 2003, deep drilling in sec. 25, T. 27 N., R. 21 W. of the Detrital Valley Basin revealed the presence of a water-bearing zone beneath the primary water-bearing zone in the Basin-Fill aquifer. This lower zone occurs at a depth of about 1,380 ft below land surface. At this well site, driller's logs indicate that the lower water-bearing zone (1) consists of alluvial sediments interbedded with volcanic flows, (2) is separated from the upper water-bearing zone by about 800 ft of non water-bearing clay and gypsum, and (3) is confined with about 1,000 ft of pressure head at the time of drilling. Since the time this well was drilled, a small number of additional wells have been completed in the lower water-bearing zone in the same vicinity. Water-level altitudes are higher in the lower water-bearing zone than in the upper, primary water-bearing zone and range from 2,074 to 2,195 ft. The lateral extent of the lower water-bearing zone is unknown, however, well-log data from test holes indicate the clay and gypsum layer may extend across the northern two-thirds of the basin, and therefore, the lower water-bearing zone may be present in that area as well.

The northern part of Detrital Valley Basin generally lacks wells for defining ground-water levels and movement in detail. A comparison of water levels from wells in T. 29 N., R. 21 W. and those in wells near Lake Mead, however, indicate ground-water movement is towards the north and that the gradient, about 60 ft/mi, is steep in this area compared to the central and southern parts of the basin.

Ground-water altitudes in the Basin-Fill aquifer along the axis of Hualapai Valley Basin range from greater than 2,700 ft in the southern part of the valley to less than 1,900 ft in the northern part of the valley (pl. 1). Although there are no water-level data available for the area adjacent to Lake Mead in Hualapai Valley Basin, ground-water altitudes are probably comparable to lake elevations, as is the case in Detrital Valley Basin. Depth-to-water measurements range from less than 100 ft below land surface in the mountains, to as much as 959 ft below land surface in the southern part of the basin.

In the southern part of Hualapai Valley Basin, ground-water altitude data indicate the presence of a cone of depression in T. 22 N., R. 16 W., northeast of Kingman (pl. 1). While ground water in that area flows towards the cone of depression, ground-water movement near Valle Vista is northward to the east of Long Mountain. Ground water likely flows northward on the western side of Long Mountain as well, however, flow is through granitic, metamorphic, and volcanic rocks and the overlying basin fill in that area. The water-level altitude in a well in sec. 2 of T. 22 N., R. 16 W. was 2,808 ft (pl. 1), and may mark the northern end of the cone of depression. The well was drilled as a monitoring site for the City of Kingman's sewage-treatment facility, and the elevated water-level altitude

may also reflect mounding of water from recharge occurring at the facility.

Ground water flows into the central part of Hualapai Valley Basin from the southern part and also from the area where Truxton Wash enters the basin near Hackberry (pl. 1). The potentiometric surface in the central part of Hualapai Valley Basin, which contains Red Lake, is relatively flat with a gradient of about 7 ft per mile and ground-water altitudes between 2,514 and 2,402 ft. The area contributing surface flow into Red Lake playa is a closed basin and retains flow as a result of a low topographic divide near Pierce Ferry Road. Ground-water in the central part of Hualapai Valley Basin, however, flows north underneath the topographic divide.

Ground water flows into the northern part of Hualapai Valley Basin from the central part and also from a small valley northeast of Dolan Springs (pl. 1). Ground-water flows north towards Lake Mead. Similar to conditions in the Detrital Valley Basin, the potentiometric-surface gradient in northern Hualapai Valley Basin, about 39 feet per mile, is much steeper than in the southern and central parts of the basin.

Ground-water altitudes for the Basin-Fill aquifer along the axis of Sacramento Valley Basin range from greater than 2,100 ft in the northern part of the basin to less than 500 ft in the southern part of the basin near the Colorado River (pl. 1). Depth-to-water measurements range from less than 100 ft below land surface in the mountains and along Sacramento Wash near the Colorado River, to as much as 1,229 ft below land surface in the northern part of the basin.

Ground-water movement in Sacramento Valley Basin north of Yucca (T. 17 N., R. 18 W.) generally is toward the basin center and south along the basin axis. Ground-water altitude data indicate that the potentiometric-surface gradient is relatively steep from the Santa Claus area to Golden Valley, about 55 ft per mile, and relatively shallow from Golden Valley to Yucca, about 11 ft per mile. The ground-water altitude of 2,479 ft for a well in T. 23 N., R. 18 W. is elevated compared to the altitude of water in nearby wells also developed in the Basin-Fill aquifer. This difference in water levels was also present in 1990 (Rascona, 1991).

The potentiometric-surface gradient in the Dutch Flat area is relatively flat with a large area containing several wells with ground-water altitudes of about 1,400 ft. Ground-water movement in Dutch Flat is northwestward toward Sacramento Wash, near the Buck Mountains, and then primarily westward towards the Colorado River. The potentiometric surface gradient is relatively steep from the area near the Buck Mountains to the Colorado River, about 45 ft per mile.

Long-Term Water-Level Changes

Water levels from 1943 through 2006 in the Detrital, Hualapai, and Sacramento Valley Basins have fluctuated in some areas and remained steady in other areas. Long-term water-level changes were evaluated from selected ground-water level data (appendixes 3 and 4) collected during this period for selected wells throughout the study area. The analy-



Figure 2. Location of wells with hydrographs, Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona.

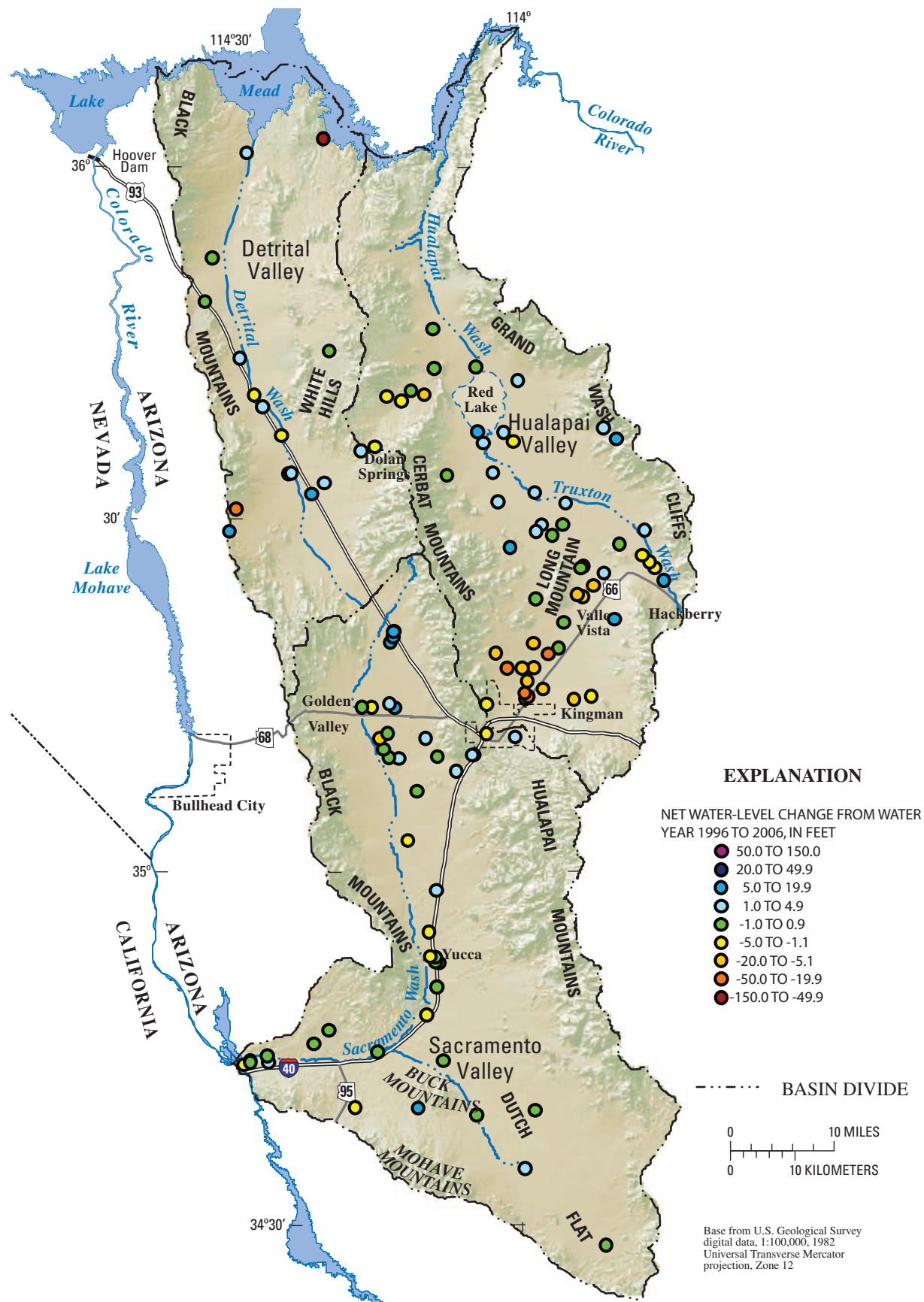


Figure 3. Net water-level change from water year 1996 to 2006 for selected wells, Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona.

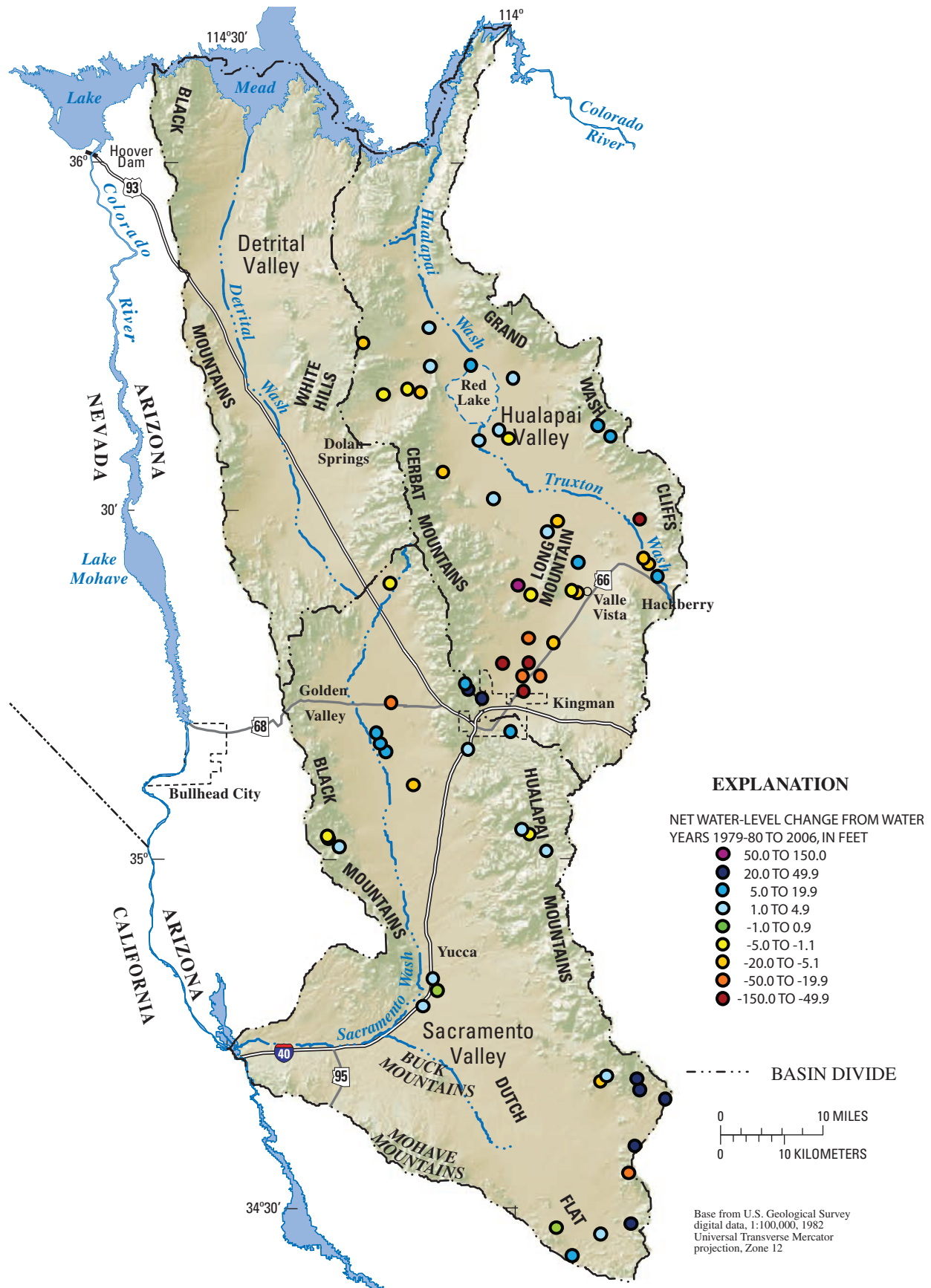


Figure 4. Net water-level change from water years 1979–80 to 2006 for selected wells, Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona.

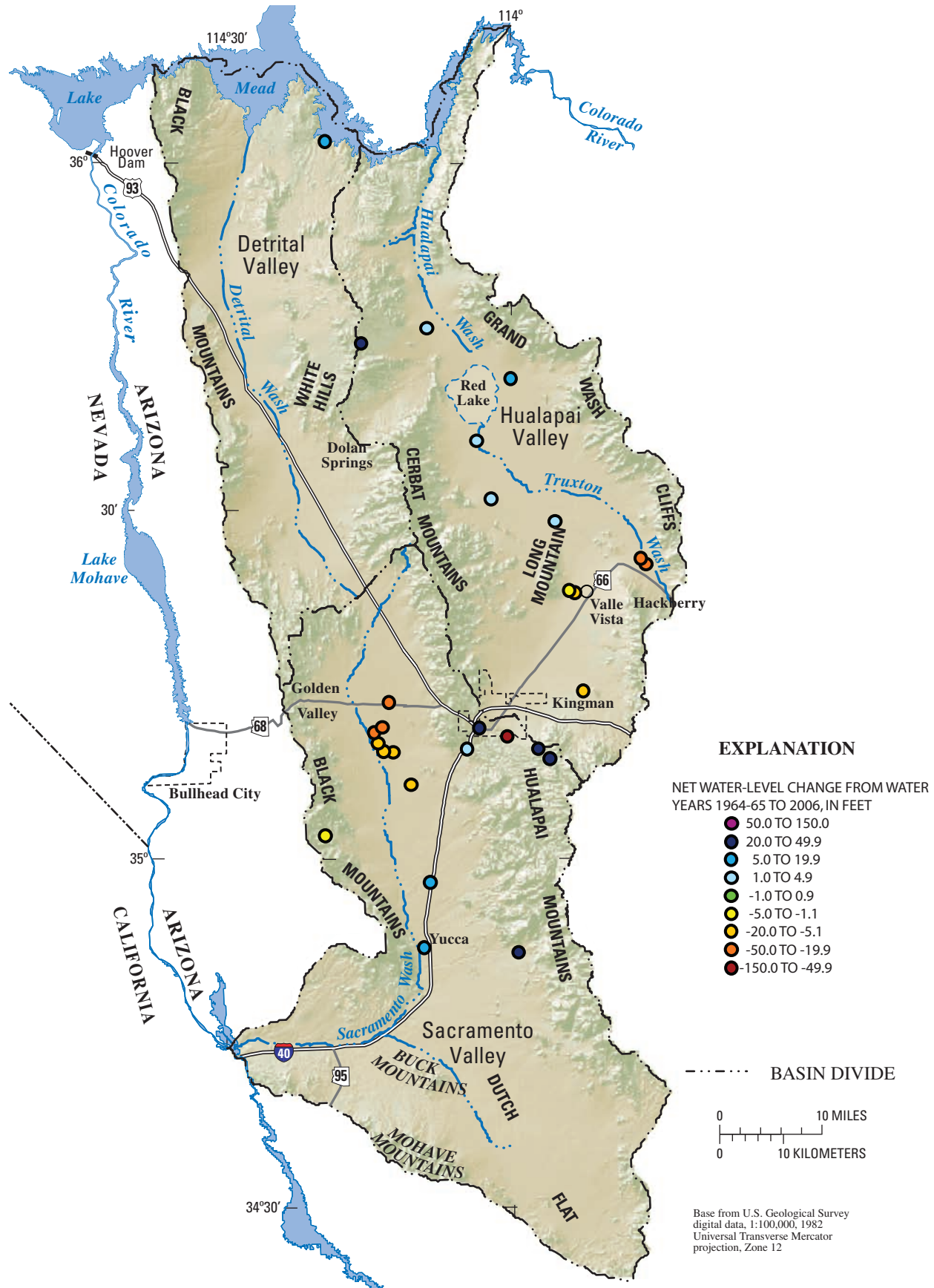


Figure 5. Net water-level change from water years 1964–65 to 2006 for selected wells, Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona.

sis includes evaluation of hydrographs of selected data for 35 wells (fig. 2; appendix 4) and evaluation of net water-level change data for periods between 1996 and 2006 (fig. 3; appendix 3), 1979–80 and 2006 (fig. 4; appendix 3); and 1964–65 and 2006 (fig. 5; appendix 3).

With some exceptions, water levels generally have remained the same or have risen since the 1980s in areas monitored in the Detrital Valley Basin. Three of the four wells with hydrographs [(B-28-21)20ADB, (B-26-20)06ABC, and (B-25-20)15AAA] indicate water levels have gradually increased as much as 3.5 ft during their period of record, which began in the early to mid-1980s (fig. 6). The fourth hydrograph, for well (B-30-20)06CAD, indicates water levels have remained about the same at the well. Net water-level changes in 12 wells from 1996 to 2006 indicated either no change, or increasing water levels by as much as 11.8 ft (fig. 3, table 2). In four wells, however, net water-level changes for this period decreased, the largest decrease being -66.7 ft for a well near Lake Mead (fig. 3, table 2). This large decrease, in part, is likely due to a decrease in lake levels of about 54 ft that occurred during the same time period (Bureau of Reclamation, 2007). For many of the wells, water-level changes from 1996 to 2006 were small, between declines of 0.9 ft and rises of 2.0 ft, as indicated by the 25th and 75th percentiles for net water-level change (table 2). Net water-level change data were available for only one well for 1964–65 to 2006, which was an increase of 6.2 ft (fig. 5).

Long-term water-level changes vary for different areas in Hualapai Valley Basin. Summary statistics for the three net water-level change periods for the three basins indicate that the most extreme changes observed, a 134.8 ft decline and a 107.8 ft rise, were for two wells in Hualapai Valley Basin for 1979–80 to 2006 (table 2). These two wells are completed in fractured volcanic and granitic rocks, and the large fluctuations are likely due to low storage coefficients associated with

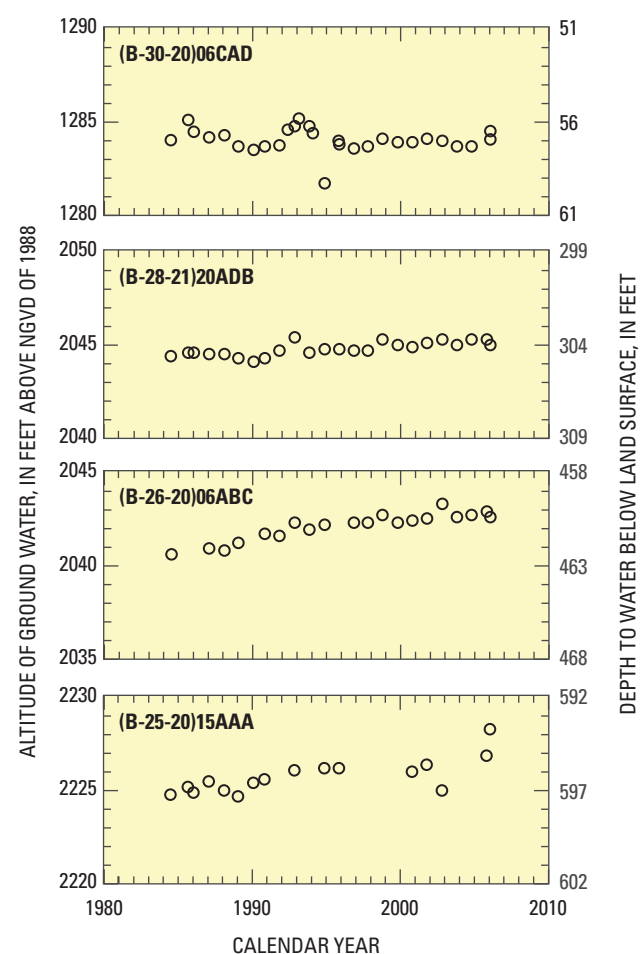


Figure 6. Hydrographs of water levels in selected wells of Detrital Valley Basin, Mohave County, Arizona.

Table 2. Summary statistics for net water-level change from water years 1996 to 2006, 1979–80 to 2006, and 1964–65 to 2006 for selected wells in Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona.

Period	Number of wells	Summary statistics for net water-level change, in feet					
		Minimum	25th percentile	Mean	Median	75th percentile	Maximum
Detrital Valley Basin							
1996 to 2006	16	−66.7	−0.9	−4.9	1.0	2.0	11.8
Hualapai Valley Basin							
1996 to 2006	55	−34.8	−8.5	−4.4	−0.6	1.4	16.3
1979–80 to 2006	34	−134.8	−8.7	−7.6	−3.9	2.5	107.8
1964–65 to 2006	11	−30.5	−11.8	−3.4	1.2	3.0	28.0
Sacramento Valley Basin							
1996 to 2006	45	−8.2	−0.3	1.2	0.5	2.4	18.8
1979–80 to 2006	30	−38.1	0.6	6.9	3.1	12.1	47.8
1964–65 to 2006	16	−52.7	−16.5	−0.9	−4.5	14.6	43.7

water-bearing consolidated-rocks. For many of the wells, however, water-level changes for the three periods were small and between declines of 11.8 ft and rises of 3.0 ft, as indicated by the 25th and 75th percentiles for net water-level change (table 2).

For the area north of Long Mountain, hydrographs (fig. 7) for wells (B-28-17)31CCC, (B-27-16)33BAA, (B-26-18)03AAA1, (B-26-17)35AAA, and (B-24-16)01DDD1 generally indicate small, steady water-level increases of up to about 8.0 ft over the span of their hydrographs—all of which extend from 2006 to 1980, and one of which extends back to 1958. With a few exceptions, net water-level changes for 1996–2006, 1979–80 to 2006, and 1964–65 to 2006 indicate either no change or rising water levels for most wells in this same area (figs. 3–5). For 1996 to 2006 and 1979–80 to 2006, however, net water-level changes in four wells northeast of Dolan Springs indicate declining water levels (figs. 3 and 4).

Hydrographs and net water-level changes for the area north of Hackberry show some significant water-level declines, although some water-level rises do occur. The hydrograph for (B-24-14)28CAD shows a steady decline of about 60 ft from 1944 to 1991 and fluctuating water levels thereafter (fig. 7). The hydrograph for (B-23-14)03ADC shows about a 40 ft decline from 1944 to the mid-1950s, followed by a net rise of 25 ft to 2006 (fig. 7). Wells in this area with net water-level change data also show a mix of water-level declines and rises (figs. 3–5).

Hydrographs and net water-level changes for the Hualapai Valley Basin south of Long Mountain generally indicate that water levels are remaining the same or declining. While the hydrograph for (B-23-15)30CBB shows steady water-level conditions for 1990 to 2006, hydrographs for (B-22-16)03CBB and (B-22-16)28BAD show steady water-level declines of about 34 and 50 ft, respectively, from 1980 to 2006 (fig. 7). Net water-level changes for most wells in this area also indicate declining or unchanging water levels for all three periods (figs. 3–5). These water-level declines are consistent with the cone of depression in the potentiometric surface that was previously discussed for the southwestern part of this area near Kingman.

Long-term water-level changes vary for different areas in Sacramento Valley Basin. For many of the wells, water-level changes during the three periods were small and between declines of 16 ft and rises of 15 ft, as indicated by the 25th and 75th percentiles for net water-level change (table 2). In the Kingman area of the Sacramento Valley Basin, hydrographs for wells (B-21-17)03DAD and (B-21-17)03CDA2 show sharp declines of 12 and 55 ft, respectively, from 1943 to the mid-1950s (fig. 8). Although the wells are near each other, these water-level changes may vary as a result of different storage coefficients for the rock in which they are completed. Hydrographs show an overall decline of about 10 ft from 1944 to 1978 in well (B-21-17)24CDD2, and an additional 18-ft decline from 1978 to 2006 in nearby well (B-21-17)24CBC; both wells are completed in volcanic rocks. Well (B-21-17)34DDB is down-gradient of the four previously mentioned

wells in the Kingman area and is completed in the basin fill; the hydrograph for this well shows a relatively steady water level (fig. 8). Net water-level changes for wells in the Kingman area of Sacramento Valley are mixed, however, the declines are smaller than those observed to the northwest in Hualapai Valley (figs. 3–5).

In the north-central part of Sacramento Valley Basin near Golden Valley, hydrographs for wells (B-21-18)32DCC and (B-20-18)04BBB show water levels generally declined about 30 ft from 1964 to the mid-1970s and then generally rose about 15 ft by 2006 (fig. 8). Net water-level changes in nearby wells are consistent with this pattern for all 3 periods (figs. 3–5). Net water-level changes for 1964–65 to 2006 indicate declines ranging between 5.0 and 50 ft for 7 wells in this area (fig. 5). The hydrograph for (B-20-18)22AAC shows a steady decline in water level from 1964 to about 1990 and a fairly steady water level through 2006 (fig. 8).

In the Yucca and Dutch Flat areas, hydrographs for (B-18-18)01DCD, (B-17-17W)19BAD, (B-15-16)07BDD, (B-15-17)07DCA1, and (B-13-15)CAC2, which extend from at least 1986 to 2006 (fig. 8), show small, steady rises in water levels over time. Net water-level changes in these areas are small for 1996–2006, generally between declines of 5.0 ft and rises of 5.0 ft (fig. 3). Net water-level change data in these areas for 1979–80 to 2006 indicate rising or unchanging water levels in all but two wells (fig. 4).

In the southern part of Sacramento Valley Basin, west of the Buck Mountains, hydrographs show fluctuating water levels, with the lowest water levels typically occurring between 1990 and 2000, and a vaguely defined decline during the period of record (fig. 8). Net water-level changes for wells in this area indicate unchanging conditions or declines of less than 5.0 ft for 1996–2006 (fig. 3).

Summary

Ground-water levels for water year 2006 and their change over time in the Detrital, Hualapai, and Sacramento Valley Basins of northwestern Arizona were examined in this study. The potentiometric surface is generally parallel to topography, and ground-water movement is generally from the mountain front toward the basin center and then along the basin axis toward the Colorado River or Lake Mead. Water levels observed over time in Detrital, Hualapai, and Sacramento Valley Basins have fluctuated from 1943 through 2006. Small water-level rises, typically less than 5.0 ft, were found to occur for recent decades in parts of all three basins. Water-level declines, however, were found in the Kingman area, an area northwest of Hackberry, an area northeast of Dolan Springs, and in the Golden Valley area.

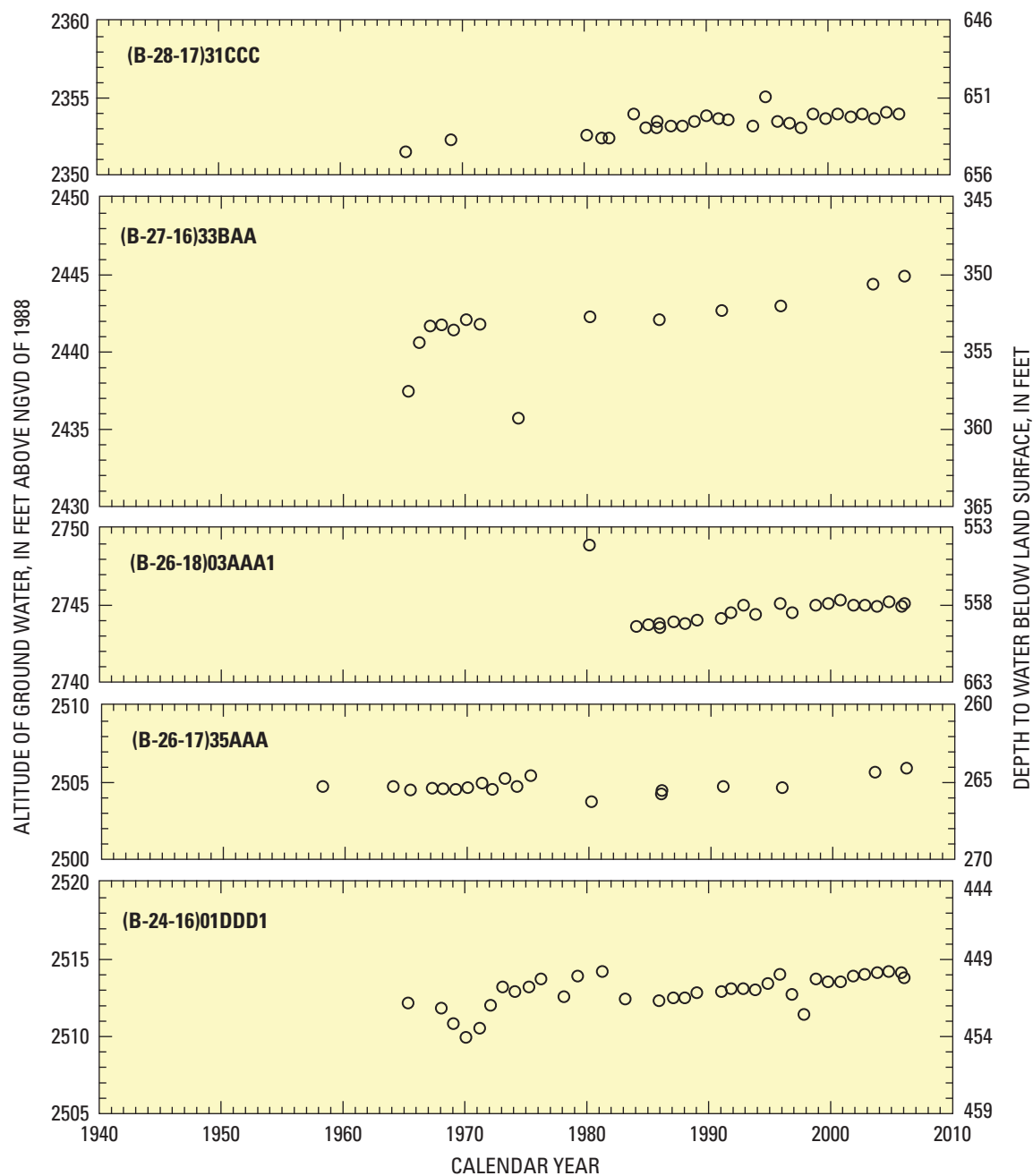


Figure 7. Hydrographs of water levels in selected wells of Hualapai Valley Basin, Mohave County, Arizona.

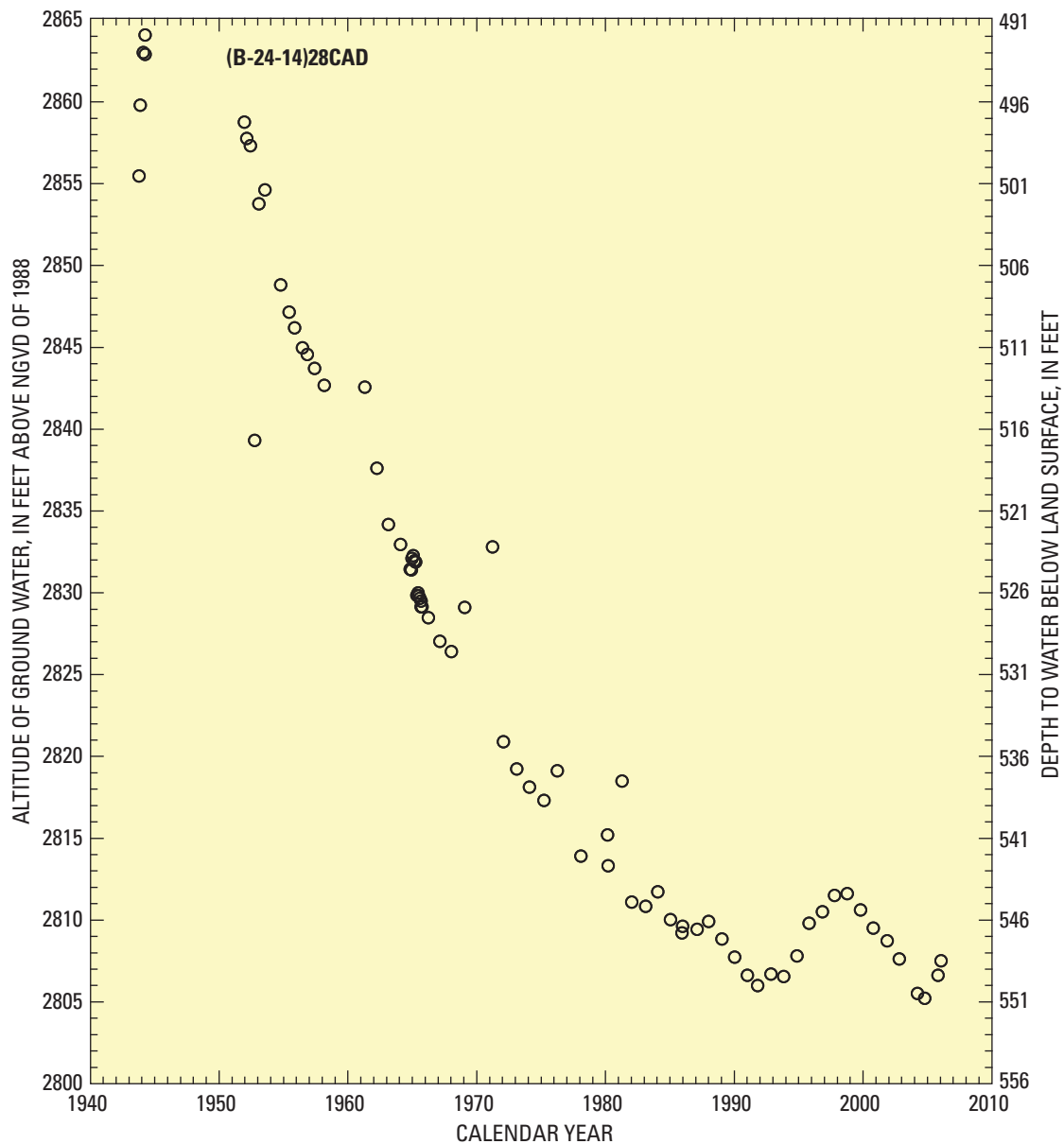


Figure 7. Hydrographs of water levels in selected wells of Hualapai Valley Basin, Mohave County, Arizona — Continued.

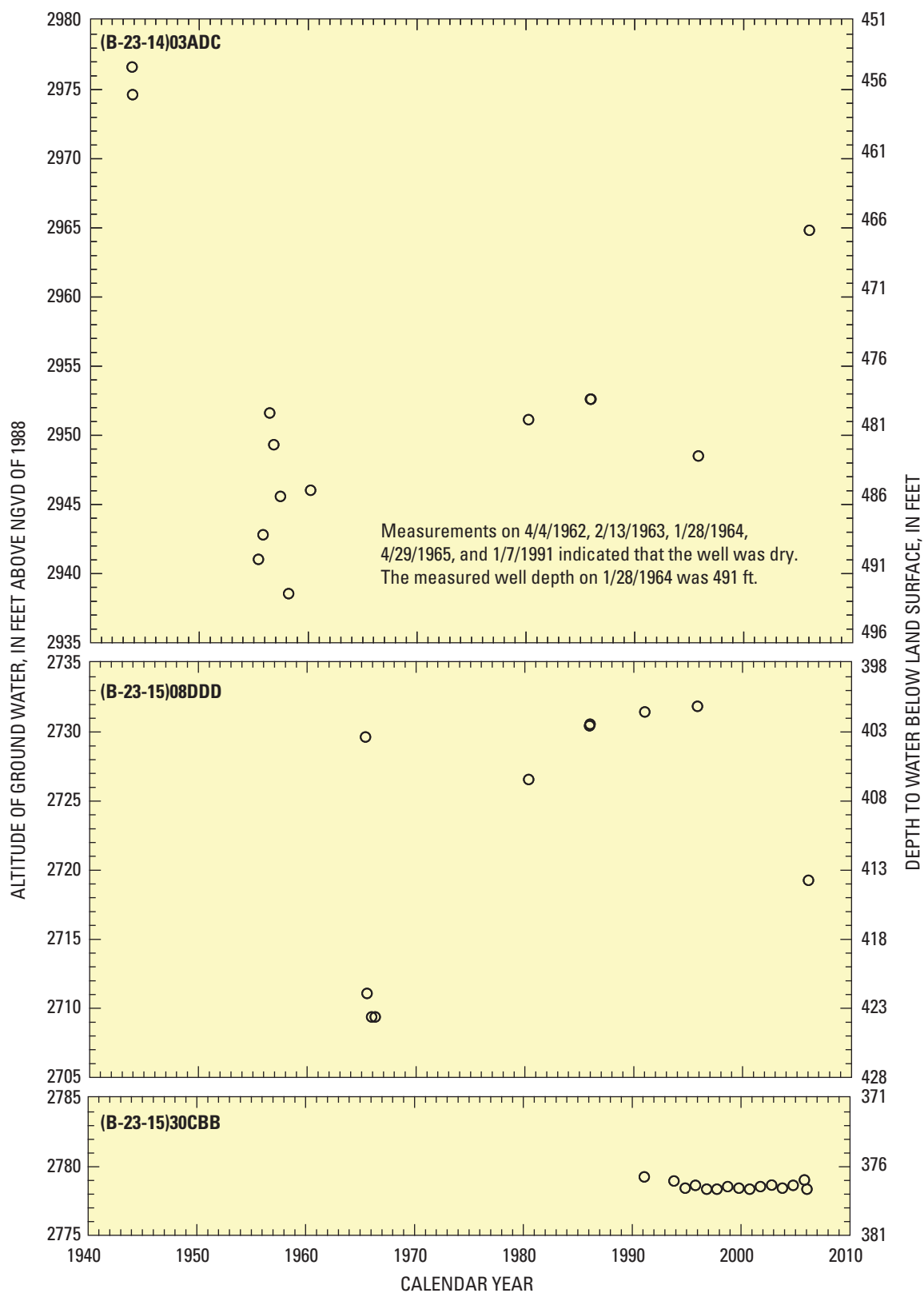


Figure 7. Hydrographs of water levels in selected wells of Hualapai Valley Basin, Mohave County, Arizona — Continued.

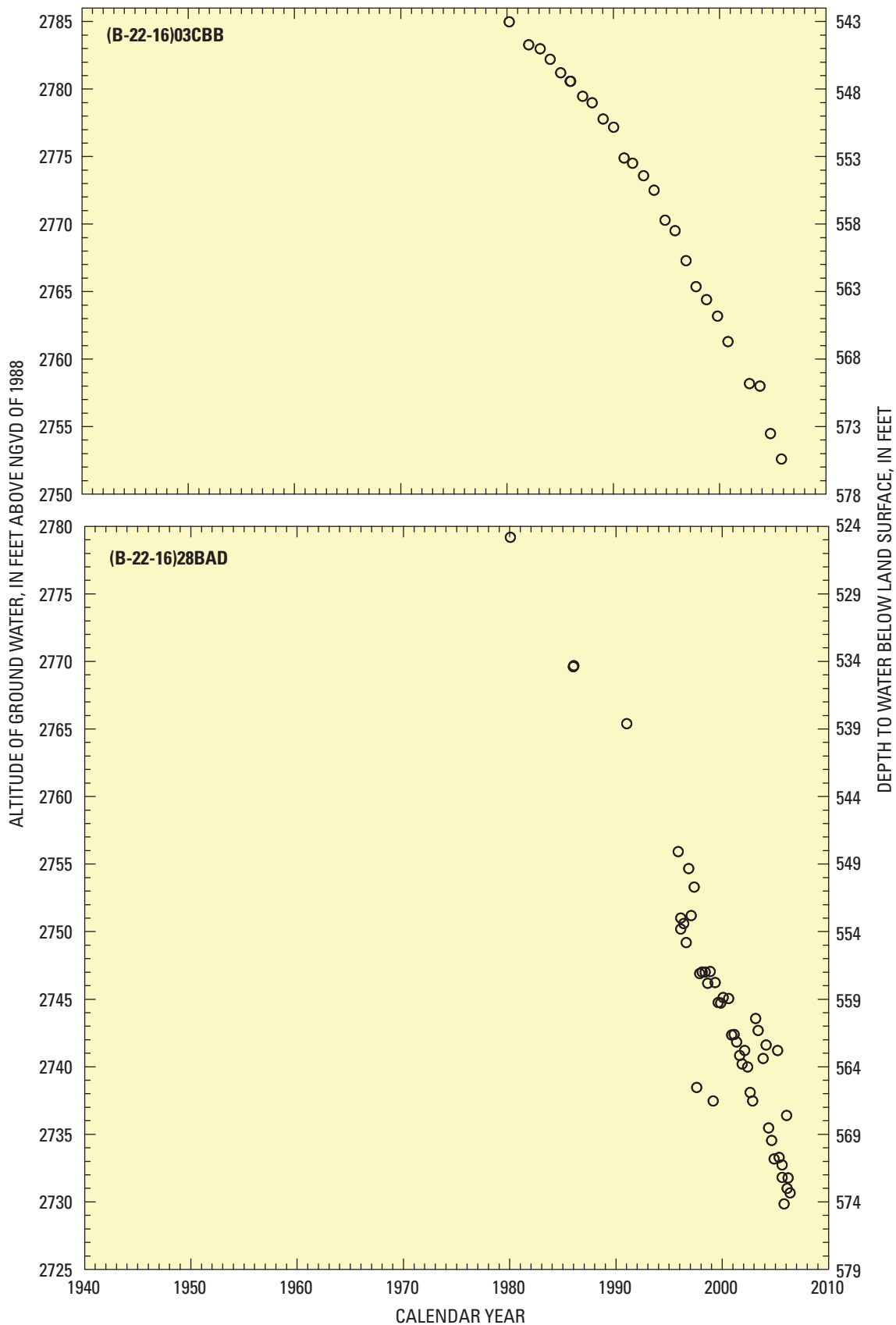


Figure 7. Hydrographs of water levels in selected wells of Hualapai Valley Basin, Mohave County, Arizona — Continued.

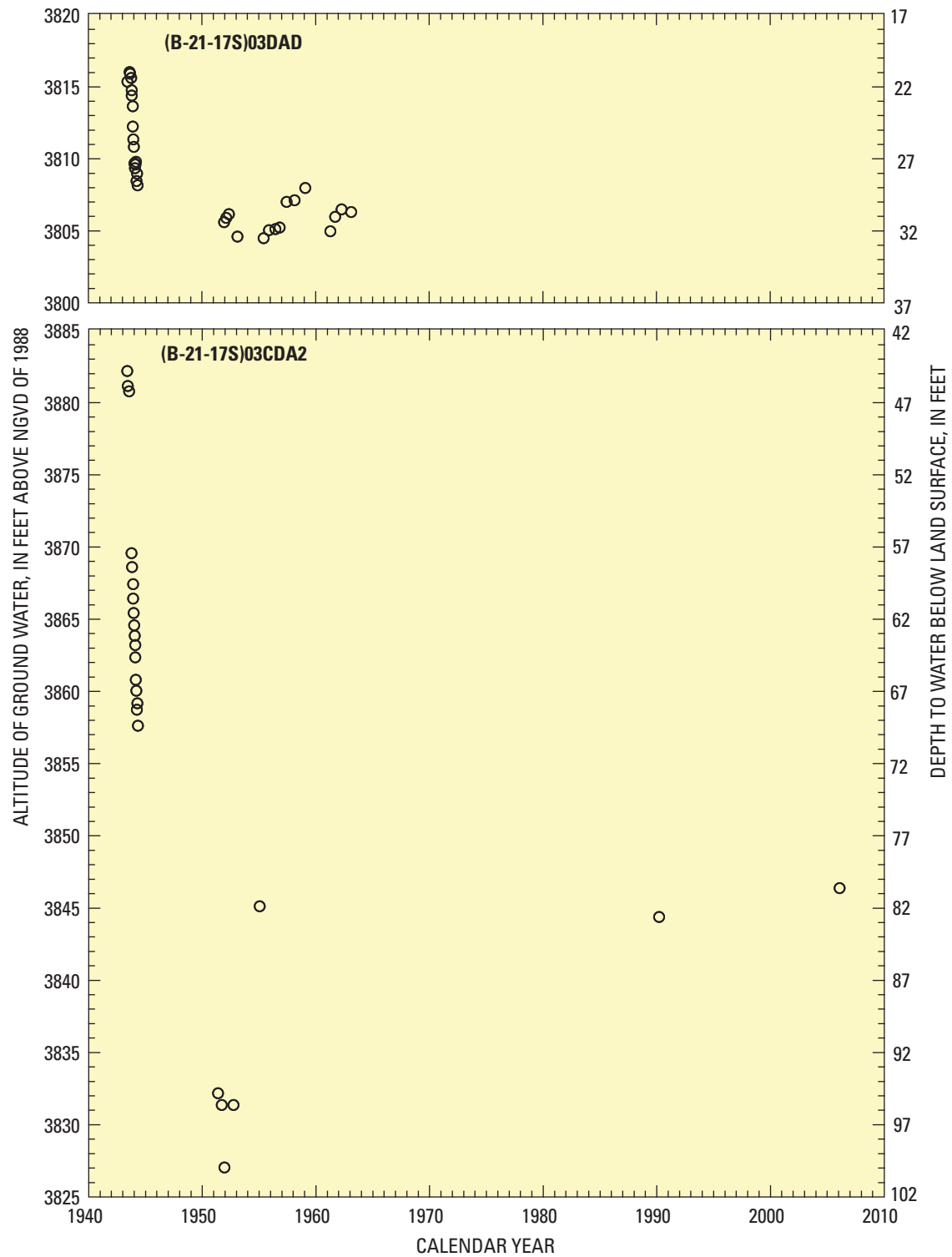


Figure 8. Hydrographs of water levels in selected wells of Sacramento Valley Basin, Mohave County, Arizona.

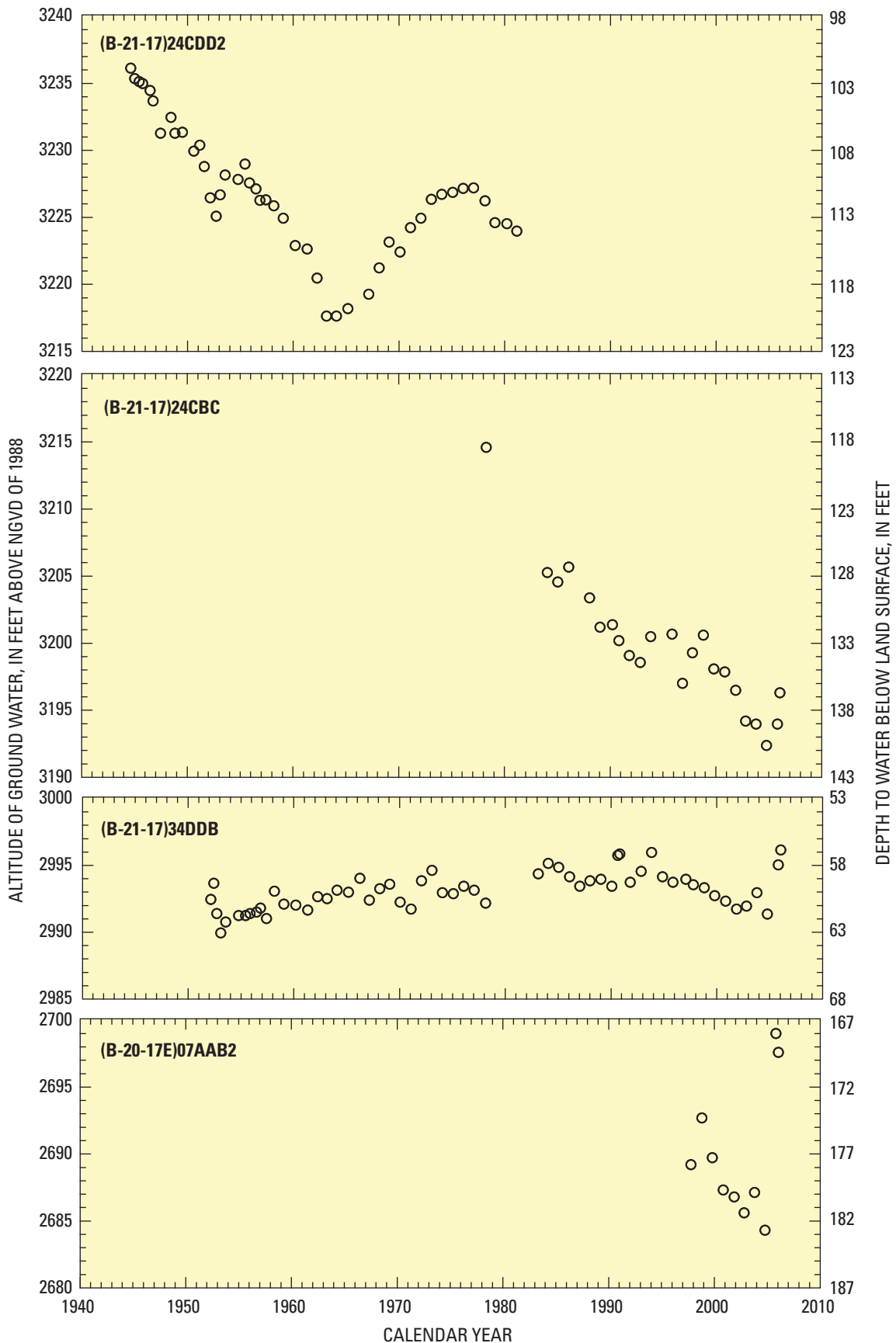


Figure 8. Hydrographs of water levels in selected wells of Sacramento Valley Basin, Mohave County, Arizona—Continued.

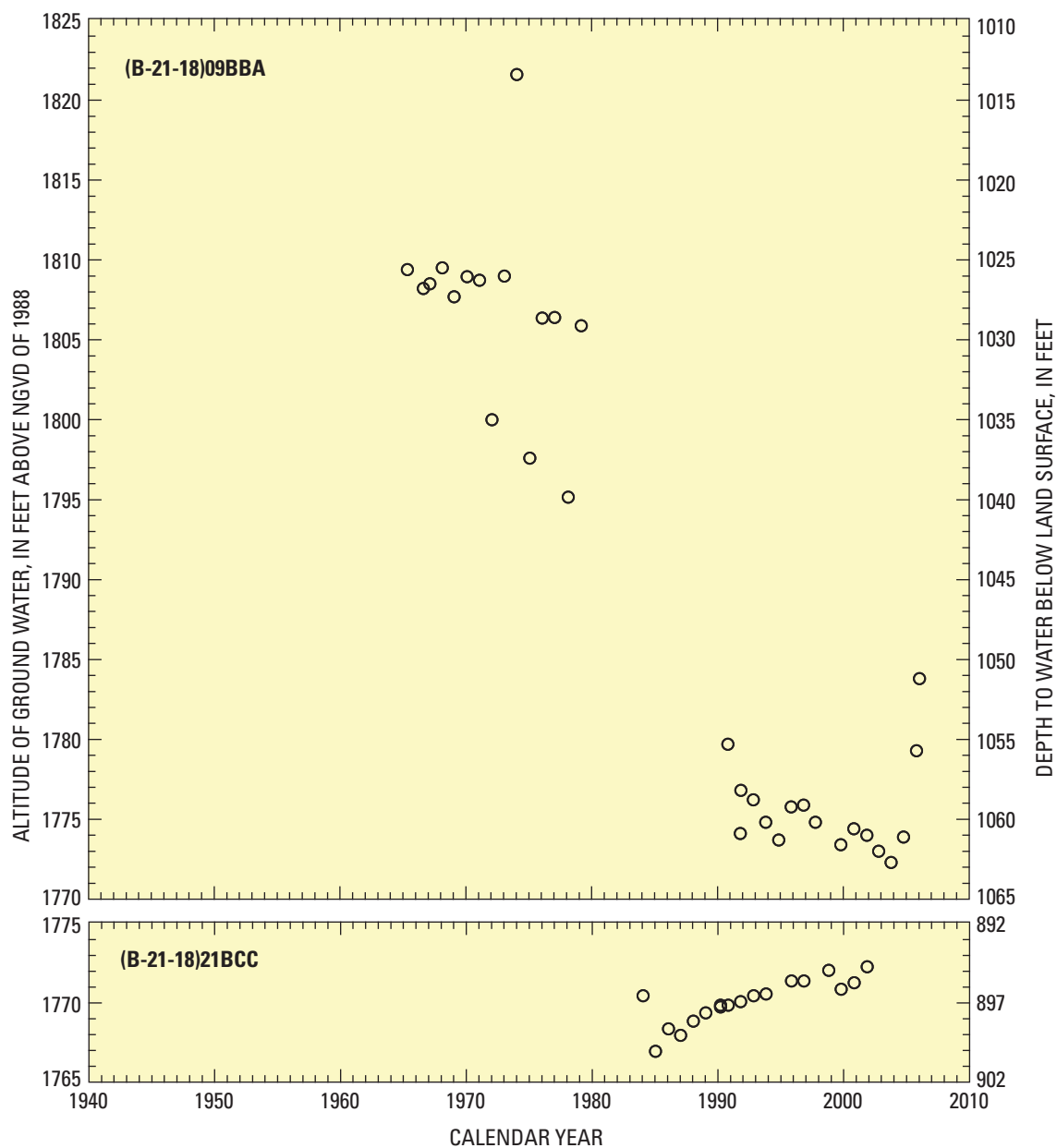


Figure 8. Hydrographs of water levels in selected wells of Sacramento Valley Basin, Mohave County, Arizona — Continued.

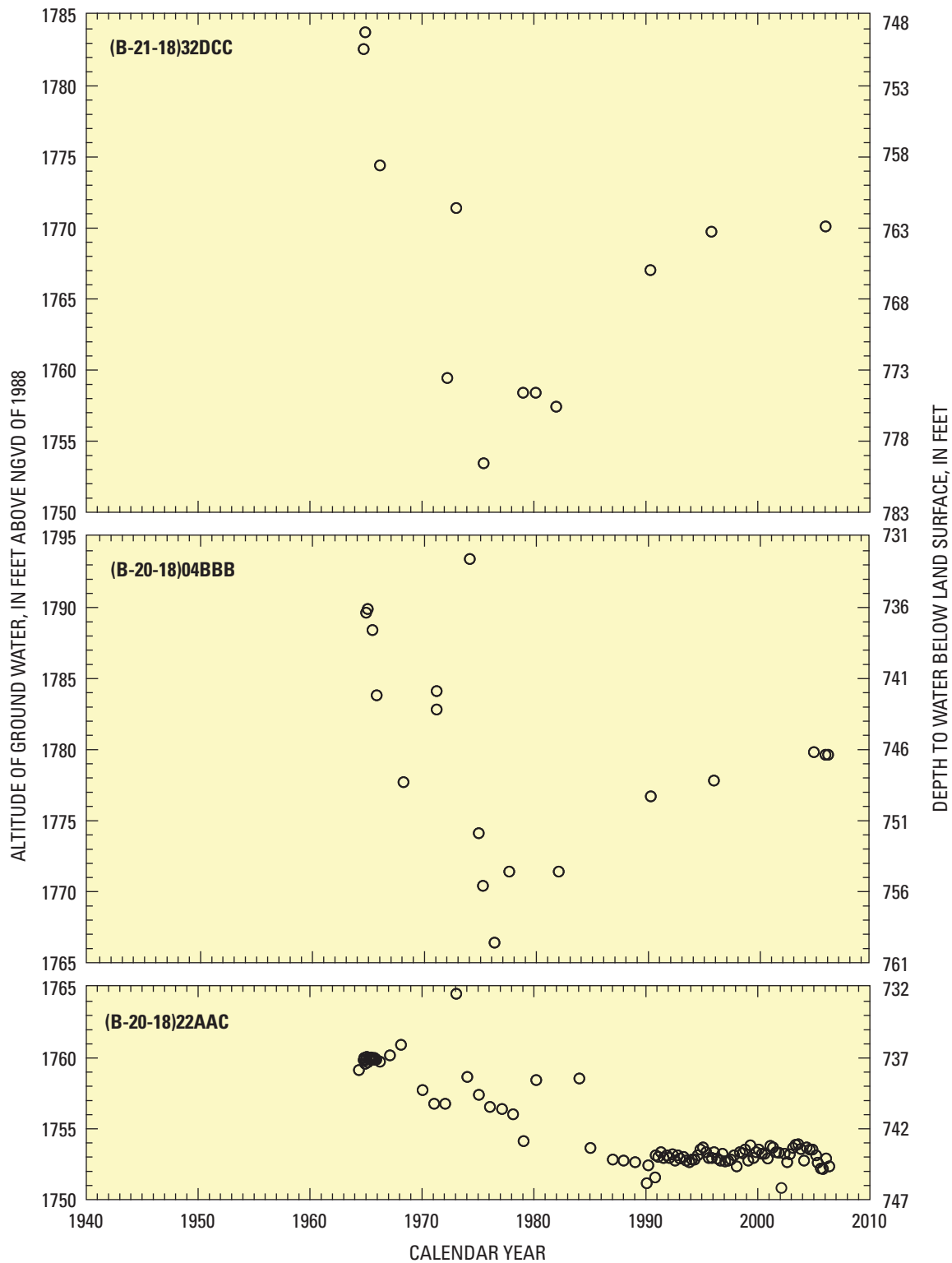


Figure 8. Hydrographs of water levels in selected wells of Sacramento Valley Basin, Mohave County, Arizona—Continued.

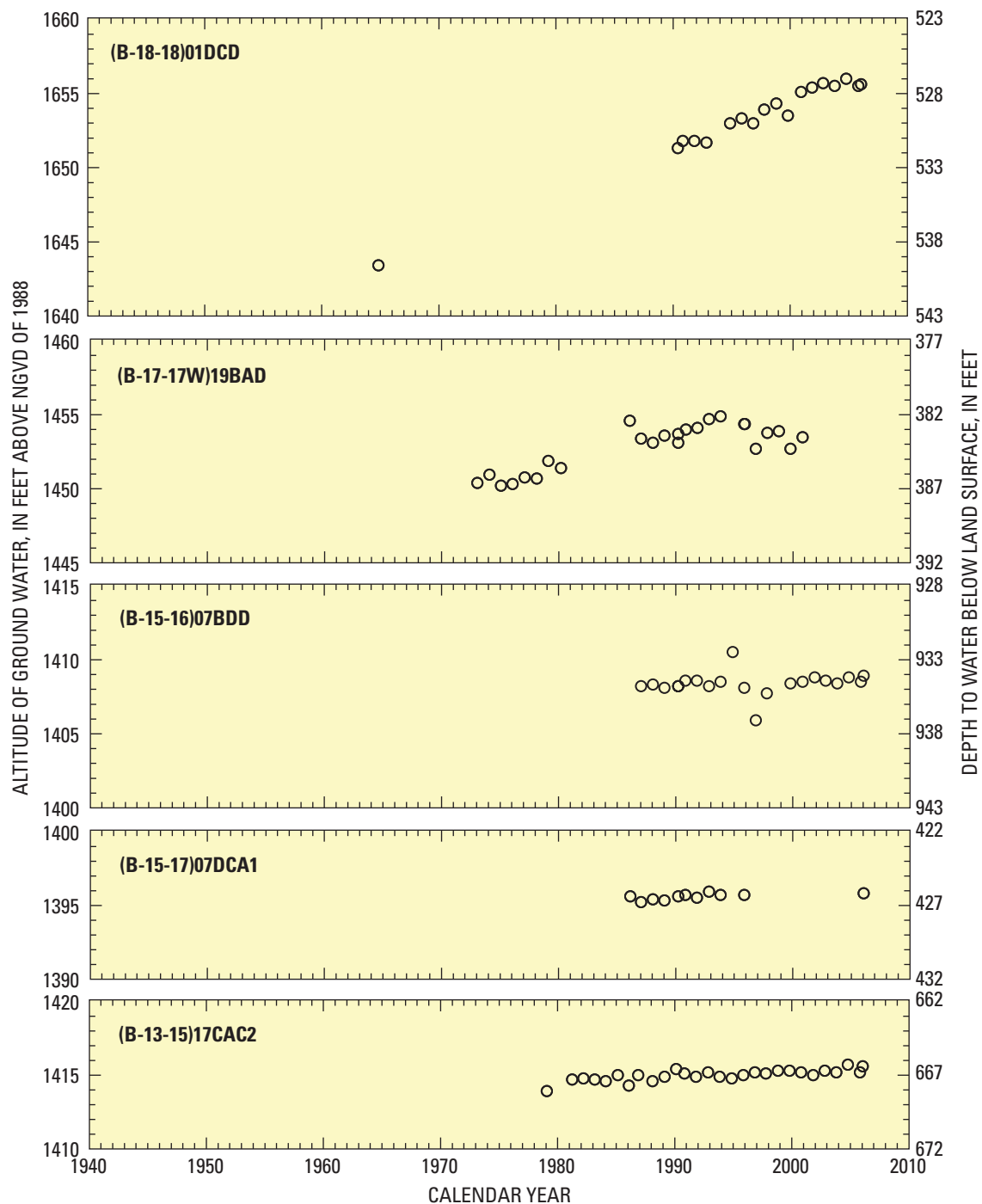


Figure 8. Hydrographs of water levels in selected wells of Sacramento Valley Basin, Mohave County, Arizona — Continued.

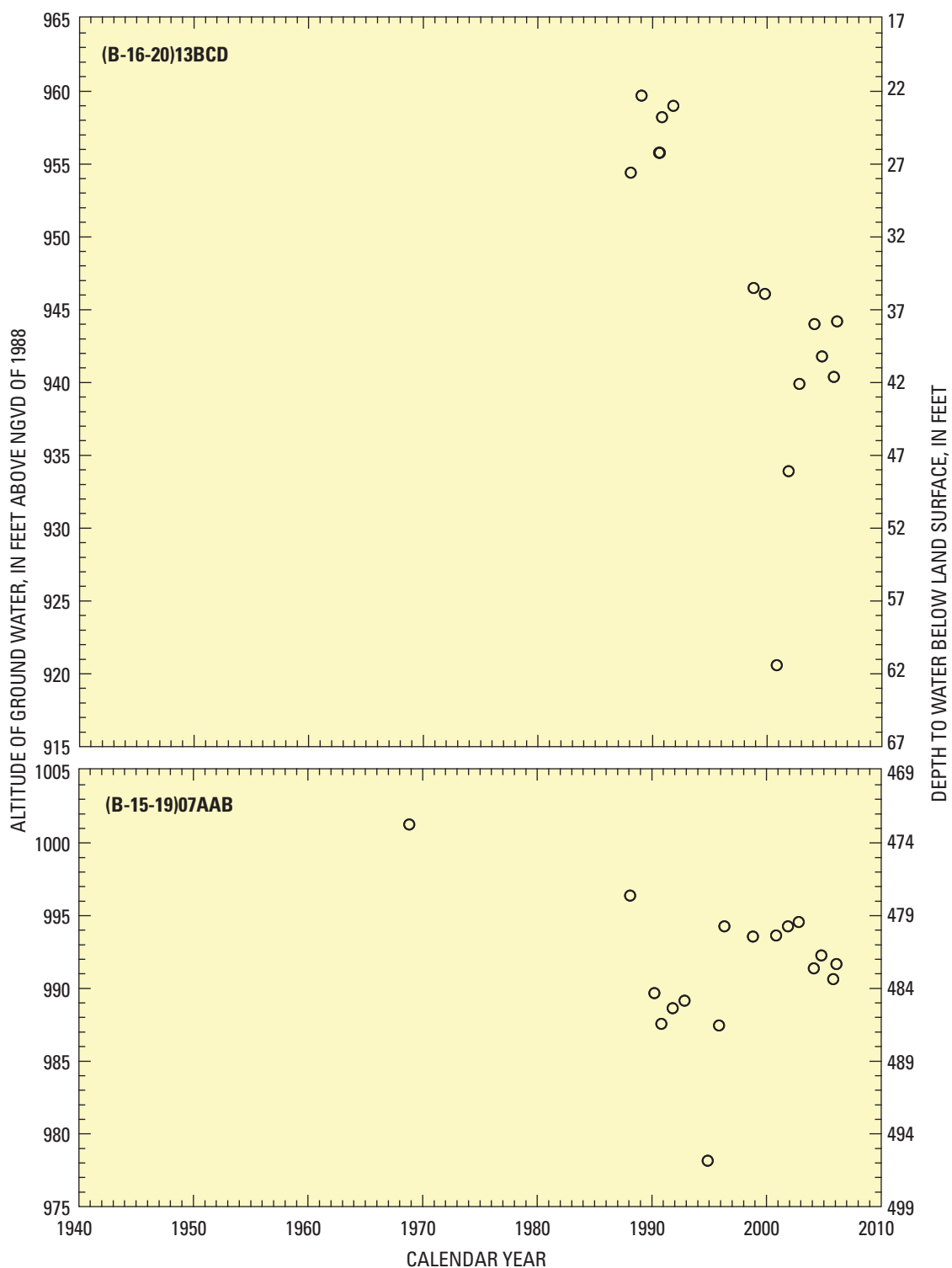


Figure 8. Hydrographs of water levels in selected wells of Sacramento Valley Basin, Mohave County, Arizona — Continued.

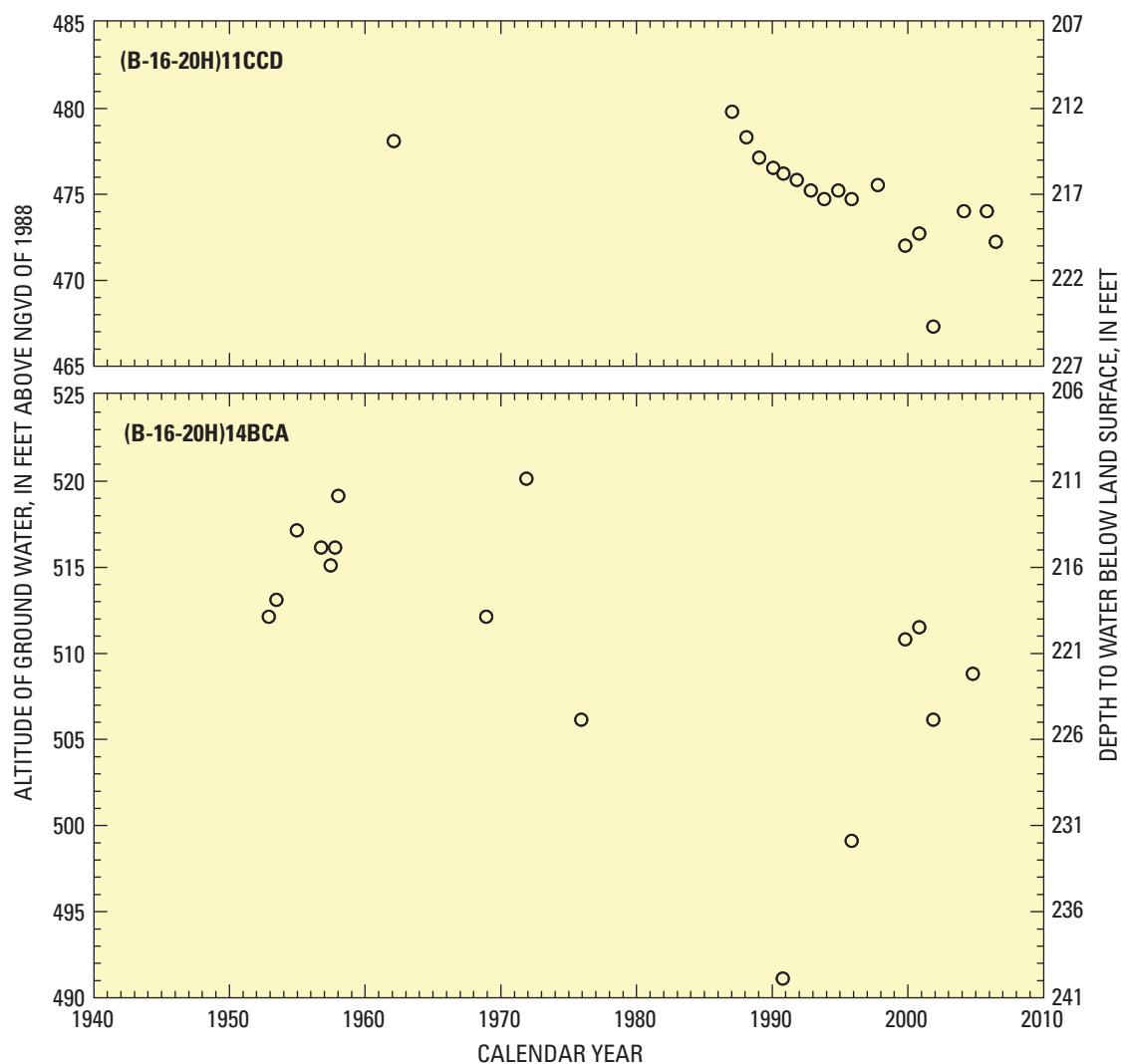


Figure 8. Hydrographs of water levels in selected wells of Sacramento Valley Basin, Mohave County, Arizona — Continued.

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Appendix 1. Site information for selected wells, Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona

[ADWR, Arizona Department of Water Resources; USGS, U.S. Geological Survey. --, well depth not available. Latitude, longitude, altitude at land surface, and (or) well-depth data for some wells in this table, where USGS is the source agency, were updated with information provided by ADWR.]

Name	Identifier	Latitude, decimal degrees	Longitude, decimal degrees	Altitude, feet	Well depth, feet	Source agency
Detrital Valley Basin						
(B-24-18) 30CCD	352600114145701	35.43341	114.24971	3,808	--	ADWR
(B-24-18) 32CAC	352516114133701	35.42305	114.22968	3,956	--	USGS
(B-24-18) 33BBA	352556114125001	35.43199	114.21432	4,258	62	ADWR
(B-24-19) 07AAD	352917114203301	35.48816	114.34341	3,050	925	ADWR
(B-24-19) 07DDA	352845114203301	35.47913	114.34341	3,058	925	ADWR
(B-24-19) 19ADC	352721114204601	35.45574	114.34679	3,105	--	ADWR
(B-24-20) 01CDB	352932114221601	35.49224	114.37193	2,965	1,508	ADWR
(B-24-20) 23BDC	352718114231601	35.45494	114.38857	3,078	970	ADWR
(B-24-20) 33ABD	352545114250001	35.42905	114.41749	3,213	1,280	ADWR
(B-24-21) 11CCB2	352838114295701	35.47794	114.50080	3,833	--	ADWR
(B-25-19) 06CCC	353432114214101	35.57555	114.36227	2,861	1,100	ADWR
(B-25-19) 17BDA	353325114201101	35.55682	114.33710	2,984	860	ADWR
(B-25-19) 17CDD	353251114201001	35.54666	114.33635	3,004	840	USGS
(B-25-19) 19DCA	353207114210301	35.53535	114.35171	2,976	908	ADWR
(B-25-19) 20ACB	353232114200501	35.54199	114.33574	3,028	900	ADWR
(B-25-19) 25AAB	353152114153401	35.53116	114.26029	3,481	580	ADWR
(B-25-19) 30AAA	355155114204301	35.53110	114.34552	3,004	955	USGS
(B-25-19) 30BBA	353151114212901	35.53083	114.35885	2,953	825	USGS
(B-25-20) 09DCD	353339114251401	35.56085	114.42146	2,924	938	ADWR
(B-25-20) 11CDC	353339114233501	35.56088	114.39363	2,812	800	ADWR
(B-25-20) 14DDC	353250114225901	35.54727	114.38385	2,833	1,200	ADWR
(B-25-20) 15AAA	353337114235201	35.56027	114.39857	2,822	700	USGS
(B-25-21) 35DAB	353035114292201	35.50966	114.49002	3,695	--	ADWR
(B-26-19) 36CCB2	353528114162501	35.59202	114.27338	3,368	500	ADWR
(B-26-20) 06ABC	354027114273101	35.67166	114.45830	2,503	--	USGS
(B-26-20) 08CAA	353918114263601	35.65477	114.44369	2,557	560	ADWR
(B-26-20) 27BDC	353658114244401	35.61388	114.41130	2,677	640	ADWR
(B-26-21) 15ADB	353759114302401	35.64277	114.50858	3,042	--	ADWR
(B-26-21) 22BAB	353800114305101	35.63085	114.51361	3,187	--	ADWR
(B-26-21) 26CCB	353627114001101	35.60749	114.50386	3,683	--	USGS
(B-27-19) 02ABA	354543114164201	35.76266	114.28121	4,343	--	ADWR
(B-27-19) 05CCC	354503114283801	35.75088	114.34477	3,564	1,045	ADWR
(B-27-19) 07DAA	354425114204201	35.74032	114.34577	3,478	735	ADWR
(B-27-19) 09BCC	354437114193301	35.74360	114.32652	3,703	887	ADWR
(B-27-19) 12CCB	354414114162501	35.73752	114.27543	4,353	--	ADWR
(B-27-19) 17AAA	354402114194001	35.73385	114.32802	3,643	750	ADWR
(B-27-20) 09AAA	354458114245601	35.74929	114.41622	2,752	835	ADWR
(B-27-20) 09ADD	354432114250101	35.74221	114.41774	2,692	730	ADWR
(B-27-20) 09CBD	354424114254301	35.74002	114.42933	2,606	1,365	ADWR
(B-27-20) 16DAA	354338114245701	35.72727	114.41653	2,627	1,420	USGS
(B-27-20) 20DDD	354224114260101	35.70664	114.43454	2,561	--	ADWR
(B-27-20) 29AAB	354221114261101	35.70574	114.43705	2,552	635	ADWR

(B-27-20) 31ADC	354109114271801	35.68591	114.45569	2,485	640	ADWR
(B-27-21) 13CCA	354320114285901	35.72402	114.48258	2,392	550	ADWR
(B-27-21) 13CCC	354316114290901	35.72104	114.48669	2,417	505	ADWR
(B-27-21) 24BDA	354251114284901	35.71658	114.47995	2,407	460	USGS
(B-27-21) 24CDD	354224114284101	35.70616	114.47908	2,432	465	ADWR
(B-27-21) 25ACA1	354208114282801	35.70224	114.47510	2,437	1,200	USGS
(B-27-21) 25ACA2	354208114282601	35.70226	114.47476	2,437	1,500	USGS
(B-27-21) 25ADC1	354158114281901	35.69943	114.47275	2,440	--	USGS
(B-27-21) 25ADC2	354158114281801	35.69943	114.47247	2,440	--	USGS
(B-27-21) 25BAA	354217114284001	35.70463	114.47833	2,432	485	ADWR
(B-28-19) 21AAA	354821114183501	35.80593	114.31052	4,125	705	ADWR
(B-28-19) 31AAA	354642114204501	35.77832	114.34663	3,653	960	ADWR
(B-28-19) 31BBB2	344639114213702	35.77763	114.36097	3,463	989	ADWR
(B-28-19) 31CCC	354551114213801	35.76407	114.36133	3,420	1,000	ADWR
(B-28-19) 35BBA	354640114171301	35.77791	114.28769	4,363	800	ADWR
(B-28-20) 13ADD	354857114214301	35.81574	114.36277	3,483	1,107	ADWR
(B-28-21) 20ADB	354838114323201	35.80340	114.54384	2,349	385	USGS
(B-28-21) 23CCC1	354736114301301	35.79368	114.50386	2,181	503	USGS
(B-28-21) 26BBB	354733114301201	35.79249	114.50414	2,182	--	ADWR
(B-29-21) 28DDD	355155114315101	35.86572	114.53171	2,002	400	USGS
(B-29-21) 35CCB	355110114304101	35.85323	114.51244	1,978	100	USGS
(B-30-20) 06CAD	360105114281101	36.01477	114.47095	1,341	--	USGS
(B-31-19) 32ADA	360205114201201	36.03471	114.33747	1,232	200	USGS
(B-31-19) 32ADC2	360157114201501	36.03260	114.33841	1,314	250	ADWR
(B-31-19) 33ACC2	360158114193200	36.03257	114.32612	1,278	250	USGS

Hualapai Valley Basin

(B-21-15) 05BBB	351420113541601	35.23894	113.90522	3,633	1,320	ADWR
(B-21-15) 17BAD	351225113535201	35.20708	113.89859	3,988	615	ADWR
(B-21-15) 17BCC	351216113541001	35.20455	113.90359	4,002	400	ADWR
(B-21-15) 17BDB	351220113535801	35.20561	113.90064	4,003	740	ADWR
(B-21-17) 01CCB	351358114032201	35.23277	114.05690	3,563	--	USGS
(B-22-15) 19CBB	351631113551801	35.27530	113.92264	3,388	1,508	ADWR
(B-22-15) 33DBD	351436113520201	35.24333	113.87522	3,690	1,220	USGS
(B-22-16) 01DCC	351844113555101	35.31222	113.93161	3,237	595	USGS
(B-22-16) 02ABD	351928113564901	35.32447	113.94781	3,206	650	ADWR
(B-22-16) 03CBB	351907113582801	35.31861	113.97523	3,328	970	USGS
(B-22-16) 11DBC	351806113565001	35.30327	113.94950	3,235	685	ADWR
(B-22-16) 15CCC	351702113582701	35.28388	113.97495	3,289	1,000	USGS
(B-22-16) 17DDD1	351705113594001	35.28386	113.99528	3,352	1,200	ADWR
(B-22-16) 20CBC1	351623114003601	35.27313	114.01095	3,374	1,200	ADWR
(B-22-16) 20DAA	351630113593701	35.27513	113.99439	3,326	1,200	ADWR
(B-22-16) 26BAC	351555113571501	35.26527	113.95495	3,338	1,247	USGS
(B-22-16) 27DDD	351514113572801	35.25389	113.95856	3,376	970	USGS
(B-22-16) 28BAD	351554113590701	35.26500	113.98606	3,304	1,000	USGS
(B-22-16) 29AAA	351604113593701	35.26775	113.99439	3,317	1,040	ADWR
(B-22-16) 32DDD1	351425113593601	35.24025	113.99414	3,383	1,200	ADWR
(B-22-16) 32DDD2	351425113593701	35.24022	113.99450	3,383	1,130	ADWR
(B-22-16) 33BCD	351452113592301	35.24777	113.99050	3,357	1,050	USGS
(B-22-16) 33CDC	351425113590501	35.24027	113.98884	3,393	1,008	USGS
(B-22-16) 34CBC	351439113583001	35.24305	113.98439	3,404	1,000	USGS
(B-22-16) 34DCC	351424113575801	35.23989	113.96687	3,435	--	ADWR
(B-22-16E) 19BAA	351700114014001	35.28333	114.02078	3,447	1,000	USGS
(B-22-17) 12DDA	351818114022201	35.30500	114.04023	3,584	990	USGS

(B-23-14) 03ADC	352424113443301	35.40666	113.74855	3,431	487	USGS
(B-23-15) 04DDD	352400113521401	35.39999	113.87134	3,178	805	USGS
(B-23-15) 08CDA	352320113533501	35.38749	113.89884	3,088	600	USGS
(B-23-15) 08DDD	352304113532001	35.38444	113.88967	3,133	929	USGS
(B-23-15) 25BBC	352108113500201	35.35177	113.83450	3,793	1,015	ADWR
(B-23-15) 30CBB	352052113551801	35.34777	113.92245	3,156	1,000	USGS
(B-23-16) 03BDB	352439113581901	35.41085	113.97284	3,199	775	ADWR
(B-23-16) 09BCB	352340113593301	35.39444	113.99328	3,361	710	USGS
(B-23-16) 15BDB	352253113581201	35.38138	113.97078	3,298	840	USGS
(B-24-14) 04CCA	352917113464101	35.48805	113.77883	3,262	577	USGS
(B-24-14) 09CBB	352843113465001	35.47807	113.78097	3,284	950	ADWR
(B-24-14) 28CAD	352555113462001	35.43305	113.77300	3,356	705	USGS
(B-24-14) 29ABA	352632113470801	35.44221	113.78644	3,315	963	ADWR
(B-24-14) 33ADA	352518113454001	35.42416	113.76411	3,378	623	USGS
(B-24-15) 01BAC	352951113493901	35.49746	113.82828	3,135	900	ADWR
(B-24-15) 11ABC	352900113503001	35.48338	113.84259	3,133	771	ADWR
(B-24-15) 13DCC	352731113492901	35.45841	113.82545	3,250	900	ADWR
(B-24-15) 13DDC	352727113491201	35.45746	113.82072	3,258	980	ADWR
(B-24-15) 27DDD	352548113511401	35.42985	113.85478	3,162	790	ADWR
(B-24-15) 28CAC	352557113525501	35.43244	113.88286	3,026	728	ADWR
(B-24-15) 28DDD	352542113521101	35.42846	113.87045	3,078	713	ADWR
(B-24-15) 32ABD	352528113533201	35.42452	113.89273	3,022	850	ADWR
(B-24-15) 33BBB	352540113531301	35.42777	113.88773	3,023	1,100	USGS
(B-24-15) 35CBC	352503113510501	35.41760	113.85225	3,211	800	ADWR
(B-24-16) 01DDD1	352910111553001	35.48638	113.92328	2,964	700	USGS
(B-24-16) 10AAA2	352910113573101	35.48630	113.95956	2,920	1,111	ADWR
(B-24-16) 10CAA	352840113580701	35.47721	113.96984	2,921	1,111	ADWR
(B-24-16) 11DDD	352818113563401	35.47166	113.94134	2,941	798	USGS
(B-24-16) 26ABA	352624113564601	35.43352	113.94703	3,029	705	ADWR
(B-24-16) 34ABB	352534113575201	35.42621	113.96512	3,106	--	ADWR
(B-24-16) 35AAA	352538113562501	35.42733	113.94109	3,165	905	ADWR
(B-24-16E) 19AAC	352717114005201	35.45502	114.01479	3,148	600	ADWR
(B-25-15) 29CCC	353103113550201	35.51724	113.91812	2,945	--	ADWR
(B-25-16) 23CCC	353154113581601	35.53174	113.97181	2,870	500	ADWR
(B-25-16) 30CDA	353105114021001	35.51916	114.03551	2,947	600	USGS
(B-25-17) 13AAA	353338114023401	35.56035	114.04362	2,800	400	ADWR
(B-25-17) 17BAD	353326114072301	35.55721	114.12384	3,162	220	USGS
(B-25-17) 23BCB	353227114043601	35.54091	114.07759	2,907	636	ADWR
(B-26-14) 30CCB	353622113493301	35.60749	113.82939	4,044	100	USGS
(B-26-15) 23DAC	353725113510401	35.62360	113.85189	3,786	400	USGS
(B-26-16) 29BBB	353705114012801	35.61805	114.02523	2,780	650	USGS
(B-26-16) 29DDD	353618114002701	35.60499	114.00829	2,806	710	USGS
(B-26-17) 23CDD	353709114041001	35.61905	114.07040	2,760	750	ADWR
(B-26-17) 35AAA	353610114033501	35.60277	114.06051	2,770	800	USGS
(B-26-18) 01BDB	354018114094201	35.67166	114.16246	3,304	740	USGS
(B-26-18) 03AAA1	354036114110601	35.67666	114.18579	3,303	700	USGS
(B-26-18) 03CCC	353947114120701	35.66299	114.20271	3,423	635	ADWR
(B-26-18) 05BAD	354023114134601	35.67399	114.22927	3,568	700	ADWR
(B-26-18) 05DBB	354008114133901	35.66888	114.22829	3,543	700	USGS
(B-26-18) 09BAA	353939114124501	35.66091	114.21340	3,438	652	ADWR
(B-26-18) 09BBB	353942114131201	35.66171	114.22065	3,463	727	ADWR
(B-26-18) 09CCB2	353903114130801	35.65091	114.21965	3,525	715	ADWR
(B-26-18) 11ADC1	353924114101401	35.65655	114.17165	3,483	850	ADWR

(B-26-18) 31BDB	353552114145201	35.59777	114.24857	3,663	350	USGS
(B-26-19) 36ACA	353536114154001	35.59957	114.26077	3,505	540	ADWR
(B-27-16) 33BAA	354130113595601	35.69166	113.99968	2,795	500	USGS
(B-27-17) 05ADB	354531117070201	35.75857	114.11812	2,868	585	ADWR
(B-27-17) 19CCA2	354233114084201	35.70916	114.14579	3,084	640	USGS
(B-27-17) 23CAC	354238114042201	35.71055	114.07357	2,767	800	USGS
(B-27-19) 12ACD	354439114152901	35.74277	114.26302	4,163	45	USGS
(B-27-19) 35BDA	354114114165101	35.68721	114.28163	4,023	100	USGS
(B-28-17) 09AAA	355010114054601	35.83624	114.09701	3,563	1,480	ADWR
(B-28-17) 17CCD	354829114074001	35.80816	114.12860	2,967	772	ADWR
(B-28-17) 31AAA	354637114075901	35.77688	114.13388	2,877	1,000	ADWR
(B-28-17) 31CCC	354552114085001	35.76443	114.14801	3,006	800	USGS
(B-28-17) 31DDD	354552114075501	35.76443	114.13285	2,907	1,510	ADWR
(B-28-18) 01CDD	355017114093901	35.83804	114.16174	2,710	--	ADWR
(B-28-18) 13CDA	354836114093001	35.81002	114.15904	2,844	950	ADWR
(B-28-18) 25BAA	354734114093301	35.79263	114.16007	2,926	--	ADWR
(B-29-18) 01CDC	355532114101201	35.92543	114.17091	2,159	--	ADWR
(B-29-18) 11BDD	355459114110801	35.91632	114.18649	2,323	--	ADWR
(B-29-18) 13BBA	355428114101601	35.90771	114.17188	2,327	--	ADWR
(B-29-18) 25BCA	355231114101601	35.87538	114.17199	2,522	--	ADWR

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(B-13-15) 11CAC1	342845113481001	34.47918	113.80355	2,452	130	USGS
(B-13-15) 11CAD	342843113480801	34.47863	113.80244	2,462	54	USGS
(B-13-15) 12ACB	342906113465001	34.48502	113.78133	2,642	20	USGS
(B-13-15) 17CAC2	342753113511901	34.46474	113.85605	2,082	1,025	USGS
(B-13-15) 28CAA	342612113501101	34.43668	113.83716	2,082	400	USGS
(B-13-16) 16AAA	342825113555301	34.47363	113.93216	1,938	719	USGS
(B-13-16) 26DBC	342603113541601	34.43418	113.90522	1,812	92	USGS
(B-14-15) 02AAB2	343527113474201	34.59057	113.79550	3,071	150	USGS
(B-14-15) 14CBC	343312113482101	34.55140	113.80688	2,957	150	USGS
(B-14-17) 03DAC	343445114012401	34.57918	114.02414	1,998	--	ADWR
(B-14-17) 12BAA	343425113593701	34.57401	113.99395	2,079	807	ADWR
(B-15-14) 05ADD	344012113442101	34.67001	113.73994	4,153	232	USGS
(B-15-14) 08ADB	343927113442701	34.65751	113.74161	3,863	383	USGS
(B-15-15) 01BDC	344016113470701	34.67057	113.78605	3,709	130	USGS
(B-15-15) 15BCB1	343837113493101	34.64362	113.82605	3,103	140	USGS
(B-15-15) 15BCB2	343837113493201	34.64362	113.82633	3,103	300	USGS
(B-15-15) 15BCB3	343836113493201	34.64351	113.82611	3,098	--	ADWR
(B-15-16) 01CAA	344005113532701	34.66818	113.89167	3,108	--	ADWR
(B-15-16) 03ADA	344016113545501	34.67118	113.91594	2,875	555	ADWR
(B-15-16) 07BDD	343923113583301	34.65640	113.97661	2,343	--	USGS
(B-15-16) 12CAB	343918113532601	34.65496	113.89142	2,962	--	ADWR
(B-15-17) 07DCA1	343901114043301	34.65029	114.07661	1,822	--	USGS
(B-15-17) 08CCC	343857114040801	34.64912	114.06970	1,851	765	ADWR
(B-15-17) 16ABD	343845114023501	34.64579	114.04381	1,938	705	ADWR
(B-15-17) 20DCC	343712114034501	34.62001	114.06245	1,892	--	ADWR
(B-15-17) 26CCD	343620114005601	34.60529	114.01578	2,038	763	ADWR
(B-15-17) 27BAB	344216114014801	34.70418	114.02995	2,210	691	ADWR
(B-15-17) 31CDA	343532114045401	34.59212	114.08248	2,044	--	ADWR
(B-15-17) 32DBD	343540114033601	34.59446	114.06078	1,975	--	ADWR
(B-15-17) 36ABA	343611113592101	34.60309	113.98989	2,142	838	ADWR
(B-15-18) 08BBC2	343936114103001	34.66029	114.17715	1,754	560	ADWR
(B-15-19) 07AAB	343940114170301	34.66106	114.28526	1,474	900	USGS

(B-15-19) 07ADA	343931114165201	34.65851	114.28193	1,482	902	USGS
(B-16-15) 18ACD	344344113515801	34.72837	113.86833	3,893	--	ADWR
(B-16-15) 32CAB	344058113511601	34.68279	113.85411	3,483	--	USGS
(B-16-15) 33BBB	344126113503501	34.69057	113.84383	3,603	19	USGS
(B-16-15) 36BCB	344111113472501	34.68640	113.79105	3,883	200	USGS
(B-16-15) 36DBC2	344056113465001	34.68168	113.78077	3,813	145	USGS
(B-16-16) 11ABB	344452113541101	34.74798	113.90397	3,399	348	ADWR
(B-16-16) 13DAC	344331113525601	34.72518	113.88308	3,664	--	ADWR
(B-16-16) 13DBD	344327113525601	34.72420	113.88292	3,666	--	ADWR
(B-16-16) 14BBB	344353113543501	34.73176	113.91014	3,378	--	ADWR
(B-16-16) 14BCA1	344351113543701	34.73073	113.91089	3,360	--	ADWR
(B-16-16) 14BCA2	344351113543401	34.73126	113.90989	3,377	--	ADWR
(B-16-16) 14BCB1	344349113544001	34.72995	113.91297	3,343	--	ADWR
(B-16-16) 14BCB3	344350113543801	34.73057	113.91181	3,353	--	ADWR
(B-16-16) 14BCB4	344348113544001	34.72987	113.91292	3,343	--	ADWR
(B-16-16) 32BBA	344127113574401	34.69082	113.96297	2,631	--	ADWR
(B-16-16) 33BAA	344128113562401	34.69107	113.94081	2,815	200	ADWR
(B-16-17) 08CCA	344416114040601	34.73779	114.06912	2,052	820	ADWR
(B-16-17) 31BAC	344119114050101	34.68862	114.08356	1,803	565	ADWR
(B-16-18) 11BAD	344451114070101	34.74751	114.11773	1,782	--	ADWR
(B-16-18) 15CAA	344337114075701	34.72695	114.13328	1,640	--	USGS
(B-16-19) 01DBD	344517114115801	34.75473	114.20020	1,367	--	ADWR
(B-16-19) 10CBC	344424114144301	34.74001	114.24607	1,167	--	USGS
(B-16-19) 11ACC	344433114131001	34.74254	114.22020	1,285	255	ADWR
(B-16-19) 16DCD	344320114151001	34.72209	114.25365	1,262	250	ADWR
(B-16-20) 03BAA	344548114203401	34.76334	114.34357	1,024	500	ADWR
(B-16-20) 04ddb	344507114211801	34.75167	114.35551	927	225	USGS
(B-16-20) 13BCD	344347114180601	34.72834	114.31329	982	525	USGS
(B-16-20H) 11CCD	344408114260401	34.73473	114.43607	692	880	USGS
(B-16-20H) 14BCA	344348114260401	34.73047	114.43621	731	503	USGS
(B-16-20H) 14CAB	344328114260501	34.72529	114.43385	782	396	USGS
(B-16-21) 35CDD1	344318114282701	34.72195	114.47635	517	250	USGS
(B-16-21) 36CBC1	344330114275001	34.72776	114.46496	638	744	ADWR
(B-16-21) 36CBC2	344330114274901	34.72595	114.46429	642	720	ADWR
(B-16H16) 31DCA1	344557113581501	34.76598	113.97139	2,855	--	ADWR
(B-16H18) 27AAA	344728114072401	34.79101	114.12417	1,798	480	ADWR
(B-16H18) 29AAB	344733114094101	34.79251	114.16217	1,542	--	USGS
(B-16H20) 35CBA	344615114194601	34.77106	114.32996	1,102	--	ADWR
(B-17-16) 03CCC	345242113580001	34.87840	113.96759	3,123	90	ADWR
(B-17-16) 08DAC	345205113591701	34.86806	113.98884	2,913	120	USGS
(B-17-16) 08DBD1	345206113590901	34.86779	113.99050	2,903	130	USGS
(B-17-17E) 31ABA	344907114065101	34.81867	114.11153	1,890	550	ADWR
(B-17-17E) 31DBB	344841114070001	34.81090	114.11720	1,859	630	ADWR
(B-17-17W) 19BAD	345032114080501	34.84556	114.13634	1,837	450	USGS
(B-17-17W) 31BDA	344854114080901	34.81501	114.13662	1,722	499	USGS
(B-17-18) 12ACB1	345232114084601	34.87612	114.14662	1,852	350	ADWR
(B-17-18) 12ACC	345226114082601	34.87362	114.14634	1,832	500	USGS
(B-17-18) 12BCA	345232114091701	34.87528	114.15495	1,805	1,004	USGS
(B-17-18) 12BCD	345231114091701	34.87445	114.15467	1,806	534	USGS
(B-17-18) 12DCC	345201114082901	34.86695	114.14634	1,832	500	USGS
(B-17-18) 13AAA	345156114082201	34.86556	114.14023	1,872	545	USGS
(B-17-18) 25ADB1	344954114084501	34.83195	114.14328	1,742	712	USGS
(B-17-29) 25ADB2	344954114083401	34.83167	114.14356	1,742	--	USGS

(B-18-17) 31CBB	345353114081701	34.89806	114.13892	1,974	485	ADWR
(B-18-18) 01DCD	345801114082801	34.96889	114.14467	2,183	740	USGS
(B-18-18) 03ADA	345842114100301	34.97826	114.17570	2,124	660	ADWR
(B-18-18) 25CCC	345435114092301	34.90973	114.15717	1,938	550	ADWR
(B-18-18) 35ABC	345423114095001	34.90639	114.16467	1,892	--	ADWR
(B-18-18) 35ABD	345425114094301	34.90695	114.16273	1,902	--	ADWR
(B-18-18) 35CBC	345417114102101	34.90473	114.17329	1,862	--	ADWR
(B-19-16) 07DDC1	350214114002501	35.03784	114.00784	3,377	--	ADWR
(B-19-16) 07DDC2	350217114001001	35.03806	114.00689	3,365	50	USGS
(B-19-16) 07DDC3	350217114002201	35.03806	114.00703	3,408	--	ADWR
(B-19-16) 08ADC1	350250113591301	35.04528	113.98856	3,648	80	USGS
(B-19-16) 09DCC	350211113582301	35.03778	113.97495	3,758	86	USGS
(B-19-16) 09DCD1	350217113582501	35.03814	113.97459	3,763	--	ADWR
(B-19-16) 09DCD2	350216113582501	35.03787	113.97403	3,763	--	ADWR
(B-19-16) 15BCA	350152113575201	35.03123	113.96512	3,953	--	ADWR
(B-19-16) 23CAB	350042113563101	35.01417	113.94550	4,296	90	USGS
(B-19-16) 23CBA	350053113564701	35.01553	113.94678	4,281	--	ADWR
(B-19-17) 16ADA	350152114042701	35.03223	114.07495	2,733	90	USGS
(B-19-18) 07ABB	350315114140401	35.05414	114.23537	2,253	608	ADWR
(B-19-18) 10AAA	350314114103001	35.05386	114.17568	2,329	1,630	ADWR
(B-19-18) 15AAA	350222114103001	35.03948	114.17568	2,282	--	ADWR
(B-19-18) 16AAA	350221114113401	35.03956	114.19332	2,238	700	ADWR
(B-19-19) 12DCC	350225114151101	35.04028	114.25384	2,332	700	ADWR
(B-19-19) 17BAC	350210114193701	35.03614	114.32751	2,841	--	ADWR
(B-19-19) 17BDB	350207114192701	35.03639	114.32773	2,840	25	USGS
(B-19-19) 17BDD	350201114193301	35.03364	114.32657	2,803	--	ADWR
(B-19-19) 17CAA	350154114192401	35.03223	114.32551	2,803	30	USGS
(B-20-16) 02ADC	350847113560301	35.14639	113.93495	4,803	140	USGS
(B-20-16) 06DAC	350836114002601	35.14222	114.00662	3,783	150	USGS
(B-20-17) 08BBB	350817114062901	35.13778	114.10901	2,865	350	ADWR
(B-20-17) 08BCB	350800114062901	35.13361	114.10840	2,843	400	ADWR
(B-20-17E) 07AAB2	350818114063901	35.13808	114.11265	2,867	480	ADWR
(B-20-17W) 07BBB1	350814114082001	35.13794	114.13959	2,737	1,005	ADWR
(B-20-18) 01CCC	350831114092301	35.14200	114.15709	2,663	920	ADWR
(B-20-18) 04BBB	350920114122701	35.15556	114.20829	2,526	1,350	USGS
(B-20-18) 07BDC	350808114142701	35.13558	114.24162	2,483	830	ADWR
(B-20-18) 22AAC	350633114103701	35.10917	114.17773	2,497	800	USGS
(B-20-18) 28CCC	350501114123401	35.08375	114.21020	2,334	1,210	ADWR
(B-20-18) 34BBB	350455114112601	35.08306	114.19182	2,377	850	ADWR
(B-20-19) 03CDC	350834114173501	35.14267	114.29373	2,710	740	ADWR
(B-21-16) 20CDB	351109114002201	35.18583	114.00689	3,658	474	USGS
(B-21-16) 29BCA	351046114001801	35.17778	114.00828	3,638	490	USGS
(B-21-16) 35CBC1	350935113571301	35.15972	113.95439	4,303	154	USGS
(B-21-16) 35DAD	350921113562601	35.15581	113.94136	4,723	--	ADWR
(B-21-17) 11CDB	351302114041401	35.21722	114.07134	3,623	140	USGS
(B-21-17) 15BCC	351239114051601	35.20805	114.09217	3,643	250	USGS
(B-21-17) 15DCA2	351213114045501	35.20308	114.08217	3,508	--	ADWR
(B-21-17) 24CBC	351123114032201	35.19055	114.05717	3,333	267	USGS
(B-21-17) 24CDB	351118114030501	35.18833	114.05217	3,338	232	USGS
(B-21-17) 24CDC	351109114030501	35.18592	114.05206	3,321	223	ADWR
(B-21-17) 24CDD1	351110114025801	35.18694	114.05023	3,335	232	USGS
(B-21-17) 24CDD2	351109114030001	35.18583	114.05078	3,338	120	USGS
(B-21-17) 31CDB	350930114082601	35.15861	114.14187	2,705	640	ADWR

(B-21-17) 34DCA	350937114045001	35.16028	114.08134	3,043	100	USGS
(B-21-17) 34ddb	350937114044201	35.16028	114.07912	3,053	72	USGS
(B-21-17S) 03CDA2	351346114043901	35.23194	114.08634	3,927	175	USGS
(B-21-17S) 03DAD	351347114042501	35.23277	114.07801	3,837	750	USGS
(B-21-17W) 35BBD4	351007114041901	35.16883	114.07217	3,123	175	ADWR
(B-21-18) 05DBD	351401114132401	35.23361	114.22412	2,858	1,350	USGS
(B-21-18) 08AAA	351342114131001	35.22853	114.22073	2,837	1,292	ADWR
(B-21-18) 09BBA	351340114125401	35.22778	114.21579	2,835	1,518	USGS
(B-21-18) 20CAA	351132114133601	35.19167	114.22773	2,665	1,285	USGS
(B-21-18) 21BCC	351135114125901	35.19305	114.21718	2,667	962	USGS
(B-21-18) 25BBA	351104114094001	35.18455	114.16184	2,723	675	ADWR
(B-21-18) 30ABB	351104114143601	35.18444	114.24107	2,635	1,385	USGS
(B-21-18) 32BBB	351008114140401	35.16889	114.23523	2,580	1,355	USGS
(B-21-18) 32DCC	350927114132701	35.15750	114.22496	2,533	1,265	USGS
(B-21-19) 01DDD	351344114151501	35.22905	114.25504	2,820	1,250	ADWR
(B-21-19) 02DDD	351345114161601	35.22894	114.27201	2,805	1,251	ADWR
(B-21-19) 13DDD	351200114151301	35.20008	114.25409	2,696	1,505	ADWR
(B-21-19) 25AAA	351105114151301	35.18489	114.25396	2,636	1,226	ADWR
(B-21-19) 34CBC	350935114181901	35.15972	114.30607	2,821	380	ADWR
(B-22-17) 34BDA1	351505114044501	35.25444	114.08551	4,175	286	USGS
(B-22-17) 34BDA2	351506114044501	35.25444	114.08551	4,183	275	USGS
(B-22-17) 34DCD	351438114042801	35.24555	114.08078	4,039	317	USGS
(B-22-18S) 05AAA	351942114130901	35.32861	114.21884	3,343	2,510	USGS
(B-22-18S) 05DBC	351914114132801	35.32083	114.22579	3,284	2,437	USGS
(B-23-18) 04ADB	352451114121001	35.41424	114.20348	3,993	200	ADWR
(B-23-18) 09ABD2	352406114122501	35.40149	114.20732	3,847	--	ADWR
(B-23-18) 09BCC1	352333114124101	35.39833	114.21690	3,762	49	USGS
(B-23-18) 09BCC2	352356114125701	35.39855	114.21685	3,762	--	ADWR
(B-23-18) 33CBC1	352007114125501	35.33611	114.21662	3,393	1,357	USGS
(B-23-18) 33CBC2	352009114130601	35.33583	114.21829	3,383	2,132	USGS

Appendix 2. Water-level data for 2006 for selected wells, Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona

[ADWR, Arizona Department of Water Resources; USGS, U.S. Geological Survey]

Name	Water-level date	Depth to water, feet	Water-level altitude, feet	Source agency
Detrital Valley Basin				
(B-24-18) 30CCD	1/25/06	138.9	3,669	ADWR
(B-24-18) 32CAC	1/23/06	23.6	3,932	ADWR
(B-24-18) 33BBA	1/26/06	10.4	4,247	ADWR
(B-24-19) 07AAD	4/26/06	812.7	2,237	ADWR
(B-24-19) 07DDA	4/26/06	821.6	2,236	ADWR
(B-24-19) 19ADC	4/26/06	870.7	2,234	ADWR
(B-24-20) 01CDB	2/1/06	730.8	2,234	ADWR
(B-24-20) 23BDC	3/23/06	845.0	2,233	ADWR
(B-24-20) 33ABD	3/23/06	983.8	2,229	ADWR
(B-24-21) 11CCB2	1/24/06	7.4	3,825	ADWR
(B-25-19) 06CCC	3/22/06	635.2	2,226	ADWR
(B-25-19) 17BDA	3/22/06	749.6	2,234	ADWR
(B-25-19) 17CDD	1/31/06	773.4	2,230	ADWR
(B-25-19) 19DCA	3/22/06	737.9	2,238	ADWR
(B-25-19) 20ACB	1/30/06	794.5	2,233	ADWR
(B-25-19) 25AAB	3/22/06	476.8	3,004	ADWR
(B-25-19) 30AAA	3/22/06	769.7	2,234	ADWR
(B-25-19) 30BBA	1/26/06	710.4	2,242	ADWR
(B-25-20) 09DCD	1/25/06	704.1	2,220	ADWR
(B-25-20) 11CDC	1/25/06	563.8	2,249	ADWR
(B-25-20) 14DDC	4/26/06	608.1	2,224	ADWR
(B-25-20) 15AAA	1/25/06	594.2	2,228	ADWR
(B-25-21) 35DAB	1/25/06	64.6	3,630	ADWR
(B-26-19) 36CCB2	1/30/06	377.6	2,990	ADWR
(B-26-20) 06ABC	1/25/06	460.7	2,043	ADWR
(B-26-20) 08CAA	1/25/06	476.2	2,081	ADWR
(B-26-20) 27BDC	1/30/06	456.8	2,221	ADWR
(B-26-21) 15ADB	1/25/06	417.4	2,625	ADWR
(B-26-21) 22BAB	1/30/06	13.6	3,174	ADWR
(B-26-21) 26CCB	1/31/06	19.5	3,663	ADWR
(B-27-19) 02ABA	1/31/06	12.2	4,330	ADWR
(B-27-19) 05CCC	11/1/06	560.4	3,003	ADWR
(B-27-19) 07DAA	3/2/06	471.3	3,006	ADWR
(B-27-19) 09BCC	11/1/06	686.4	3,016	ADWR
(B-27-19) 12CCB	2/2/06	35.1	4,318	ADWR
(B-27-19) 17AAA	2/1/06	622.4	3,020	ADWR
(B-27-20) 09AAA	2/1/06	564.1	2,188	ADWR
(B-27-20) 09ADD	2/1/06	501.3	2,191	ADWR
(B-27-20) 09CBD	11/14/06	471.3	2,131	ADWR
(B-27-20) 16DAA	2/1/06	432.6	2,195	USGS
(B-27-20) 20DDD	11/1/06	370.1	2,191	ADWR
(B-27-20) 29AAB	11/15/06	540.8	2,012	ADWR

(B-27-20) 31ADC	11/16/06	472.4	2,013	ADWR
(B-27-21) 13CCA	1/24/06	381.5	2,011	ADWR
(B-27-21) 13CCC	3/2/06	402.5	2,015	ADWR
(B-27-21) 24BDA	1/24/06	389.4	2,018	USGS
(B-27-21) 24CDD	1/25/06	415.9	2,016	ADWR
(B-27-21) 25ACA1	1/11/06	297.6	2,140	USGS
(B-27-21) 25ACA2	1/24/06	416.0	2,021	USGS
(B-27-21) 25ADC1	2/1/06	366.6	2,074	USGS
(B-27-21) 25ADC2	2/1/06	415.8	2,025	USGS
(B-27-21) 25BAA	1/24/06	419.8	2,012	ADWR
(B-28-19) 21AAA	11/1/06	224.8	3,900	ADWR
(B-28-19) 31AAA	9/1/06	629.5	3,023	ADWR
(B-28-19) 31BBB2	11/1/06	461.2	3,001	ADWR
(B-28-19) 31CCC	11/1/06	411.3	3,008	ADWR
(B-28-19) 35BBA	9/1/06	160.2	4,202	ADWR
(B-28-20) 13ADD	11/1/06	977.1	2,505	ADWR
(B-28-21) 20ADB	1/26/06	304.4	2,045	USGS
(B-28-21) 23CCC1	1/12/06	189.7	1,991	USGS
(B-28-21) 26BBB	1/25/06	188.4	1,994	ADWR
(B-29-21) 28DDD	1/26/06	71.7	1,931	USGS
(B-29-21) 35CCB	1/12/06	32.4	1,946	USGS
(B-30-20) 06CAD	1/25/06	56.2	1,285	USGS
(B-31-19) 32ADA	1/23/06	111.3	1,121	ADWR
(B-31-19) 32ADC2	1/23/06	118.3	1,196	ADWR
(B-31-19) 33ACC2	2/23/06	113.8	1,164	USGS

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(B-21-15) 05BBB	1/10/06	872.8	2,760	ADWR
(B-21-15) 17BAD	1/16/06	489.7	3,498	ADWR
(B-21-15) 17BCC	1/16/06	280.5	3,721	ADWR
(B-21-15) 17BDB	1/16/06	470.1	3,533	ADWR
(B-21-17) 01CCB	1/20/06	105.8	3,457	ADWR
(B-22-15) 19CBB	3/21/06	624.9	2,763	ADWR
(B-22-15) 33DBD	1/10/06	924.8	2,765	ADWR
(B-22-16) 01DCC	1/11/06	461.9	2,775	ADWR
(B-22-16) 02ABD	1/17/06	397.3	2,808	ADWR
(B-22-16) 03CBB	10/24/05	575.0	2,753	ADWR
(B-22-16) 11DBC	1/18/06	475.1	2,759	ADWR
(B-22-16) 15CCC	1/10/06	549.1	2,740	ADWR
(B-22-16) 17DDD1	1/12/06	612.2	2,739	ADWR
(B-22-16) 20CBC1	1/12/06	645.4	2,728	ADWR
(B-22-16) 20DAA	1/12/06	590.6	2,735	ADWR
(B-22-16) 26BAC	1/20/06	586.3	2,751	ADWR
(B-22-16) 27DDD	1/12/06	628.7	2,748	ADWR
(B-22-16) 28BAD	1/16/06	567.2	2,736	ADWR
(B-22-16) 29AAA	1/9/06	587.4	2,729	ADWR
(B-22-16) 32DDD1	1/10/06	645.4	2,737	ADWR
(B-22-16) 32DDD2	1/10/06	645.5	2,737	ADWR
(B-22-16) 33BCD	1/16/06	636.2	2,721	ADWR
(B-22-16) 33CDC	1/16/06	657.7	2,735	ADWR
(B-22-16) 34CBC	1/11/06	676.7	2,728	ADWR
(B-22-16) 34DCC	10/30/06	695.9	2,739	ADWR
(B-22-16E) 19BAA	2/9/06	734.4	2,712	ADWR
(B-22-17) 12DDA	1/19/06	579.8	3,004	ADWR

(B-23-14) 03ADC	1/11/06	465.8	2,965	ADWR
(B-23-15) 04DDD	1/17/06	462.5	2,715	ADWR
(B-23-15) 08CDA	1/17/06	371.4	2,716	ADWR
(B-23-15) 08DDD	1/17/06	413.3	2,719	ADWR
(B-23-15) 25BBC	1/20/06	959.3	2,833	ADWR
(B-23-15) 30CBB	1/10/06	377.2	2,778	ADWR
(B-23-16) 03BDB	4/26/06	650.9	2,548	ADWR
(B-23-16) 09BCB	2/9/06	504.7	2,856	ADWR
(B-23-16) 15BDB	1/10/06	543.3	2,754	ADWR
(B-24-14) 04CCA	2/10/06	456.8	2,805	ADWR
(B-24-14) 09CBB	1/11/06	525.1	2,759	ADWR
(B-24-14) 28CAD	1/11/06	548.1	2,808	ADWR
(B-24-14) 29ABA	1/11/06	676.5	2,638	ADWR
(B-24-14) 33ADA	1/11/06	552.0	2,826	ADWR
(B-24-15) 01BAC	1/11/06	621.3	2,513	ADWR
(B-24-15) 11ABC	1/18/06	600.1	2,532	ADWR
(B-24-15) 13DCC	1/20/06	724.3	2,525	ADWR
(B-24-15) 13DDC	1/11/06	726.9	2,531	ADWR
(B-24-15) 27DDD	1/17/06	644.2	2,517	ADWR
(B-24-15) 28CAC	1/17/06	513.2	2,512	ADWR
(B-24-15) 28DDD	1/17/06	564.1	2,513	ADWR
(B-24-15) 32ABD	1/17/06	507.7	2,514	ADWR
(B-24-15) 33BBB	1/17/06	506.6	2,516	ADWR
(B-24-15) 35CBC	1/17/06	691.0	2,520	ADWR
(B-24-16) 01DDD1	1/12/06	449.7	2,514	ADWR
(B-24-16) 10AAA2	1/12/06	405.9	2,514	ADWR
(B-24-16) 10CAA	1/12/06	409.3	2,511	ADWR
(B-24-16) 11DDD	1/12/06	429.5	2,511	ADWR
(B-24-16) 26ABA	1/19/06	513.7	2,515	ADWR
(B-24-16) 34ABB	1/19/06	539.8	2,566	ADWR
(B-24-16) 35AAA	1/19/06	646.4	2,518	ADWR
(B-24-16E) 19AAC	2/9/06	519.3	2,628	ADWR
(B-25-15) 29CCC	1/18/06	434.2	2,510	ADWR
(B-25-16) 23CCC	1/18/06	362.1	2,507	ADWR
(B-25-16) 30CDA	1/18/06	434.4	2,513	ADWR
(B-25-17) 13AAA	2/9/06	292.0	2,508	ADWR
(B-25-17) 17BAD	1/19/06	54.7	3,107	ADWR
(B-25-17) 23BCB	2/9/06	401.0	2,506	ADWR
(B-26-14) 30CCB	2/10/06	24.4	4,019	ADWR
(B-26-15) 23DAC	2/10/06	102.6	3,683	ADWR
(B-26-16) 29BBB	1/12/06	281.0	2,499	ADWR
(B-26-16) 29DDD	1/12/06	308.4	2,498	ADWR
(B-26-17) 23CDD	1/12/06	256.2	2,504	ADWR
(B-26-17) 35AAA	1/12/06	264.5	2,506	ADWR
(B-26-18) 01BDB	1/26/06	641.0	2,663	ADWR
(B-26-18) 03AAA1	1/26/06	557.4	2,745	ADWR
(B-26-18) 03CCC	1/26/06	544.4	2,878	ADWR
(B-26-18) 05BAD	1/26/06	612.6	2,955	ADWR
(B-26-18) 05DBB	1/26/06	566.0	2,977	ADWR
(B-26-18) 09BAA	1/31/06	520.1	2,917	ADWR
(B-26-18) 09BBB	1/31/06	523.9	2,939	ADWR
(B-26-18) 09CCB2	1/26/06	501.0	3,024	ADWR
(B-26-18) 11ADC1	1/31/06	645.6	2,837	ADWR

(B-26-18) 31BDB	1/30/06	105.6	3,557	ADWR
(B-26-19) 36ACA	1/30/06	419.1	3,086	ADWR
(B-27-16) 33BAA	1/12/06	349.6	2,445	ADWR
(B-27-17) 05ADB	2/9/06	497.3	2,371	ADWR
(B-27-17) 19CCA2	1/19/06	502.0	2,582	ADWR
(B-27-17) 23CAC	1/18/06	365.6	2,402	ADWR
(B-27-19) 12ACD	5/25/06	12.0	4,151	ADWR
(B-27-19) 35BDA	2/2/06	26.3	3,996	ADWR
(B-28-17) 09AAA	2/1/06	595.2	2,967	ADWR
(B-28-17) 17CCD	1/31/06	632.2	2,335	ADWR
(B-28-17) 31AAA	1/18/06	536.2	2,341	ADWR
(B-28-17) 31CCC	10/25/05	652.5	2,354	ADWR
(B-28-17) 31DDD	1/18/06	562.4	2,345	ADWR
(B-28-18) 01CDD	8/31/06	565.2	2,145	ADWR
(B-28-18) 13CDA	1/19/06	541.9	2,303	ADWR
(B-28-18) 25BAA	8/31/06	611.2	2,315	ADWR
(B-29-18) 01CDC	3/21/06	249.9	1,909	ADWR
(B-29-18) 11BDD	8/31/06	410.4	1,913	ADWR
(B-29-18) 13BBA	10/31/06	363.6	1,964	ADWR
(B-29-18) 25BCA	8/31/06	412.6	2,110	ADWR

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(B-13-15) 11CAC1	1/30/06	53.9	2,398	ADWR
(B-13-15) 11CAD	1/30/06	42.1	2,420	ADWR
(B-13-15) 12ACB	1/30/06	3.7	2,639	ADWR
(B-13-15) 17CAC2	1/27/06	666.7	1,416	ADWR
(B-13-15) 28CAA	1/30/06	220.6	1,862	ADWR
(B-13-16) 16AAA	1/31/06	533.8	1,404	ADWR
(B-13-16) 26DBC	1/31/06	43.4	1,769	ADWR
(B-14-15) 02AAB2	2/1/06	11.9	3,060	ADWR
(B-14-15) 14CBC	1/31/06	155.0	2,802	ADWR
(B-14-17) 03DAC	1/25/06	583.7	1,415	ADWR
(B-14-17) 12BAA	1/25/06	673.8	1,406	ADWR
(B-15-14) 05ADD	1/26/06	120.9	4,032	ADWR
(B-15-14) 08ADB	1/23/06	24.2	3,838	ADWR
(B-15-15) 01BDC	1/26/06	39.9	3,669	ADWR
(B-15-15) 15BCB1	1/26/06	4.0	3,099	ADWR
(B-15-15) 15BCB2	1/26/06	5.6	3,097	ADWR
(B-15-15) 15BCB3	1/26/06	7.6	3,090	ADWR
(B-15-16) 01CAA	1/25/06	69.8	3,038	ADWR
(B-15-16) 03ADA	11/13/06	319.6	2,555	ADWR
(B-15-16) 07BDD	1/24/06	934.5	1,409	ADWR
(B-15-16) 12CAB	1/24/06	367.3	2,594	ADWR
(B-15-17) 07DCA1	1/26/06	426.5	1,396	ADWR
(B-15-17) 08CCC	11/13/06	451.2	1,400	ADWR
(B-15-17) 16ABD	11/17/06	541.6	1,397	ADWR
(B-15-17) 20DCC	1/25/06	498.3	1,394	ADWR
(B-15-17) 26CCD	11/13/06	637.2	1,401	ADWR
(B-15-17) 27BAB	1/26/06	691.5	1,519	ADWR
(B-15-17) 31CDA	1/26/06	276.5	1,768	ADWR
(B-15-17) 32DBD	1/25/06	576.6	1,399	ADWR
(B-15-17) 36ABA	1/25/06	737.6	1,405	ADWR
(B-15-18) 08BBC2	1/24/06	240.4	1,514	ADWR
(B-15-19) 07AAB	1/30/06	482.6	992	ADWR

(B-15-19) 07ADA	2/1/06	495.5	987	ADWR
(B-16-15) 18ACD	1/26/06	37.7	3,855	ADWR
(B-16-15) 32CAB	1/26/06	90.4	3,392	ADWR
(B-16-15) 33BBB	1/26/06	2.1	3,601	ADWR
(B-16-15) 36BCB	1/26/06	7.1	3,876	ADWR
(B-16-15) 36DBC2	1/26/06	25.9	3,787	ADWR
(B-16-16) 11ABB	1/24/06	42.2	3,357	ADWR
(B-16-16) 13DAC	2/1/06	115.6	3,548	ADWR
(B-16-16) 13DBD	2/1/06	119.9	3,546	ADWR
(B-16-16) 14BBD	1/24/06	32.4	3,345	ADWR
(B-16-16) 14BCA1	1/24/06	23.9	3,336	ADWR
(B-16-16) 14BCA2	1/24/06	26.8	3,350	ADWR
(B-16-16) 14BCB1	1/25/06	0.6	3,342	ADWR
(B-16-16) 14BCB3	1/24/06	17.7	3,335	ADWR
(B-16-16) 14BCB4	1/25/06	1.9	3,341	ADWR
(B-16-16) 32BBA	10/13/06	1,157.5	1,473	ADWR
(B-16-16) 33BAA	2/2/06	140.1	2,674	ADWR
(B-16-17) 08CCA	1/31/06	594.6	1,458	ADWR
(B-16-17) 31BAC	1/26/06	415.0	1,388	ADWR
(B-16-18) 11BAD	1/31/06	397.3	1,385	ADWR
(B-16-18) 15CAA	1/24/06	256.3	1,384	USGS
(B-16-19) 01DBD	1/25/06	107.6	1,260	ADWR
(B-16-19) 10CBC	1/23/06	62.0	1,105	USGS
(B-16-19) 11ACC	1/24/06	102.8	1,182	ADWR
(B-16-19) 16DCD	1/24/06	146.8	1,115	ADWR
(B-16-20) 03BAA	1/26/06	199.3	825	ADWR
(B-16-20) 04ddb	1/26/06	135.3	792	USGS
(B-16-20) 13BCD	1/30/06	38.0	944	USGS
(B-16-20H) 11CCD	10/27/05	218.1	474	USGS
(B-16-20H) 14CAB	1/24/06	219.0	563	USGS
(B-16-21) 35CDD1	1/23/06	51.9	465	USGS
(B-16-21) 36CBC1	1/24/06	169.7	468	ADWR
(B-16-21) 36CBC2	1/17/06	173.5	469	ADWR
(B-16H16) 31DCA1	1/26/06	288.5	2,566	ADWR
(B-16H18) 27AAA	12/13/06	382.2	1,416	ADWR
(B-16H18) 29AAB	1/25/06	183.7	1,359	ADWR
(B-16H20) 35CBA	1/26/06	234.5	868	ADWR
(B-17-16) 03CCC	1/25/06	13.6	3,109	ADWR
(B-17-16) 08DAC	1/25/06	11.9	2,901	ADWR
(B-17-16) 08DBD1	1/25/06	13.9	2,889	ADWR
(B-17-17E) 31ABA	1/26/06	472.4	1,418	ADWR
(B-17-17E) 31DBB	1/26/06	418.6	1,441	ADWR
(B-17-17W) 31BDA	1/25/06	280.1	1,442	ADWR
(B-17-18) 12ACB1	1/25/06	339.8	1,513	ADWR
(B-17-18) 12ACC	1/25/06	350.4	1,482	ADWR
(B-17-18) 12BCA	1/25/06	303.1	1,502	ADWR
(B-17-18) 12BCD	1/25/06	305.5	1,501	ADWR
(B-17-18) 12DCC	1/25/06	340.7	1,492	ADWR
(B-17-18) 13AAA	1/25/06	381.2	1,491	ADWR
(B-17-18) 25ADB1	1/25/06	295.9	1,446	ADWR
(B-17-29) 25ADB2	1/25/06	295.5	1,447	ADWR
(B-18-17) 31CBB	12/12/06	393.6	1,581	ADWR
(B-18-18) 01DCD	1/24/06	527.8	1,656	ADWR

(B-18-18) 03ADA	12/12/06	464.9	1,660	ADWR
(B-18-18) 25CCC	1/24/06	344.5	1,594	ADWR
(B-18-18) 35ABC	1/24/06	309.3	1,583	ADWR
(B-18-18) 35ABD	1/24/06	319.2	1,583	ADWR
(B-18-18) 35CBC	1/25/06	290.9	1,572	ADWR
(B-19-16) 07DDC1	1/31/06	23.8	3,353	ADWR
(B-19-16) 07DDC2	1/31/06	9.0	3,356	ADWR
(B-19-16) 07DDC3	1/31/06	5.3	3,402	ADWR
(B-19-16) 08ADC1	1/31/06	21.2	3,627	ADWR
(B-19-16) 09DCC	1/31/06	15.3	3,743	ADWR
(B-19-16) 09DCD1	1/31/06	15.6	3,747	ADWR
(B-19-16) 09DCD2	1/31/06	12.2	3,751	ADWR
(B-19-16) 15BCA	1/31/06	14.6	3,938	ADWR
(B-19-16) 23CAB	1/31/06	45.7	4,250	ADWR
(B-19-16) 23CBA	1/31/06	39.9	4,241	ADWR
(B-19-17) 16ADA	1/31/06	9.6	2,723	ADWR
(B-19-18) 07ABB	11/16/06	484.4	1,769	ADWR
(B-19-18) 10AAA	1/31/06	633.9	1,696	ADWR
(B-19-18) 15AAA	1/31/06	606.5	1,676	ADWR
(B-19-18) 16AAA	1/25/06	529.1	1,709	ADWR
(B-19-19) 12DCC	2/1/06	554.1	1,778	ADWR
(B-19-19) 17BAC	1/25/06	5.4	2,835	ADWR
(B-19-19) 17BDB	1/25/06	5.9	2,834	ADWR
(B-19-19) 17BDD	1/25/06	30.4	2,772	ADWR
(B-19-19) 17CAA	1/25/06	7.8	2,795	ADWR
(B-20-16) 02ADC	1/24/06	32.7	4,770	ADWR
(B-20-16) 06DAC	1/27/06	75.1	3,708	ADWR
(B-20-17) 08BBB	1/26/06	145.2	2,719	ADWR
(B-20-17) 08BCB	1/26/06	187.0	2,656	ADWR
(B-20-17E) 07AAB2	1/26/06	168.9	2,698	ADWR
(B-20-17W) 07BBB1	1/23/06	346.7	2,391	ADWR
(B-20-18) 01CCC	6/20/06	361.4	2,302	ADWR
(B-20-18) 04BBB	1/24/06	746.6	1,780	ADWR
(B-20-18) 07BDC	11/14/06	714.3	1,769	ADWR
(B-20-18) 22AAC	2/15/06	744.6	1,753	ADWR
(B-20-18) 28CCC	11/14/06	592.8	1,742	ADWR
(B-20-18) 34BBB	1/24/06	629.1	1,748	ADWR
(B-20-19) 03CDC	11/16/06	603.0	2,107	ADWR
(B-21-16) 20CDB	1/20/06	381.3	3,276	ADWR
(B-21-16) 29BCA	1/25/06	342.7	3,295	ADWR
(B-21-16) 35CBC1	1/24/06	38.3	4,265	ADWR
(B-21-16) 35DAD	1/24/06	64.7	4,658	ADWR
(B-21-17) 11CDB	2/2/06	51.5	3,571	ADWR
(B-21-17) 15BCC	2/2/06	77.9	3,565	ADWR
(B-21-17) 15DCA2	2/2/06	156.0	3,352	ADWR
(B-21-17) 24CBC	1/26/06	136.3	3,196	ADWR
(B-21-17) 24CDB	2/3/06	136.4	3,201	ADWR
(B-21-17) 24CDC	2/1/06	123.2	3,197	ADWR
(B-21-17) 24CDD1	2/2/06	133.9	3,201	ADWR
(B-21-17) 31CDB	1/25/06	451.7	2,254	ADWR
(B-21-17) 34DCA	1/31/06	63.9	2,979	ADWR
(B-21-17) 34ddb	1/26/06	56.4	2,996	ADWR
(B-21-17S) 03CDA2	2/2/06	81.0	3,846	ADWR

(B-21-17W) 35BBD4	1/26/06	115.9	3,007	ADWR
(B-21-18) 05DBD	1/24/06	1,070.6	1,787	ADWR
(B-21-18) 08AAA	1/24/06	1,052.3	1,784	ADWR
(B-21-18) 09BBA	1/24/06	1,050.7	1,784	ADWR
(B-21-18) 20CAA	1/24/06	892.5	1,773	ADWR
(B-21-18) 25BBA	1/23/06	517.1	2,205	ADWR
(B-21-18) 30ABB	2/1/06	866.0	1,769	ADWR
(B-21-18) 32BBB	1/24/06	808.1	1,772	ADWR
(B-21-18) 32DCC	1/24/06	763.3	1,770	ADWR
(B-21-19) 01DDD	1/26/06	1,043.0	1,777	ADWR
(B-21-19) 02DDD	1/26/06	1,020.8	1,785	ADWR
(B-21-19) 13DDD	1/26/06	929.6	1,767	ADWR
(B-21-19) 25AAA	1/26/06	869.9	1,767	ADWR
(B-21-19) 34CBC	1/31/06	315.1	2,506	ADWR
(B-22-17) 34BDA1	2/1/06	12.2	4,163	ADWR
(B-22-17) 34BDA2	2/1/06	14.9	4,168	ADWR
(B-22-17) 34DCD	2/1/06	4.3	4,034	ADWR
(B-22-18S) 05AAA	1/26/06	1,201.3	2,141	ADWR
(B-22-18S) 05DBC	1/26/06	1,186.6	2,097	ADWR
(B-23-18) 04ADB	1/26/06	27.8	3,965	ADWR
(B-23-18) 09ABD2	1/23/06	25.6	3,821	ADWR
(B-23-18) 09BCC1	1/23/06	11.1	3,751	ADWR
(B-23-18) 09BCC2	1/23/06	11.5	3,750	ADWR
(B-23-18) 33CBC1	1/26/06	913.8	2,479	ADWR
(B-23-18) 33CBC2	1/26/06	1,228.8	2,154	ADWR

Appendix 3. Water-level and net water-level change data for 1996 to 2006, 1979-80 to 2006, and 1964-65 to 2006 for selected wells, Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona

[ADWR, Arizona Department of Water Resources; *, pumping effects not determined; USGS, U.S. Geological Survey; net water-level change is computed as the water level listed in appendix 2 for 2006 conditions minus the water level listed for previous periods in this appendix; net water-level changes that have positive values reflect rising water levels over time, and those with negative values reflect declining water levels over time]

Name	Water-level change period	Water-level date	Depth to water, feet	Water-level altitude, feet	Remark	Source agency	Net water-level change, feet
Detrital Valley Basin							
(B-24-21) 11CCB2	1996 to 2006	11/6/1995	19.2	3,793		ADWR	11.8
(B-25-19) 17CDD	1996 to 2006	11/7/1995	775.0	2,248		ADWR	1.6
(B-25-19) 30BBA	1996 to 2006	11/7/1995	717.9	2,235		ADWR	7.5
(B-25-20) 11CDC	1996 to 2006	11/7/1995	565.8	2,244	*	ADWR	2.0
(B-25-20) 15AAA	1996 to 2006	11/6/1995	596.3	2,220		USGS	2.1
(B-25-21) 35DAB	1996 to 2006	11/6/1995	26.0	3,657	*	ADWR	-38.6
(B-26-19) 36CCB2	1996 to 2006	11/9/1995	379.0	2,984	*	ADWR	1.4
(B-26-20) 06ABC	1996 to 2006	11/7/1995	458.1	2,004		ADWR	-2.6
(B-26-20) 08CAA	1996 to 2006	11/7/1995	478.0	2,084	*	ADWR	1.8
(B-26-20) 27BDC	1996 to 2006	11/7/1995	455.4	2,222		ADWR	-1.4
(B-27-19) 17AAA	1996 to 2006	11/10/1995	621.7	3,016		ADWR	-0.7
(B-27-21) 13CCA	1996 to 2006	11/8/1995	384.0	2,018		ADWR	2.5
(B-28-21) 20ADB	1996 to 2006	11/8/1995	304.6	2,063		USGS	0.2
(B-29-21) 28DDD	1996 to 2006	11/8/1995	71.8	1,938		ADWR	0.1
(B-30-20) 06CAD	1996 to 2006	10/31/1995	57.2	1,282		USGS	1.0
(B-31-19) 32ADA	1996 to 2006	11/8/1995	44.6	1,188		USGS	-66.7
(B-31-19) 33ACC2	1964-65 to 2006	7/10/65	120.0	1,158		USGS	6.2
Hualapai Valley Basin							
(B-21-15) 05BBB	1996 to 2006	11/7/1995	865.4	2,767		ADWR	-7.4
(B-21-17) 01CCB	1979-80 to 2006	3/11/80	154.6	3,408		USGS	48.8
(B-21-17) 01CCB	1996 to 2006	11/10/1995	103.5	3,459	*	ADWR	-2.3
(B-22-15) 33DBD	1964-65 to 2006	4/29/65	911.6	2,778		USGS	-13.2
(B-22-15) 33DBD	1996 to 2006	11/7/1995	921.1	2,769		ADWR	-3.7
(B-22-16) 01DCC	1979-80 to 2006	2/29/80	456.6	2,780		USGS	-5.3
(B-22-16) 01DCC	1996 to 2006	11/6/1995	461.3	2,775	*	ADWR	-0.6
(B-22-16) 03CBB	1979-80 to 2006	3/18/80	542.6	2,785		USGS	-32.4
(B-22-16) 03CBB	1996 to 2006	10/30/1995	558.1	2,769		USGS	-16.9
(B-22-16) 11DBC	1996 to 2006	11/6/1995	440.3	2,794		ADWR	-34.8
(B-22-16) 15CCC	1979-80 to 2006	3/4/80	497.8	2,791		USGS	-51.3
(B-22-16) 15CCC	1996 to 2006	1/17/1996	531.0	2,758		ADWR	-18.1
(B-22-16) 17DDD1	1996 to 2006	11/7/1995	592.6	2,759		ADWR	-19.6
(B-22-16) 26BAC	1979-80 to 2006	2/29/80	554.4	2,783		USGS	-31.9
(B-22-16) 27DDD	1996 to 2006	11/15/1995	612.3	2,764		ADWR	-16.4
(B-22-16) 28BAD	1979-80 to 2006	1/22/80	524.4	2,779		USGS	-42.8
(B-22-16) 28BAD	1996 to 2006	11/6/1995	547.7	2,756		USGS	-19.5
(B-22-16) 33BCD	1996 to 2006	11/7/1995	602.2	2,755	*	ADWR	-34.0
(B-22-16) 33CDC	1996 to 2006	11/8/1995	637.9	2,755		ADWR	-19.8

(B-22-16) 34CBC	1979-80 to 2006	3/3/80	621.0	2,783		USGS	-55.7
(B-22-16) 34CBC	1996 to 2006	11/10/1995	647.3	2,757	*	ADWR	-29.4
(B-22-16E) 19BAA	1979-80 to 2006	3/4/80	664.5	2,782		USGS	-69.9
(B-22-16E) 19BAA	1996 to 2006	1/17/1996	701.2	2,746	*	ADWR	-33.2
(B-22-17) 12DDA	1996 to 2006	11/8/1995	567.1	3,017	*	ADWR	-12.7
(B-23-14) 03ADC	1979-80 to 2006	3/19/80	479.5	2,951		USGS	13.7
(B-23-14) 03ADC	1996 to 2006	10/30/1995	482.1	2,949		ADWR	16.3
(B-23-15) 04DDD	1996 to 2006	11/7/1995	448.0	2,730	*	ADWR	-14.5
(B-23-15) 08CDA	1964-65 to 2006	3/18/65	368.5	2,719		USGS	-2.9
(B-23-15) 08CDA	1979-80 to 2006	4/25/80	366.7	2,721		USGS	-4.7
(B-23-15) 08CDA	1996 to 2006	11/7/1995	361.9	2,726	*	ADWR	-9.5
(B-23-15) 08DDD	1964-65 to 2006	5/3/65	402.9	2,730		USGS	-10.4
(B-23-15) 08DDD	1979-80 to 2006	4/25/80	406.0	2,727		USGS	-7.3
(B-23-15) 08DDD	1996 to 2006	11/7/1995	400.7	2,732		ADWR	-12.6
(B-23-15) 25BBC	1996 to 2006	11/9/1995	965.0	2,828		ADWR	5.7
(B-23-15) 30CBB	1996 to 2006	10/30/1995	376.9	2,779		USGS	-0.3
(B-23-16) 09BCB	1979-80 to 2006	5/23/80	612.5	2,748		USGS	107.8
(B-23-16) 15BDB	1979-80 to 2006	3/18/80	539.3	2,758		USGS	-4.0
(B-23-16) 15BDB	1996 to 2006	11/6/1995	544.1	2,754		ADWR	0.8
(B-24-14) 04CCA	1979-80 to 2006	3/19/80	322.0	2,980		USGS	-134.8
(B-24-14) 09CBB	1996 to 2006	1/16/1996	528.8	2,755		ADWR	3.7
(B-24-14) 28CAD	1964-65 to 2006	1/28/64	522.7	2,833		USGS	-25.4
(B-24-14) 28CAD	1979-80 to 2006	2/26/80	540.4	2,815		USGS	-7.7
(B-24-14) 28CAD	1996 to 2006	10/30/1995	545.8	2,810		USGS	-2.3
(B-24-14) 29ABA	1996 to 2006	11/9/1995	674.8	2,640		ADWR	-1.7
(B-24-14) 33ADA	1964-65 to 2006	4/29/65	521.6	2,856		USGS	-30.4
(B-24-14) 33ADA	1979-80 to 2006	3/19/80	546.8	2,831		USGS	-5.2
(B-24-14) 33ADA	1996 to 2006	10/30/1995	549.8	2,828		ADWR	-2.2
(B-24-15) 13DCC	1996 to 2006	11/9/1995	723.7	2,526		ADWR	-0.6
(B-24-15) 32ABD	1996 to 2006	11/7/1995	508.1	2,513	*	ADWR	0.4
(B-24-15) 33BBB	1979-80 to 2006	4/29/80	514.1	2,508		USGS	7.5
(B-24-15) 33BBB	1996 to 2006	11/7/1995	510.1	2,512		ADWR	3.5
(B-24-15) 35CBC	1996 to 2006	1/17/1996	692.3	2,518		ADWR	1.3
(B-24-16) 01DDD1	1964-65 to 2006	4/28/65	451.4	2,512		USGS	1.7
(B-24-16) 01DDD1	1979-80 to 2006	1/28/80	440.7	2,523		USGS	-9.0
(B-24-16) 01DDD1	1996 to 2006	11/6/1995	449.5	2,514		USGS	-0.2
(B-24-16) 10AAA2	1996 to 2006	11/6/1995	408.2	2,511	*	ADWR	2.3
(B-24-16) 10CAA	1996 to 2006	11/6/1995	410.4	2,510	*	ADWR	1.1
(B-24-16) 11DDD	1979-80 to 2006	2/28/80	430.9	2,510		USGS	1.4
(B-24-16) 11DDD	1996 to 2006	11/6/1995	430.5	2,510	*	ADWR	1.0
(B-24-16E) 19AAC	1996 to 2006	11/8/1995	535.1	2,612		ADWR	15.8
(B-25-15) 29CCC	1996 to 2006	11/10/1995	435.6	2,509	*	ADWR	1.4
(B-25-16) 23CCC	1996 to 2006	11/6/1995	363.5	2,506	*	ADWR	1.4
(B-25-16) 30CDA	1964-65 to 2006	7/28/65	438.0	2,510		USGS	3.6
(B-25-16) 30CDA	1979-80 to 2006	3/20/80	438.6	2,509		USGS	4.2
(B-25-16) 30CDA	1996 to 2006	11/8/1995	436.4	2,511		ADWR	2.0
(B-25-17) 13AAA	1996 to 2006	11/9/1995	294.2	2,506		ADWR	2.2
(B-25-17) 17BAD	1979-80 to 2006	3/20/80	44.2	3,117		USGS	-10.5
(B-25-17) 17BAD	1996 to 2006	11/9/1995	55.3	3,106		ADWR	0.6
(B-26-14) 30CCB	1979-80 to 2006	2/13/80	35.9	4,008		USGS	11.5
(B-26-14) 30CCB	1996 to 2006	1/18/1996	31.0	4,013		ADWR	6.6
(B-26-15) 23DAC	1979-80 to 2006	2/13/80	122.6	3,663		USGS	20.0
(B-26-15) 23DAC	1996 to 2006	11/7/1995	105.2	3,681	*	ADWR	2.6

(B-26-16) 29BBB	1979-80 to 2006	3/20/80	282.3	2,498	USGS	1.3
(B-26-16) 29BBB	1996 to 2006	11/7/1995	282.5	2,498	ADWR	1.5
(B-26-16) 29DDD	1979-80 to 2006	3/20/80	305.5	2,501	USGS	-2.9
(B-26-16) 29DDD	1996 to 2006	11/7/1995	305.0	2,501	* ADWR	-3.4
(B-26-17) 23CDD	1996 to 2006	11/7/1995	266.7	2,494	* ADWR	10.5
(B-26-17) 35AAA	1964-65 to 2006	12/10/63	265.7	2,505	USGS	1.2
(B-26-17) 35AAA	1979-80 to 2006	3/20/80	266.7	2,504	USGS	2.2
(B-26-17) 35AAA	1996 to 2006	11/7/1995	265.8	2,505	* ADWR	1.3
(B-26-18) 01BDB	1979-80 to 2006	3/19/80	634.8	2,670	USGS	-6.2
(B-26-18) 01BDB	1996 to 2006	1/17/1996	634.6	2,670	* ADWR	-6.4
(B-26-18) 03AAA1	1979-80 to 2006	3/20/80	553.6	2,749	USGS	-3.8
(B-26-18) 03AAA1	1996 to 2006	11/9/1995	557.4	2,745	USGS	0.0
(B-26-18) 03CCC	1996 to 2006	1/18/1996	542.3	2,880	ADWR	-2.1
(B-26-18) 05DBB	1979-80 to 2006	3/20/80	563.4	2,979	USGS	-2.6
(B-26-18) 05DBB	1996 to 2006	11/9/1995	565.0	2,978	* ADWR	-1.0
(B-26-18) 31BDB	1996 to 2006	11/9/1995	103.3	3,599	ADWR	-2.3
(B-27-16) 33BAA	1964-65 to 2006	4/28/65	357.1	2,437	USGS	7.4
(B-27-16) 33BAA	1979-80 to 2006	3/19/80	352.2	2,442	USGS	2.6
(B-27-16) 33BAA	1996 to 2006	11/8/1995	351.5	2,443	* ADWR	1.9
(B-27-17) 19CCA2	1979-80 to 2006	3/6/80	503.4	2,581	USGS	1.4
(B-27-17) 19CCA2	1996 to 2006	1/17/1996	501.1	2,583	* ADWR	-0.9
(B-27-17) 23CAC	1979-80 to 2006	2/13/80	375.8	2,392	USGS	10.2
(B-27-17) 23CAC	1996 to 2006	11/8/1995	365.7	2,402	ADWR	0.1
(B-27-19) 12ACD	1964-65 to 2006	1/1/64	40.0	4,123	USGS	28.0
(B-27-19) 12ACD	1979-80 to 2006	5/21/80	6.5	4,156	USGS	-5.5
(B-28-17) 31CCC	1964-65 to 2006	4/28/65	655.0	2,352	USGS	2.4
(B-28-17) 31CCC	1979-80 to 2006	3/20/80	653.9	2,353	USGS	1.4
(B-28-17) 31CCC	1996 to 2006	11/7/1995	653.0	2,353	USGS	0.5

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(B-13-15) 11CAC1	1979-80 to 2006	2/15/79	101.7	2,351	USGS	47.8
(B-13-15) 17CAC2	1979-80 to 2006	2/8/79	668.4	1,414	USGS	1.7
(B-13-15) 17CAC2	1996 to 2006	11/6/1995	667.3	1,415	USGS	0.6
(B-13-16) 16AAA	1979-80 to 2006	2/8/79	534.2	1,404	USGS	0.4
(B-13-16) 26DBC	1979-80 to 2006	2/15/79	56.6	1,756	USGS	13.2
(B-14-15) 02AAB2	1979-80 to 2006	5/10/79	50.5	3,021	USGS	38.6
(B-14-15) 14CBC	1979-80 to 2006	2/16/79	116.9	2,841	USGS	-38.1
(B-14-17) 12BAA	1996 to 2006	11/6/1995	675.0	1,404	ADWR	1.2
(B-15-14) 08ADB	1979-80 to 2006	5/10/79	45.4	3,817	USGS	21.2
(B-15-15) 01BDC	1979-80 to 2006	2/14/79	81.0	3,628	USGS	41.1
(B-15-16) 07BDD	1996 to 2006	11/6/1995	935.3	1,407	ADWR	0.8
(B-15-17) 07DCA1	1996 to 2006	11/6/1995	426.6	1,396	ADWR	0.1
(B-15-18) 08BBC2	1996 to 2006	11/6/1995	259.2	1,495	ADWR	18.8
(B-15-19) 07AAB	1996 to 2006	4/24/1996	480.0	994	USGS	-2.6
(B-16-15) 32CAB	1979-80 to 2006	5/10/79	80.8	3,402	USGS	-9.7
(B-16-15) 33BBB	1979-80 to 2006	5/10/79	3.5	3,599	USGS	1.4
(B-16-15) 36BCB	1979-80 to 2006	2/15/79	27.5	3,855	USGS	20.4
(B-16-18) 15CAA	1996 to 2006	11/8/1995	256.8	1,376	USGS	0.5
(B-16-19) 10CBC	1996 to 2006	11/8/1995	62.6	1,105	USGS	0.6
(B-16-20) 04DDDB	1996 to 2006	11/8/1995	135.3	787	USGS	0.0
(B-16-20H) 11CCD	1996 to 2006	11/8/1995	217.4	475	USGS	-0.7
(B-16-20H) 14CAB	1996 to 2006	11/8/1995	222.8	539	USGS	3.8
(B-16-21) 35CDD1	1996 to 2006	11/8/1995	50.7	466	USGS	-1.2
(B-16-21) 36CBC1	1996 to 2006	11/8/1995	170.7	467	ADWR	1.0

(B-16-21) 36CBC2	1996 to 2006	11/8/1995	174.5	468	ADWR	1.0
(B-16H18) 29AAB	1979-80 to 2006	10/23/79	184.9	1,357	USGS	1.2
(B-16H18) 29AAB	1996 to 2006	11/8/1995	182.4	1,360	ADWR	-1.3
(B-16H20) 35CBA	1996 to 2006	11/8/1995	234.2	868	ADWR	-0.3
(B-17-16) 08DBD1	1964-65 to 2006	1/1/64	44.0	2,859	USGS	30.1
(B-17-17W) 31BDA	1979-80 to 2006	2/28/79	281.1	1,441	USGS	1.0
(B-17-18) 12ACC	1996 to 2006	11/9/1995	350.6	1,482	ADWR	0.2
(B-17-18) 12BCA	1964-65 to 2006	3/12/65	310.4	1,495	USGS	7.3
(B-17-18) 12BCA	1996 to 2006	11/10/1995	300.9	1,504	* ADWR	-2.2
(B-17-18) 12DCC	1996 to 2006	11/9/1995	340.7	1,492	ADWR	0.0
(B-17-18) 13AAA	1996 to 2006	11/9/1995	381.2	1,491	ADWR	0.0
(B-17-18) 25ADB1	1979-80 to 2006	10/24/79	298.2	1,444	USGS	2.3
(B-17-18) 25ADB1	1996 to 2006	11/9/1995	295.8	1,447	ADWR	-0.1
(B-18-18) 01DCD	1964-65 to 2006	11/1/64	540.0	1,643	USGS	12.2
(B-18-18) 01DCD	1996 to 2006	11/9/1995	530.1	1,653	USGS	2.3
(B-18-18) 25CCC	1996 to 2006	11/10/1995	340.5	1,598	ADWR	-4.0
(B-19-16) 08ADC1	1979-80 to 2006	10/25/79	24.2	3,624	USGS	2.9
(B-19-16) 09DCC	1979-80 to 2006	10/24/79	13.7	3,744	USGS	-1.6
(B-19-16) 23CAB	1979-80 to 2006	3/6/79	50.0	4,246	USGS	4.3
(B-19-18) 16AAA	1996 to 2006	11/9/1995	524.6	1,714	ADWR	-4.5
(B-19-19) 17BDB	1964-65 to 2006	3/4/65	4.0	2,836	USGS	-1.9
(B-19-19) 17BDB	1979-80 to 2006	2/6/79	1.9	2,838	USGS	-4.0
(B-19-19) 17CAA	1979-80 to 2006	2/6/79	11.1	2,792	USGS	3.3
(B-19-19) 21ACB	1979-80 to 2006	2/6/79	4.5	2,633	USGS	4.5
(B-20-16) 02ADC	1964-65 to 2006	1/1/64	70.0	4,733	USGS	37.3
(B-20-17) 08BBB	1996 to 2006	11/7/1995	150.1	2,714	ADWR	4.9
(B-20-18) 04BBB	1964-65 to 2006	11/30/64	736.5	1,790	USGS	-10.1
(B-20-18) 04BBB	1996 to 2006	11/9/1995	748.6	1,778	ADWR	2.0
(B-20-18) 22AAC	1964-65 to 2006	2/1/65	737.4	1,760	USGS	-7.2
(B-20-18) 22AAC	1979-80 to 2006	3/4/80	739.0	1,758	USGS	-5.5
(B-20-18) 22AAC	1996 to 2006	2/13/1996	744.1	1,753	USGS	-0.4
(B-21-16) 20CDB	1979-80 to 2006	3/11/80	388.2	3,269	USGS	6.9
(B-21-16) 20CDB	1996 to 2006	11/10/1995	385.1	3,273	* ADWR	3.8
(B-21-16) 29BCA	1964-65 to 2006	1/1/64	290.0	3,348	USGS	-52.7
(B-21-16) 35CBC1	1964-65 to 2006	1/1/64	60.0	4,243	USGS	21.7
(B-21-17) 24CBC	1964-65 to 2006	5/1/65	180.0	3,153	USGS	43.7
(B-21-17) 24CBC	1996 to 2006	11/6/1995	131.9	3,201	USGS	-4.4
(B-21-17) 31CDB	1996 to 2006	11/7/1995	451.7	2,254	ADWR	0.0
(B-21-17) 34DCA	1979-80 to 2006	3/2/79	65.0	2,978	USGS	1.1
(B-21-17) 34DCA	1996 to 2006	11/7/1995	66.3	2,976	ADWR	2.4
(B-21-17) 34ddb	1964-65 to 2006	1/29/64	59.4	2,993	USGS	3.0
(B-21-17) 34ddb	1996 to 2006	11/7/1995	58.8	2,994	* ADWR	2.4
(B-21-18) 05DBD	1996 to 2006	11/7/1995	1,074.9	1,783	* ADWR	4.3
(B-21-18) 09BBA	1964-65 to 2006	4/27/65	1,025.1	1,809	USGS	-25.6
(B-21-18) 09BBA	1979-80 to 2006	3/5/79	1,028.6	1,806	USGS	-22.1
(B-21-18) 09BBA	1996 to 2006	11/7/1995	1,058.7	1,776	USGS	8.0
(B-21-18) 20CAA	1964-65 to 2006	10/13/64	870.2	1,795	USGS	-22.3
(B-21-18) 20CAA	1996 to 2006	11/9/1995	892.3	1,773	ADWR	-0.2
(B-21-18) 25BBA	1996 to 2006	11/7/1995	518.8	2,204	ADWR	1.7
(B-21-18) 30ABB	1964-65 to 2006	10/13/64	845.6	1,790	USGS	-20.4
(B-21-18) 30ABB	1979-80 to 2006	2/28/80	872.0	1,763	USGS	6.0
(B-21-18) 30ABB	1996 to 2006	11/9/1995	857.8	1,778	ADWR	-8.2
(B-21-18) 32BBB	1964-65 to 2006	10/13/64	792.8	1,788	USGS	-15.3

(B-21-18) 32BBB	1979-80 to 2006	11/1/78	815.0	1,765	USGS	6.9
(B-21-18) 32BBB	1996 to 2006	11/9/1995	808.7	1,772	ADWR	0.6
(B-21-18) 32DCC	1964-65 to 2006	11/30/64	749.7	1,784	USGS	-13.6
(B-21-18) 32DCC	1979-80 to 2006	1/1/79	775.0	1,758	USGS	11.7
(B-21-18) 32DCC	1996 to 2006	11/9/1995	763.7	1,770	ADWR	0.4
(B-21-19) 01DDD	1996 to 2006	11/7/1995	1,041.0	1,779	ADWR	-2.0
(B-21-19) 02DDD	1996 to 2006	11/6/1995	1,021.1	1,784	ADWR	0.3
(B-22-17) 34BDA1	1979-80 to 2006	10/10/79	24.4	4,150	USGS	12.2
(B-22-17) 34DCD	1979-80 to 2006	10/9/79	44.5	3,994	USGS	40.2
(B-22-18S) 05AAA	1996 to 2006	11/9/1995	1,207.3	2,135	ADWR	6.0
(B-22-18S) 05DBC	1996 to 2006	11/9/1995	1,194.3	2,089	ADWR	7.7
(B-23-18) 09BCC1	1979-80 to 2006	3/6/79	8.7	3,753	USGS	-2.4
(B-23-18) 33CBC1	1996 to 2006	11/9/1995	919.3	2,473	ADWR	5.5
(B-23-18) 33CBC2	1996 to 2006	11/9/1995	1,235.5	2,147	ADWR	6.7

Appendix 4. Water-level data for selected wells with hydrographs, Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona

[USGS, U.S. Geological Survey; ADWR, Arizona Department of Water Resources; *, pumping effects not determined; S, nearby site that taps same aquifer was being pumped; T, nearby site that taps the same aquifer had been pumped recently]

Name	Water-level date	Depth to water, feet	Water-level altitude, feet	Remark	Source agency
Detrital Valley Basin					
(B-25-20) 15AAA	6/21/84	597.7	2,225		USGS
(B-25-20) 15AAA	8/29/85	597.3	2,225		USGS
(B-25-20) 15AAA	1/15/86	597.6	2,225		USGS
(B-25-20) 15AAA	1/22/87	597.0	2,225		USGS
(B-25-20) 15AAA	2/11/88	597.5	2,225		USGS
(B-25-20) 15AAA	1/11/89	597.8	2,225		USGS
(B-25-20) 15AAA	1/31/90	597.1	2,225		USGS
(B-25-20) 15AAA	11/7/90	596.9	2,226		USGS
(B-25-20) 15AAA	10/27/92	596.4	2,226		USGS
(B-25-20) 15AAA	11/1/94	596.3	2,226		USGS
(B-25-20) 15AAA	11/6/95	596.3	2,226		USGS
(B-25-20) 15AAA	10/17/00	596.5	2,226		USGS
(B-25-20) 15AAA	10/16/01	596.1	2,226		USGS
(B-25-20) 15AAA	10/22/02	597.5	2,225		ADWR
(B-25-20) 15AAA	10/25/05	595.6	2,227		ADWR
(B-25-20) 15AAA	1/25/06	594.2	2,228		ADWR
(B-26-20) 06ABC	7/4/84	462.7	2,041		USGS
(B-26-20) 06ABC	1/22/87	462.4	2,041		USGS
(B-26-20) 06ABC	2/11/88	462.5	2,041		USGS
(B-26-20) 06ABC	1/11/89	462.1	2,041		USGS
(B-26-20) 06ABC	11/7/90	461.6	2,042		USGS
(B-26-20) 06ABC	10/29/91	461.7	2,042		USGS
(B-26-20) 06ABC	10/27/92	461.0	2,042		USGS
(B-26-20) 06ABC	10/26/93	461.4	2,042 *		ADWR
(B-26-20) 06ABC	11/1/94	461.1	2,042 *		ADWR
(B-26-20) 06ABC	10/29/96	461.0	2,042 *		ADWR
(B-26-20) 06ABC	10/14/97	461.0	2,042		USGS
(B-26-20) 06ABC	10/20/98	460.6	2,043		ADWR
(B-26-20) 06ABC	10/19/99	461.0	2,042		ADWR
(B-26-20) 06ABC	10/17/00	460.9	2,042		ADWR
(B-26-20) 06ABC	10/16/01	460.8	2,043		ADWR
(B-26-20) 06ABC	10/22/02	460.0	2,043		ADWR
(B-26-20) 06ABC	10/21/03	460.7	2,043		ADWR
(B-26-20) 06ABC	10/19/04	460.6	2,043		ADWR
(B-26-20) 06ABC	10/25/05	460.4	2,043		ADWR
(B-26-20) 06ABC	1/25/06	460.7	2,043		ADWR
(B-28-21) 20ADB	7/3/84	305.0	2,044		USGS
(B-28-21) 20ADB	8/29/85	304.8	2,045		USGS
(B-28-21) 20ADB	1/15/86	304.8	2,045		USGS
(B-28-21) 20ADB	1/22/87	304.9	2,045		USGS
(B-28-21) 20ADB	2/11/88	304.9	2,045		USGS

(B-28-21) 20ADB	1/11/89	305.1	2,044	USGS
(B-28-21) 20ADB	1/31/90	305.3	2,044	USGS
(B-28-21) 20ADB	11/7/90	305.1	2,044	USGS
(B-28-21) 20ADB	10/29/91	304.7	2,045	USGS
(B-28-21) 20ADB	10/27/92	304.0	2,045	USGS
(B-28-21) 20ADB	10/26/93	304.8	2,045	USGS
(B-28-21) 20ADB	11/1/94	304.6	2,045	USGS
(B-28-21) 20ADB	11/8/95	304.6	2,045	USGS
(B-28-21) 20ADB	10/29/96	304.7	2,045	USGS
(B-28-21) 20ADB	10/14/97	304.7	2,045	USGS
(B-28-21) 20ADB	10/20/98	304.1	2,045	USGS
(B-28-21) 20ADB	10/19/99	304.4	2,045	USGS
(B-28-21) 20ADB	10/17/00	304.5	2,045	USGS
(B-28-21) 20ADB	10/16/01	304.3	2,045	USGS
(B-28-21) 20ADB	10/22/02	304.1	2,045	USGS
(B-28-21) 20ADB	10/21/03	304.4	2,045	USGS
(B-28-21) 20ADB	10/19/04	304.1	2,045	ADWR
(B-28-21) 20ADB	10/25/05	304.1	2,045	USGS
(B-28-21) 20ADB	1/26/06	304.4	2,045	USGS
(B-30-20) 06CAD	6/20/84	57.2	1,284	USGS
(B-30-20) 06CAD	8/29/85	56.1	1,285	USGS
(B-30-20) 06CAD	1/15/86	56.7	1,284	USGS
(B-30-20) 06CAD	1/22/87	57.0	1,284	USGS
(B-30-20) 06CAD	2/11/88	56.9	1,284	USGS
(B-30-20) 06CAD	1/11/89	57.5	1,284	USGS
(B-30-20) 06CAD	1/31/90	57.7	1,284	USGS
(B-30-20) 06CAD	11/7/90	57.5	1,284	USGS
(B-30-20) 06CAD	10/29/91	57.5	1,284	USGS
(B-30-20) 06CAD	5/20/92	56.6	1,285	USGS
(B-30-20) 06CAD	10/27/92	56.4	1,285	USGS
(B-30-20) 06CAD	2/25/93	56.0	1,285	USGS
(B-30-20) 06CAD	10/26/93	56.4	1,285	USGS
(B-30-20) 06CAD	1/20/94	56.8	1,284	USGS
(B-30-20) 06CAD	11/1/94	59.5	1,282	USGS
(B-30-20) 06CAD	10/31/95	57.2	1,284	USGS
(B-30-20) 06CAD	11/9/95	57.4	1,284	USGS
(B-30-20) 06CAD	10/29/96	57.6	1,284	USGS
(B-30-20) 06CAD	10/14/97	57.5	1,284	USGS
(B-30-20) 06CAD	10/20/98	57.1	1,284	USGS
(B-30-20) 06CAD	10/19/99	57.3	1,284	USGS
(B-30-20) 06CAD	10/17/00	57.3	1,284	USGS
(B-30-20) 06CAD	10/16/01	57.1	1,284	USGS
(B-30-20) 06CAD	10/22/02	57.2	1,284	USGS
(B-30-20) 06CAD	10/21/03	57.5	1,284	USGS
(B-30-20) 06CAD	10/19/04	57.5	1,284	ADWR
(B-30-20) 06CAD	1/12/06	57.1	1,284	USGS
(B-30-20) 06CAD	1/25/06	56.7	1,285	USGS
Hualapai Valley Basin				
(B-22-16) 03CBB	3/18/80	542.6	2,785	USGS
(B-22-16) 03CBB	1/13/82	544.3	2,783	USGS
(B-22-16) 03CBB	2/17/83	544.6	2,783	USGS
(B-22-16) 03CBB	1/26/84	545.4	2,782	USGS
(B-22-16) 03CBB	1/25/85	546.4	2,781	USGS

(B-22-16) 03CBB	12/2/85	547.0	2,781	USGS
(B-22-16) 03CBB	1/1/86	547.0	2,781	USGS
(B-22-16) 03CBB	2/10/87	548.1	2,779	USGS
(B-22-16) 03CBB	1/11/88	548.6	2,779	USGS
(B-22-16) 03CBB	1/10/89	549.8	2,778	USGS
(B-22-16) 03CBB	1/16/90	550.4	2,777	USGS
(B-22-16) 03CBB	1/8/91	552.7	2,775	USGS
(B-22-16) 03CBB	10/30/91	553.1	2,774	USGS
(B-22-16) 03CBB	10/30/92	554.0	2,774	USGS
(B-22-16) 03CBB	10/25/93	555.1	2,772	USGS
(B-22-16) 03CBB	10/31/94	557.3	2,770	USGS
(B-22-16) 03CBB	10/30/95	558.1	2,769	USGS
(B-22-16) 03CBB	10/28/96	560.3	2,767	USGS
(B-22-16) 03CBB	10/13/97	562.2	2,765	USGS
(B-22-16) 03CBB	10/19/98	563.2	2,764	USGS
(B-22-16) 03CBB	10/18/99	564.4	2,763	USGS
(B-22-16) 03CBB	10/16/00	566.3	2,761	USGS
(B-22-16) 03CBB	10/16/01	552.8	2,775	ADWR
(B-22-16) 03CBB	10/22/02	569.4	2,758	ADWR
(B-22-16) 03CBB	10/21/03	569.6	2,758	ADWR
(B-22-16) 03CBB	10/18/04	573.1	2,754	ADWR
(B-22-16) 03CBB	10/24/05	575.0	2,753	ADWR
(B-22-16) 28BAD	1/22/80	524.4	2,779	USGS
(B-22-16) 28BAD	1/1/86	534.0	2,770	USGS
(B-22-16) 28BAD	1/13/86	533.9	2,770 S	USGS
(B-22-16) 28BAD	1/8/91	538.2	2,765	USGS
(B-22-16) 28BAD	11/6/95	547.7	2,756	USGS
(B-22-16) 28BAD	1/30/96	553.4	2,750	USGS
(B-22-16) 28BAD	2/13/96	552.6	2,751	USGS
(B-22-16) 28BAD	5/14/96	553.0	2,751 S	USGS
(B-22-16) 28BAD	8/14/96	554.4	2,749 S	USGS
(B-22-16) 28BAD	11/12/96	549.0	2,755	USGS
(B-22-16) 28BAD	2/3/97	552.4	2,751 S	USGS
(B-22-16) 28BAD	5/15/97	550.3	2,753 S	USGS
(B-22-16) 28BAD	8/12/97	565.2	2,738 S	USGS
(B-22-16) 28BAD	11/14/97	556.7	2,747	USGS
(B-22-16) 28BAD	2/10/98	556.6	2,747	USGS
(B-22-16) 28BAD	5/12/98	556.6	2,747	USGS
(B-22-16) 28BAD	8/13/98	557.4	2,746	USGS
(B-22-16) 28BAD	11/16/98	556.6	2,747	USGS
(B-22-16) 28BAD	2/11/99	566.1	2,737	USGS
(B-22-16) 28BAD	5/11/99	557.4	2,746	USGS
(B-22-16) 28BAD	8/16/99	558.8	2,745	USGS
(B-22-16) 28BAD	11/9/99	558.9	2,745	USGS
(B-22-16) 28BAD	2/9/00	558.5	2,745	USGS
(B-22-16) 28BAD	8/7/00	558.6	2,745	USGS
(B-22-16) 28BAD	11/14/00	561.3	2,742	USGS
(B-22-16) 28BAD	2/12/01	561.2	2,742 S	USGS
(B-22-16) 28BAD	5/16/01	561.8	2,742	USGS
(B-22-16) 28BAD	8/13/01	562.8	2,741 S	USGS
(B-22-16) 28BAD	11/12/01	563.4	2,740 S	USGS
(B-22-16) 28BAD	2/12/02	562.4	2,741 S	USGS
(B-22-16) 28BAD	5/14/02	563.6	2,740 S	USGS

(B-22-16) 28BAD	8/12/02	565.5	2,738 S	USGS
(B-22-16) 28BAD	11/12/02	566.2	2,737 S	ADWR
(B-22-16) 28BAD	2/12/03	560.0	2,744	ADWR
(B-22-16) 28BAD	5/14/03	560.9	2,743	ADWR
(B-22-16) 28BAD	11/12/03	563.0	2,741	ADWR
(B-22-16) 28BAD	2/18/04	562.0	2,742	ADWR
(B-22-16) 28BAD	5/11/04	568.2	2,735 S	ADWR
(B-22-16) 28BAD	8/17/04	569.1	2,735 S	ADWR
(B-22-16) 28BAD	11/17/04	570.4	2,733	ADWR
(B-22-16) 28BAD	3/9/05	562.4	2,741	ADWR
(B-22-16) 28BAD	5/16/05	570.3	2,733 S	ADWR
(B-22-16) 28BAD	8/10/05	571.8	2,732 S	ADWR
(B-22-16) 28BAD	8/24/05	570.9	2,733 S	ADWR
(B-22-16) 28BAD	11/7/05	573.8	2,730 S	ADWR
(B-22-16) 28BAD	1/16/06	567.2	2,736	ADWR
(B-22-16) 28BAD	2/15/06	572.6	2,731 S	ADWR
(B-22-16) 28BAD	3/1/06	571.9	2,732 S	ADWR
(B-22-16) 28BAD	5/17/06	572.9	2,731 S	ADWR
(B-23-14) 03ADC	11/1/43	454.0	2,977	USGS
(B-23-14) 03ADC	11/10/43	456.0	2,975	USGS
(B-23-14) 03ADC	6/2/55	489.6	2,941	USGS
(B-23-14) 03ADC	11/9/55	487.8	2,943	USGS
(B-23-14) 03ADC	6/19/56	479.0	2,952	USGS
(B-23-14) 03ADC	10/24/56	481.3	2,949	USGS
(B-23-14) 03ADC	5/30/57	485.0	2,946	USGS
(B-23-14) 03ADC	3/6/58	492.1	2,939	USGS
(B-23-14) 03ADC	3/9/60	484.6	2,946	USGS
(B-23-14) 03ADC	3/19/80	479.5	2,951	USGS
(B-23-14) 03ADC	12/3/85	478.0	2,953	USGS
(B-23-14) 03ADC	1/1/86	478.0	2,953	USGS
(B-23-14) 03ADC	10/30/95	482.1	2,949	ADWR
(B-23-14) 03ADC	1/11/06	465.8	2,965	ADWR
(B-23-15) 08DDD	5/3/65	402.9	2,730	USGS
(B-23-15) 08DDD	6/28/65	421.5	2,711	USGS
(B-23-15) 08DDD	12/1/65	423.2	2,709	USGS
(B-23-15) 08DDD	4/1/66	423.2	2,709	USGS
(B-23-15) 08DDD	4/25/80	406.0	2,727	USGS
(B-23-15) 08DDD	12/3/85	402.1	2,730	USGS
(B-23-15) 08DDD	1/1/86	402.0	2,731	USGS
(B-23-15) 08DDD	1/8/91	401.1	2,731	USGS
(B-23-15) 08DDD	11/7/95	400.7	2,732	ADWR
(B-23-15) 08DDD	1/17/06	413.3	2,719	ADWR
(B-23-15) 30CBB	10/25/93	376.6	2,779	USGS
(B-23-15) 30CBB	10/31/94	377.1	2,778	USGS
(B-23-15) 30CBB	10/30/95	376.9	2,779	USGS
(B-23-15) 30CBB	10/28/96	377.2	2,778	USGS
(B-23-15) 30CBB	10/13/97	377.2	2,778	USGS
(B-23-15) 30CBB	10/19/98	377.0	2,779	USGS
(B-23-15) 30CBB	10/18/99	377.1	2,778	USGS
(B-23-15) 30CBB	10/16/00	377.2	2,778	USGS
(B-23-15) 30CBB	10/16/01	377.0	2,779	USGS
(B-23-15) 30CBB	10/22/02	376.9	2,779	ADWR
(B-23-15) 30CBB	10/21/03	377.1	2,778	ADWR

(B-23-15) 30CBB	10/18/04	376.9	2,779	ADWR
(B-23-15) 30CBB	10/24/05	376.5	2,779	ADWR
(B-23-15) 30CBB	1/10/06	377.2	2,778	ADWR
(B-24-14) 28CAD	10/12/43	500.1	2,856	USGS
(B-24-14) 28CAD	11/13/43	495.8	2,860	USGS
(B-24-14) 28CAD	2/16/44	492.6	2,863	USGS
(B-24-14) 28CAD	3/28/44	492.7	2,863	USGS
(B-24-14) 28CAD	4/4/44	491.5	2,864	USGS
(B-24-14) 28CAD	12/11/51	496.9	2,859	USGS
(B-24-14) 28CAD	2/29/52	497.9	2,858	USGS
(B-24-14) 28CAD	5/22/52	498.3	2,857	USGS
(B-24-14) 28CAD	9/30/52	516.3	2,839	USGS
(B-24-14) 28CAD	2/12/53	501.8	2,854	USGS
(B-24-14) 28CAD	7/23/53	501.0	2,855	USGS
(B-24-14) 28CAD	10/5/54	506.8	2,849	USGS
(B-24-14) 28CAD	6/2/55	508.5	2,847	USGS
(B-24-14) 28CAD	11/9/55	509.4	2,846	USGS
(B-24-14) 28CAD	6/19/56	510.6	2,845	USGS
(B-24-14) 28CAD	10/24/56	511.1	2,845	USGS
(B-24-14) 28CAD	5/30/57	511.9	2,844	USGS
(B-24-14) 28CAD	3/6/58	513.0	2,843	USGS
(B-24-14) 28CAD	4/18/61	513.1	2,843	USGS
(B-24-14) 28CAD	4/4/62	518.0	2,838	USGS
(B-24-14) 28CAD	2/12/63	521.5	2,834	USGS
(B-24-14) 28CAD	1/28/64	522.7	2,833	USGS
(B-24-14) 28CAD	11/5/64	524.2	2,831	USGS
(B-24-14) 28CAD	12/4/64	524.2	2,831	USGS
(B-24-14) 28CAD	12/31/64	523.5	2,832	USGS
(B-24-14) 28CAD	2/1/65	523.4	2,832	USGS
(B-24-14) 28CAD	3/2/65	523.7	2,832	USGS
(B-24-14) 28CAD	4/2/65	523.8	2,832	USGS
(B-24-14) 28CAD	5/3/65	525.8	2,830	USGS
(B-24-14) 28CAD	6/7/65	525.6	2,830	USGS
(B-24-14) 28CAD	7/1/65	525.8	2,830	USGS
(B-24-14) 28CAD	7/30/65	525.9	2,830	USGS
(B-24-14) 28CAD	9/1/65	526.1	2,830	USGS
(B-24-14) 28CAD	9/15/65	526.5	2,829	USGS
(B-24-14) 28CAD	9/29/65	526.5	2,829	USGS
(B-24-14) 28CAD	3/30/66	527.2	2,828	USGS
(B-24-14) 28CAD	2/15/67	528.6	2,827	USGS
(B-24-14) 28CAD	1/16/68	529.2	2,826	USGS
(B-24-14) 28CAD	1/28/69	526.5	2,829	USGS
(B-24-14) 28CAD	3/12/71	522.8	2,833	USGS
(B-24-14) 28CAD	2/1/72	534.7	2,821	USGS
(B-24-14) 28CAD	2/6/73	536.4	2,819	USGS
(B-24-14) 28CAD	2/5/74	537.5	2,818	USGS
(B-24-14) 28CAD	3/27/75	538.3	2,817	USGS
(B-24-14) 28CAD	4/2/76	536.5	2,819	USGS
(B-24-14) 28CAD	2/3/78	541.7	2,814	USGS
(B-24-14) 28CAD	2/26/80	540.4	2,815	USGS
(B-24-14) 28CAD	3/19/80	542.3	2,813	USGS
(B-24-14) 28CAD	4/9/81	537.1	2,819	USGS
(B-24-14) 28CAD	1/13/82	544.5	2,811	USGS

(B-24-14) 28CAD	2/17/83	544.8	2,811	USGS
(B-24-14) 28CAD	1/25/84	543.9	2,812	USGS
(B-24-14) 28CAD	1/24/85	545.6	2,810	USGS
(B-24-14) 28CAD	12/3/85	546.4	2,809	USGS
(B-24-14) 28CAD	1/1/86	546.0	2,810	USGS
(B-24-14) 28CAD	2/10/87	546.2	2,809	USGS
(B-24-14) 28CAD	1/11/88	545.7	2,810	USGS
(B-24-14) 28CAD	1/10/89	546.8	2,809	USGS
(B-24-14) 28CAD	1/16/90	547.9	2,808	USGS
(B-24-14) 28CAD	1/7/91	549.0	2,807	USGS
(B-24-14) 28CAD	10/29/91	549.6	2,806	USGS
(B-24-14) 28CAD	10/30/92	548.9	2,807	USGS
(B-24-14) 28CAD	10/27/93	549.1	2,807	USGS
(B-24-14) 28CAD	11/2/94	547.8	2,808	USGS
(B-24-14) 28CAD	10/30/95	545.8	2,810	USGS
(B-24-14) 28CAD	11/8/96	545.1	2,811	USGS
(B-24-14) 28CAD	10/16/97	544.1	2,812	USGS
(B-24-14) 28CAD	10/20/98	544.0	2,812	USGS
(B-24-14) 28CAD	10/19/99	545.0	2,811	USGS
(B-24-14) 28CAD	10/25/00	546.1	2,810	USGS
(B-24-14) 28CAD	11/13/01	546.9	2,809	USGS
(B-24-14) 28CAD	10/22/02	548.0	2,808	ADWR
(B-24-14) 28CAD	3/15/04	550.1	2,806	ADWR
(B-24-14) 28CAD	10/19/04	550.4	2,805	ADWR
(B-24-14) 28CAD	10/25/05	549.0	2,807	ADWR
(B-24-14) 28CAD	1/11/06	548.1	2,808	ADWR
(B-24-16) 01DDD1	4/28/65	451.4	2,512	USGS
(B-24-16) 01DDD1	1/17/68	451.7	2,512	USGS
(B-24-16) 01DDD1	1/29/69	452.7	2,511	USGS
(B-24-16) 01DDD1	1/27/70	453.6	2,510	USGS
(B-24-16) 01DDD1	3/12/71	453.0	2,511	USGS
(B-24-16) 01DDD1	2/1/72	451.5	2,512	USGS
(B-24-16) 01DDD1	2/6/73	450.3	2,513	USGS
(B-24-16) 01DDD1	2/5/74	450.6	2,513	USGS
(B-24-16) 01DDD1	3/27/75	450.3	2,513	USGS
(B-24-16) 01DDD1	4/2/76	449.8	2,514	USGS
(B-24-16) 01DDD1	2/3/78	451.0	2,513	USGS
(B-24-16) 01DDD1	3/26/79	449.6	2,514	USGS
(B-24-16) 01DDD1	4/9/81	449.3	2,514	USGS
(B-24-16) 01DDD1	2/18/83	451.1	2,512	USGS
(B-24-16) 01DDD1	12/3/85	451.2	2,512	USGS
(B-24-16) 01DDD1	2/11/87	451.0	2,513	USGS
(B-24-16) 01DDD1	1/13/88	451.0	2,513	USGS
(B-24-16) 01DDD1	1/10/89	450.7	2,513	USGS
(B-24-16) 01DDD1	1/9/91	450.6	2,513	USGS
(B-24-16) 01DDD1	10/30/91	450.4	2,513	USGS
(B-24-16) 01DDD1	10/30/92	450.4	2,513	USGS
(B-24-16) 01DDD1	10/27/93	450.5	2,513	USGS
(B-24-16) 01DDD1	11/2/94	450.1	2,513	USGS
(B-24-16) 01DDD1	11/6/95	449.5	2,514	USGS
(B-24-16) 01DDD1	11/8/96	450.8	2,513	USGS
(B-24-16) 01DDD1	10/16/97	452.1	2,511	USGS
(B-24-16) 01DDD1	10/20/98	449.8	2,514	USGS

(B-24-16) 01DDD1	10/19/99	450.0	2,514	USGS
(B-24-16) 01DDD1	10/25/00	450.0	2,514	USGS
(B-24-16) 01DDD1	11/13/01	449.6	2,514	USGS
(B-24-16) 01DDD1	10/21/02	449.5	2,514	ADWR
(B-24-16) 01DDD1	10/21/03	449.4	2,514	ADWR
(B-24-16) 01DDD1	10/19/04	449.3	2,514	ADWR
(B-24-16) 01DDD1	10/25/05	449.4	2,514	ADWR
(B-24-16) 01DDD1	1/12/06	449.7	2,514	ADWR
(B-26-17) 35AAA	2/28/58	265.7	2,505	USGS
(B-26-17) 35AAA	12/10/63	265.7	2,505	USGS
(B-26-17) 35AAA	4/28/65	266.0	2,505	USGS
(B-26-17) 35AAA	2/15/67	265.9	2,505	USGS
(B-26-17) 35AAA	1/17/68	265.9	2,505	USGS
(B-26-17) 35AAA	1/29/69	265.9	2,505	USGS
(B-26-17) 35AAA	1/27/70	265.8	2,505	USGS
(B-26-17) 35AAA	3/11/71	265.5	2,505	USGS
(B-26-17) 35AAA	2/1/72	265.9	2,505	USGS
(B-26-17) 35AAA	2/6/73	265.2	2,505	USGS
(B-26-17) 35AAA	2/5/74	265.7	2,505	USGS
(B-26-17) 35AAA	3/27/75	265.0	2,505	USGS
(B-26-17) 35AAA	3/20/80	266.7	2,504	USGS
(B-26-17) 35AAA	12/4/85	266.2	2,504	USGS
(B-26-17) 35AAA	1/1/86	266.0	2,504	USGS
(B-26-17) 35AAA	1/9/91	265.7	2,505	USGS
(B-26-17) 35AAA	11/7/95	265.8	2,505 *	ADWR
(B-26-17) 35AAA	6/17/03	264.8	2,506	ADWR
(B-26-17) 35AAA	1/12/06	264.5	2,506	ADWR
(B-26-18) 03AAA1	3/20/80	553.6	2,749	USGS
(B-26-18) 03AAA1	1/26/84	558.9	2,744	USGS
(B-26-18) 03AAA1	1/23/85	558.8	2,744	USGS
(B-26-18) 03AAA1	12/6/85	558.7	2,744	USGS
(B-26-18) 03AAA1	1/1/86	559.0	2,744	USGS
(B-26-18) 03AAA1	2/11/87	558.6	2,744	USGS
(B-26-18) 03AAA1	1/13/88	558.7	2,744	USGS
(B-26-18) 03AAA1	1/10/89	558.5	2,744	USGS
(B-26-18) 03AAA1	1/10/91	558.4	2,744	USGS
(B-26-18) 03AAA1	10/29/91	558.0	2,745	USGS
(B-26-18) 03AAA1	10/27/92	557.5	2,745	USGS
(B-26-18) 03AAA1	10/27/93	558.1	2,744	USGS
(B-26-18) 03AAA1	11/9/95	557.4	2,745	USGS
(B-26-18) 03AAA1	11/7/96	558.0	2,745	USGS
(B-26-18) 03AAA1	10/20/98	557.5	2,745	USGS
(B-26-18) 03AAA1	10/19/99	557.4	2,745	USGS
(B-26-18) 03AAA1	10/25/00	557.2	2,745	USGS
(B-26-18) 03AAA1	11/13/01	557.5	2,745	USGS
(B-26-18) 03AAA1	10/21/02	557.5	2,745	ADWR
(B-26-18) 03AAA1	10/21/03	557.6	2,745	ADWR
(B-26-18) 03AAA1	10/19/04	557.3	2,745	ADWR
(B-26-18) 03AAA1	10/25/05	557.6	2,745	ADWR
(B-26-18) 03AAA1	1/26/06	557.4	2,745	ADWR
(B-27-16) 33BAA	4/28/65	357.1	2,437	USGS
(B-27-16) 33BAA	4/1/66	353.9	2,441	USGS
(B-27-16) 33BAA	2/15/67	352.8	2,442	USGS

(B-27-16) 33BAA	1/17/68	352.7	2,442	USGS
(B-27-16) 33BAA	1/29/69	353.1	2,441	USGS
(B-27-16) 33BAA	1/27/70	352.4	2,442	USGS
(B-27-16) 33BAA	3/12/71	352.7	2,442	USGS
(B-27-16) 33BAA	5/4/74	358.8	2,436	USGS
(B-27-16) 33BAA	3/19/80	352.2	2,442	USGS
(B-27-16) 33BAA	12/4/85	352.4	2,442	USGS
(B-27-16) 33BAA	1/9/91	351.8	2,443	USGS
(B-27-16) 33BAA	11/8/95	351.5	2,443 *	ADWR
(B-27-16) 33BAA	6/19/03	350.1	2,444	ADWR
(B-27-16) 33BAA	1/12/06	349.6	2,445	ADWR
(B-28-17) 31CCC	4/28/65	655.0	2,352	USGS
(B-28-17) 31CCC	1/29/69	654.2	2,352	USGS
(B-28-17) 31CCC	3/20/80	653.9	2,353	USGS
(B-28-17) 31CCC	5/27/81	654.1	2,352	USGS
(B-28-17) 31CCC	1/13/82	654.1	2,352	USGS
(B-28-17) 31CCC	1/26/84	652.5	2,354	USGS
(B-28-17) 31CCC	1/23/85	653.4	2,353	USGS
(B-28-17) 31CCC	12/5/85	653.4	2,353	USGS
(B-28-17) 31CCC	1/1/86	653.0	2,353	USGS
(B-28-17) 31CCC	2/11/87	653.3	2,353	USGS
(B-28-17) 31CCC	1/13/88	653.3	2,353	USGS
(B-28-17) 31CCC	1/10/89	653.0	2,353	USGS
(B-28-17) 31CCC	1/17/90	652.6	2,354	USGS
(B-28-17) 31CCC	1/10/91	652.8	2,354	USGS
(B-28-17) 31CCC	10/29/91	652.9	2,354	USGS
(B-28-17) 31CCC	10/27/93	653.3	2,353	USGS
(B-28-17) 31CCC	11/1/94	651.4	2,355	USGS
(B-28-17) 31CCC	11/7/95	653.0	2,353	USGS
(B-28-17) 31CCC	11/7/96	653.1	2,353	USGS
(B-28-17) 31CCC	10/14/97	653.4	2,353	USGS
(B-28-17) 31CCC	10/20/98	652.5	2,354	USGS
(B-28-17) 31CCC	10/19/99	652.8	2,354	USGS
(B-28-17) 31CCC	10/25/00	652.5	2,354	USGS
(B-28-17) 31CCC	11/13/01	652.7	2,354	USGS
(B-28-17) 31CCC	10/22/02	652.5	2,354	USGS
(B-28-17) 31CCC	10/21/03	652.8	2,354	USGS
(B-28-17) 31CCC	10/19/04	652.4	2,354	ADWR
(B-28-17) 31CCC	10/25/05	652.5	2,354	ADWR

Sacramento Valley Basin

(B-13-15) 17CAC2	2/8/79	668.4	1,414	USGS
(B-13-15) 17CAC2	4/3/81	667.6	1,415	USGS
(B-13-15) 17CAC2	3/11/82	667.5	1,415	USGS
(B-13-15) 17CAC2	3/9/83	667.6	1,415	USGS
(B-13-15) 17CAC2	2/8/84	667.7	1,415	USGS
(B-13-15) 17CAC2	2/21/85	667.3	1,415	USGS
(B-13-15) 17CAC2	1/30/86	668.0	1,414	USGS
(B-13-15) 17CAC2	11/20/86	667.3	1,415	USGS
(B-13-15) 17CAC2	2/11/88	667.7	1,415	USGS
(B-13-15) 17CAC2	2/16/89	667.4	1,415	USGS
(B-13-15) 17CAC2	2/14/90	666.9	1,415	USGS
(B-13-15) 17CAC2	11/6/90	667.2	1,415	USGS
(B-13-15) 17CAC2	10/28/91	667.4	1,415	USGS

(B-13-15) 17CAC2	10/26/92	667.1	1,415	USGS
(B-13-15) 17CAC2	10/25/93	667.4	1,415	USGS
(B-13-15) 17CAC2	10/31/94	667.5	1,415	USGS
(B-13-15) 17CAC2	11/6/95	667.3	1,415	USGS
(B-13-15) 17CAC2	11/5/96	667.1	1,415	USGS
(B-13-15) 17CAC2	10/15/97	667.2	1,415	USGS
(B-13-15) 17CAC2	10/22/98	667.0	1,415	USGS
(B-13-15) 17CAC2	10/20/99	667.0	1,415	USGS
(B-13-15) 17CAC2	10/24/00	667.1	1,415	USGS
(B-13-15) 17CAC2	10/18/01	667.3	1,415	USGS
(B-13-15) 17CAC2	10/23/02	667.0	1,415	ADWR
(B-13-15) 17CAC2	10/22/03	667.1	1,415	ADWR
(B-13-15) 17CAC2	10/20/04	666.6	1,416	ADWR
(B-13-15) 17CAC2	10/26/05	667.1	1,415	ADWR
(B-13-15) 17CAC2	1/27/06	666.7	1,416	ADWR
(B-15-16) 07BDD	1/14/87	935.2	1,408	USGS
(B-15-16) 07BDD	1/13/88	935.1	1,408	USGS
(B-15-16) 07BDD	1/12/89	935.3	1,408	USGS
(B-15-16) 07BDD	3/9/90	935.2	1,408	USGS
(B-15-16) 07BDD	3/20/90	935.2	1,408	USGS
(B-15-16) 07BDD	11/6/90	934.8	1,409	USGS
(B-15-16) 07BDD	10/28/91	934.8	1,409	USGS
(B-15-16) 07BDD	10/26/92	935.2	1,408	USGS
(B-15-16) 07BDD	10/25/93	934.9	1,409	USGS
(B-15-16) 07BDD	10/31/94	932.9	1,411	ADWR
(B-15-16) 07BDD	11/6/95	935.3	1,408	ADWR
(B-15-16) 07BDD	11/5/96	937.5	1,406	ADWR
(B-15-16) 07BDD	10/15/97	935.7	1,408	USGS
(B-15-16) 07BDD	10/21/99	935.0	1,408	ADWR
(B-15-16) 07BDD	10/26/00	934.9	1,409	ADWR
(B-15-16) 07BDD	11/14/01	934.6	1,409	ADWR
(B-15-16) 07BDD	10/23/02	934.8	1,409	ADWR
(B-15-16) 07BDD	10/22/03	935.0	1,408	ADWR
(B-15-16) 07BDD	10/20/04	934.6	1,409	ADWR
(B-15-16) 07BDD	10/26/05	934.9	1,409	ADWR
(B-15-16) 07BDD	1/24/06	934.5	1,409	ADWR
(B-15-17) 07DCA1	2/12/86	426.7	1,396	USGS
(B-15-17) 07DCA1	1/14/87	427.1	1,395	USGS
(B-15-17) 07DCA1	1/13/88	426.9	1,395	USGS
(B-15-17) 07DCA1	1/12/89	427.0	1,395	USGS
(B-15-17) 07DCA1	3/9/90	426.7	1,396	USGS
(B-15-17) 07DCA1	11/6/90	426.6	1,396	USGS
(B-15-17) 07DCA1	10/28/91	426.8	1,396	USGS
(B-15-17) 07DCA1	10/26/92	426.4	1,396	USGS
(B-15-17) 07DCA1	10/25/93	426.6	1,396	USGS
(B-15-17) 07DCA1	11/6/95	426.6	1,396	ADWR
(B-15-17) 07DCA1	1/26/06	426.5	1,396	ADWR
(B-15-19) 07AAB	10/30/68	473.0	1,001	USGS
(B-15-19) 07AAB	2/11/88	477.9	996	USGS
(B-15-19) 07AAB	3/19/90	484.6	990	USGS
(B-15-19) 07AAB	11/8/90	486.7	988	USGS
(B-15-19) 07AAB	10/30/91	485.6	989	USGS
(B-15-19) 07AAB	10/29/92	485.1	989	USGS

(B-15-19) 07AAB	11/2/94	496.1	978	USGS
(B-15-19) 07AAB	11/8/95	486.8	987	USGS
(B-15-19) 07AAB	4/24/96	480.0	994	USGS
(B-15-19) 07AAB	10/21/98	480.7	994	USGS
(B-15-19) 07AAB	10/27/00	480.6	994	ADWR
(B-15-19) 07AAB	11/12/01	480.0	994	ADWR
(B-15-19) 07AAB	10/24/02	479.7	995	ADWR
(B-15-19) 07AAB	2/10/04	482.9	991	ADWR
(B-15-19) 07AAB	10/21/04	482.0	992	ADWR
(B-15-19) 07AAB	10/27/05	483.6	991	ADWR
(B-15-19) 07AAB	1/30/06	482.6	992	ADWR
(B-16-20) 13BCD	2/11/88	27.8	954	USGS
(B-16-20) 13BCD	1/10/89	22.5	960	USGS
(B-16-20) 13BCD	7/27/90	26.4	956	ADWR
(B-16-20) 13BCD	8/27/90	26.4	956	USGS
(B-16-20) 13BCD	11/8/90	24.0	958	USGS
(B-16-20) 13BCD	10/30/91	23.2	959	USGS
(B-16-20) 13BCD	10/21/98	35.7	947	USGS
(B-16-20) 13BCD	10/20/99	36.1	946	USGS
(B-16-20) 13BCD	10/26/00	61.6	921	USGS
(B-16-20) 13BCD	11/12/01	48.3	934	USGS
(B-16-20) 13BCD	10/24/02	42.3	940	ADWR
(B-16-20) 13BCD	2/9/04	38.2	944	ADWR
(B-16-20) 13BCD	10/21/04	40.4	942	ADWR
(B-16-20) 13BCD	10/27/05	41.8	940	USGS
(B-16-20) 13BCD	1/30/06	38.0	944	USGS
(B-16-20H) 11CCD	2/8/62	214.0	478	USGS
(B-16-20H) 11CCD	1/14/87	212.3	480	USGS
(B-16-20H) 11CCD	2/10/88	213.8	478	USGS
(B-16-20H) 11CCD	1/12/89	215.0	477	USGS
(B-16-20H) 11CCD	1/30/90	215.6	477	USGS
(B-16-20H) 11CCD	11/8/90	215.9	476	USGS
(B-16-20H) 11CCD	10/30/91	216.3	476	USGS
(B-16-20H) 11CCD	10/29/92	216.9	475	USGS
(B-16-20H) 11CCD	10/26/93	217.4	475	USGS
(B-16-20H) 11CCD	11/2/94	216.9	475	USGS
(B-16-20H) 11CCD	11/8/95	217.4	475	USGS
(B-16-20H) 11CCD	10/15/97	216.6	476	USGS
(B-16-20H) 11CCD	10/20/99	220.1	472	USGS
(B-16-20H) 11CCD	10/26/00	219.4	473	USGS
(B-16-20H) 11CCD	11/14/01	224.8	467	USGS
(B-16-20H) 11CCD	2/10/04	218.1	474	ADWR
(B-16-20H) 11CCD	10/27/05	218.1	474	USGS
(B-16-20H) 11CCD	6/15/06	219.9	472	ADWR
(B-16-20H) 14BCA	11/30/52	219.0	512	USGS
(B-16-20H) 14BCA	6/22/53	218.0	513	USGS
(B-16-20H) 14BCA	12/21/54	214.0	517	USGS
(B-16-20H) 14BCA	10/10/56	215.0	516	USGS
(B-16-20H) 14BCA	6/20/57	216.0	515	USGS
(B-16-20H) 14BCA	10/19/57	215.0	516	USGS
(B-16-20H) 14BCA	1/9/58	212.0	519	USGS
(B-16-20H) 14BCA	11/30/68	219.0	512	USGS
(B-16-20H) 14BCA	11/30/71	211.0	520	USGS

(B-16-20H) 14BCA	11/30/75	225.0	506	USGS
(B-16-20H) 14BCA	10/5/90	240.0	491	USGS
(B-16-20H) 14BCA	11/8/95	232.0	499	USGS
(B-16-20H) 14BCA	10/20/99	220.3	511	ADWR
(B-16-20H) 14BCA	10/26/00	219.6	512	ADWR
(B-16-20H) 14BCA	11/14/01	225.0	506	ADWR
(B-16-20H) 14BCA	10/21/04	222.3	509	ADWR
(B-17-17W) 19BAD	1/18/73	387.0	1,450	USGS
(B-17-17W) 19BAD	1/23/74	386.4	1,451	USGS
(B-17-17W) 19BAD	1/23/75	387.2	1,450	USGS
(B-17-17W) 19BAD	1/15/76	387.1	1,450	USGS
(B-17-17W) 19BAD	1/21/77	386.6	1,451	USGS
(B-17-17W) 19BAD	2/21/78	386.7	1,451	USGS
(B-17-17W) 19BAD	2/8/79	385.5	1,452	USGS
(B-17-17W) 19BAD	3/3/80	386.0	1,451	USGS
(B-17-17W) 19BAD	1/29/86	382.8	1,455	USGS
(B-17-17W) 19BAD	1/14/87	384.0	1,453	USGS
(B-17-17W) 19BAD	1/13/88	384.3	1,453	USGS
(B-17-17W) 19BAD	1/12/89	383.8	1,454	USGS
(B-17-17W) 19BAD	3/9/90	384.3	1,453	USGS
(B-17-17W) 19BAD	3/21/90	383.7	1,454	USGS
(B-17-17W) 19BAD	11/6/90	383.4	1,454	USGS
(B-17-17W) 19BAD	10/28/91	383.3	1,454	USGS
(B-17-17W) 19BAD	10/26/92	382.7	1,455	USGS
(B-17-17W) 19BAD	10/25/93	382.5	1,455	USGS
(B-17-17W) 19BAD	11/6/95	383.0	1,454	USGS
(B-17-17W) 19BAD	11/9/95	383.0	1,454	ADWR
(B-17-17W) 19BAD	11/6/96	384.7	1,453	USGS
(B-17-17W) 19BAD	10/15/97	383.6	1,454	USGS
(B-17-17W) 19BAD	10/21/98	383.5	1,454	USGS
(B-17-17W) 19BAD	10/20/99	384.7	1,453	USGS
(B-17-17W) 19BAD	10/26/00	383.9	1,453	ADWR
(B-18-18) 01DCD	11/1/64	540.0	1,643	USGS
(B-18-18) 01DCD	5/31/90	532.1	1,651	USGS
(B-18-18) 01DCD	11/6/90	531.6	1,652	USGS
(B-18-18) 01DCD	10/28/91	531.6	1,652	USGS
(B-18-18) 01DCD	10/26/92	531.7	1,652	USGS
(B-18-18) 01DCD	11/2/94	530.4	1,653	USGS
(B-18-18) 01DCD	11/9/95	530.1	1,653	USGS
(B-18-18) 01DCD	11/6/96	530.4	1,653	USGS
(B-18-18) 01DCD	10/15/97	529.5	1,654	USGS
(B-18-18) 01DCD	10/21/98	529.1	1,654	USGS
(B-18-18) 01DCD	10/20/99	529.9	1,654	USGS
(B-18-18) 01DCD	11/26/00	528.3	1,655	USGS
(B-18-18) 01DCD	11/12/01	528.0	1,655	USGS
(B-18-18) 01DCD	10/23/02	527.7	1,656	USGS
(B-18-18) 01DCD	10/22/03	527.9	1,656	ADWR
(B-18-18) 01DCD	10/20/04	527.4	1,656	ADWR
(B-18-18) 01DCD	10/26/05	527.9	1,656	ADWR
(B-18-18) 01DCD	1/24/06	527.8	1,656	ADWR
(B-20-17E) 07AAB2	10/14/97	177.3	2,689	ADWR
(B-20-17E) 07AAB2	10/22/98	173.8	2,693	ADWR
(B-20-17E) 07AAB2	10/20/99	176.8	2,690	ADWR

(B-20-17E) 07AAB2	10/26/00	179.2	2,687	ADWR
(B-20-17E) 07AAB2	11/13/01	179.7	2,687	ADWR
(B-20-17E) 07AAB2	10/23/02	180.9	2,686	ADWR
(B-20-17E) 07AAB2	10/22/03	179.4	2,687	ADWR
(B-20-17E) 07AAB2	10/20/04	182.2	2,684	ADWR
(B-20-17E) 07AAB2	10/26/05	167.5	2,699	ADWR
(B-20-17E) 07AAB2	1/26/06	168.9	2,698	ADWR
(B-20-18) 04BBB	10/13/64	736.8	1,790	USGS
(B-20-18) 04BBB	11/30/64	736.5	1,790	USGS
(B-20-18) 04BBB	4/27/65	738.0	1,788	USGS
(B-20-18) 04BBB	9/22/65	742.6	1,784	USGS
(B-20-18) 04BBB	2/14/68	748.7	1,778	USGS
(B-20-18) 04BBB	1/26/71	742.3	1,784	USGS
(B-20-18) 04BBB	1/27/71	743.6	1,783	USGS
(B-20-18) 04BBB	1/17/74	733.0	1,793	USGS
(B-20-18) 04BBB	11/1/74	752.3	1,774	USGS
(B-20-18) 04BBB	3/25/75	756.0	1,770	USGS
(B-20-18) 04BBB	4/1/76	760.0	1,766	USGS
(B-20-18) 04BBB	8/1/77	755.0	1,771	USGS
(B-20-18) 04BBB	12/29/81	755.0	1,771	USGS
(B-20-18) 04BBB	3/21/90	749.7	1,777	USGS
(B-20-18) 04BBB	11/9/95	748.6	1,778	ADWR
(B-20-18) 04BBB	10/22/04	746.6	1,780	ADWR
(B-20-18) 04BBB	10/27/05	746.8	1,780	ADWR
(B-20-18) 04BBB	1/24/06	746.8	1,780	ADWR
(B-20-18) 22AAC	5/4/64	738.3	1,759	USGS
(B-20-18) 22AAC	10/14/64	737.6	1,760	USGS
(B-20-18) 22AAC	11/9/64	737.4	1,760	USGS
(B-20-18) 22AAC	12/4/64	737.9	1,760	USGS
(B-20-18) 22AAC	12/31/64	737.6	1,760	USGS
(B-20-18) 22AAC	2/1/65	737.4	1,760	USGS
(B-20-18) 22AAC	3/2/65	737.7	1,760	USGS
(B-20-18) 22AAC	4/2/65	737.5	1,760	USGS
(B-20-18) 22AAC	5/4/65	737.5	1,760	USGS
(B-20-18) 22AAC	6/7/65	737.4	1,760	USGS
(B-20-18) 22AAC	7/1/65	737.5	1,760	USGS
(B-20-18) 22AAC	7/30/65	737.5	1,760	USGS
(B-20-18) 22AAC	8/31/65	737.6	1,760	USGS
(B-20-18) 22AAC	9/28/65	737.5	1,760	USGS
(B-20-18) 22AAC	10/29/65	737.6	1,760	USGS
(B-20-18) 22AAC	11/29/65	737.5	1,760	USGS
(B-20-18) 22AAC	3/31/66	737.7	1,760	USGS
(B-20-18) 22AAC	2/16/67	737.3	1,760	USGS
(B-20-18) 22AAC	2/14/68	736.5	1,761	USGS
(B-20-18) 22AAC	1/27/70	739.7	1,758	USGS
(B-20-18) 22AAC	1/21/71	740.7	1,757	USGS
(B-20-18) 22AAC	1/27/72	740.7	1,757	USGS
(B-20-18) 22AAC	1/18/73	732.9	1,765	USGS
(B-20-18) 22AAC	1/23/74	738.8	1,759	USGS
(B-20-18) 22AAC	1/24/75	740.1	1,757	USGS
(B-20-18) 22AAC	1/15/76	740.9	1,757	USGS
(B-20-18) 22AAC	2/16/77	741.1	1,756	USGS
(B-20-18) 22AAC	2/21/78	741.4	1,756	USGS

(B-20-18) 22AAC	2/6/79	743.3	1,754	USGS
(B-20-18) 22AAC	3/4/80	739.0	1,758	USGS
(B-20-18) 22AAC	1/17/84	738.9	1,759	USGS
(B-20-18) 22AAC	1/16/85	743.8	1,754	USGS
(B-20-18) 22AAC	1/14/87	744.6	1,753	USGS
(B-20-18) 22AAC	1/12/88	744.7	1,753	USGS
(B-20-18) 22AAC	1/11/89	744.8	1,753	USGS
(B-20-18) 22AAC	2/1/90	746.3	1,751	USGS
(B-20-18) 22AAC	3/20/90	745.0	1,752	USGS
(B-20-18) 22AAC	11/7/90	745.9	1,752	USGS
(B-20-18) 22AAC	11/13/90	744.3	1,753	USGS
(B-20-18) 22AAC	2/12/91	744.4	1,753	USGS
(B-20-18) 22AAC	5/7/91	744.1	1,753	USGS
(B-20-18) 22AAC	8/7/91	744.5	1,753	USGS
(B-20-18) 22AAC	11/11/91	744.3	1,753	USGS
(B-20-18) 22AAC	2/11/92	744.5	1,753	USGS
(B-20-18) 22AAC	5/13/92	744.3	1,753	USGS
(B-20-18) 22AAC	8/13/92	744.7	1,753	USGS
(B-20-18) 22AAC	11/10/92	744.3	1,753	USGS
(B-20-18) 22AAC	1/11/93	744.6	1,753	USGS
(B-20-18) 22AAC	5/12/93	744.4	1,753	USGS
(B-20-18) 22AAC	8/17/93	744.7	1,753	USGS
(B-20-18) 22AAC	11/17/93	744.8	1,753	USGS
(B-20-18) 22AAC	2/15/94	744.6	1,753	USGS
(B-20-18) 22AAC	5/17/94	744.6	1,753	USGS
(B-20-18) 22AAC	8/16/94	744.3	1,753	USGS
(B-20-18) 22AAC	11/16/94	743.9	1,754	USGS
(B-20-18) 22AAC	2/14/95	743.8	1,754	USGS
(B-20-18) 22AAC	5/16/95	744.1	1,753	USGS
(B-20-18) 22AAC	8/16/95	744.5	1,753	USGS
(B-20-18) 22AAC	11/15/95	744.5	1,753	USGS
(B-20-18) 22AAC	2/13/96	744.1	1,753	USGS
(B-20-18) 22AAC	5/15/96	744.6	1,753	USGS
(B-20-18) 22AAC	8/15/96	744.7	1,753	USGS
(B-20-18) 22AAC	11/11/96	744.2	1,753	USGS
(B-20-18) 22AAC	2/3/97	744.8	1,753	USGS
(B-20-18) 22AAC	5/15/97	744.7	1,753	USGS
(B-20-18) 22AAC	8/12/97	744.6	1,753	USGS
(B-20-18) 22AAC	11/13/97	744.3	1,753	USGS
(B-20-18) 22AAC	2/10/98	745.1	1,752	USGS
(B-20-18) 22AAC	5/12/98	744.1	1,753	USGS
(B-20-18) 22AAC	8/13/98	744.2	1,753	USGS
(B-20-18) 22AAC	11/17/98	743.9	1,754	USGS
(B-20-18) 22AAC	2/11/99	744.7	1,753	USGS
(B-20-18) 22AAC	5/11/99	743.6	1,754	USGS
(B-20-18) 22AAC	8/17/99	744.5	1,753	USGS
(B-20-18) 22AAC	11/9/99	744.1	1,753	USGS
(B-20-18) 22AAC	2/9/00	743.9	1,754	USGS
(B-20-18) 22AAC	5/9/00	744.2	1,753	USGS
(B-20-18) 22AAC	8/7/00	744.2	1,753	USGS
(B-20-18) 22AAC	11/14/00	744.5	1,753	USGS
(B-20-18) 22AAC	2/12/01	743.7	1,754	USGS
(B-20-18) 22AAC	5/16/01	743.8	1,754	USGS

(B-20-18) 22AAC	8/14/01	744.1	1,753	USGS
(B-20-18) 22AAC	11/13/01	744.2	1,753	USGS
(B-20-18) 22AAC	5/15/02	744.2	1,753	USGS
(B-20-18) 22AAC	8/13/02	744.8	1,753	USGS
(B-20-18) 22AAC	11/20/02	744.3	1,753	ADWR
(B-20-18) 22AAC	2/12/03	743.8	1,754	ADWR
(B-20-18) 22AAC	5/14/03	743.6	1,754	ADWR
(B-20-18) 22AAC	8/11/03	743.5	1,754	ADWR
(B-20-18) 22AAC	11/12/03	743.9	1,754	ADWR
(B-20-18) 22AAC	2/18/04	744.7	1,753	ADWR
(B-20-18) 22AAC	5/11/04	743.8	1,754	ADWR
(B-20-18) 22AAC	8/18/04	743.9	1,754	ADWR
(B-20-18) 22AAC	11/16/04	743.9	1,754	ADWR
(B-20-18) 22AAC	3/9/05	744.3	1,753	ADWR
(B-20-18) 22AAC	5/16/05	744.9	1,753	ADWR
(B-20-18) 22AAC	8/16/05	745.2	1,752	ADWR
(B-20-18) 22AAC	11/7/05	745.3	1,752	ADWR
(B-20-18) 22AAC	2/15/06	744.6	1,753	ADWR
(B-20-18) 22AAC	5/17/06	745.1	1,752	ADWR
(B-21-17) 24CBC	4/17/78	118.0	3,215	USGS
(B-21-17) 24CBC	1/17/84	127.3	3,205	USGS
(B-21-17) 24CBC	1/16/85	128.0	3,205	USGS
(B-21-17) 24CBC	1/30/86	126.9	3,206	USGS
(B-21-17) 24CBC	1/15/88	129.2	3,203	USGS
(B-21-17) 24CBC	1/11/89	131.4	3,201	USGS
(B-21-17) 24CBC	3/9/90	131.2	3,201	USGS
(B-21-17) 24CBC	11/7/90	132.4	3,200	USGS
(B-21-17) 24CBC	10/28/91	133.5	3,199	USGS
(B-21-17) 24CBC	10/27/92	134.0	3,199	USGS
(B-21-17) 24CBC	10/25/93	132.1	3,200	USGS
(B-21-17) 24CBC	11/6/95	131.9	3,201	USGS
(B-21-17) 24CBC	11/7/96	135.6	3,197	USGS
(B-21-17) 24CBC	10/14/97	133.3	3,199	USGS
(B-21-17) 24CBC	10/22/98	132.0	3,201	USGS
(B-21-17) 24CBC	10/20/99	134.5	3,198	USGS
(B-21-17) 24CBC	10/26/00	134.7	3,198	USGS
(B-21-17) 24CBC	11/14/01	136.1	3,196	USGS
(B-21-17) 24CBC	10/23/02	138.4	3,194	ADWR
(B-21-17) 24CBC	10/22/03	138.6	3,194	ADWR
(B-21-17) 24CBC	10/19/04	140.2	3,192	ADWR
(B-21-17) 24CBC	10/26/05	138.6	3,194	ADWR
(B-21-17) 24CBC	1/26/06	136.3	3,196	ADWR
(B-21-17) 24CDD2	8/14/44	101.5	3,236	USGS
(B-21-17) 24CDD2	1/11/45	102.2	3,235	USGS
(B-21-17) 24CDD2	6/7/45	102.4	3,235	USGS
(B-21-17) 24CDD2	10/2/45	102.6	3,235	USGS
(B-21-17) 24CDD2	6/25/46	103.1	3,234	USGS
(B-21-17) 24CDD2	10/4/46	103.9	3,234	USGS
(B-21-17) 24CDD2	6/16/47	106.3	3,231	USGS
(B-21-17) 24CDD2	6/8/48	105.1	3,232	USGS
(B-21-17) 24CDD2	10/19/48	106.3	3,231	USGS
(B-21-17) 24CDD2	7/7/49	106.2	3,231	USGS
(B-21-17) 24CDD2	8/2/50	107.6	3,230	USGS

(B-21-17) 24CDD2	2/24/51	107.2	3,230	USGS
(B-21-17) 24CDD2	8/2/51	108.8	3,229	USGS
(B-21-17) 24CDD2	2/15/52	111.1	3,226	USGS
(B-21-17) 24CDD2	9/19/52	112.5	3,225	USGS
(B-21-17) 24CDD2	2/13/53	110.9	3,227	USGS
(B-21-17) 24CDD2	7/22/53	109.4	3,228	USGS
(B-21-17) 24CDD2	10/5/54	109.8	3,228	USGS
(B-21-17) 24CDD2	6/1/55	108.6	3,229	USGS
(B-21-17) 24CDD2	11/9/55	110.0	3,228	USGS
(B-21-17) 24CDD2	6/18/56	110.4	3,227	USGS
(B-21-17) 24CDD2	10/24/56	111.3	3,226	USGS
(B-21-17) 24CDD2	5/31/57	111.3	3,226	USGS
(B-21-17) 24CDD2	2/18/58	111.7	3,226	USGS
(B-21-17) 24CDD2	1/29/59	112.6	3,225	USGS
(B-21-17) 24CDD2	3/9/60	114.7	3,223	USGS
(B-21-17) 24CDD2	4/19/61	114.9	3,223	USGS
(B-21-17) 24CDD2	4/4/62	117.1	3,220	USGS
(B-21-17) 24CDD2	2/12/63	120.0	3,218	USGS
(B-21-17) 24CDD2	1/28/64	119.9	3,218	USGS
(B-21-17) 24CDD2	3/2/65	119.4	3,218	USGS
(B-21-17) 24CDD2	2/16/67	118.3	3,219	USGS
(B-21-17) 24CDD2	2/14/68	116.4	3,221	USGS
(B-21-17) 24CDD2	1/30/69	114.4	3,223	USGS
(B-21-17) 24CDD2	1/28/70	115.2	3,222	USGS
(B-21-17) 24CDD2	1/22/71	113.4	3,224	USGS
(B-21-17) 24CDD2	1/27/72	112.6	3,225	USGS
(B-21-17) 24CDD2	1/18/73	111.2	3,226	USGS
(B-21-17) 24CDD2	1/22/74	110.9	3,227	USGS
(B-21-17) 24CDD2	1/23/75	110.7	3,227	USGS
(B-21-17) 24CDD2	1/15/76	110.4	3,227	USGS
(B-21-17) 24CDD2	1/20/77	110.4	3,227	USGS
(B-21-17) 24CDD2	2/21/78	111.3	3,226	USGS
(B-21-17) 24CDD2	2/6/79	113.0	3,225	USGS
(B-21-17) 24CDD2	3/3/80	113.0	3,225	USGS
(B-21-17) 24CDD2	2/17/81	113.6	3,224	USGS
(B-21-17) 34DDB	2/15/52	60.1	2,992	USGS
(B-21-17) 34DDB	5/23/52	58.9	2,994	USGS
(B-21-17) 34DDB	9/16/52	61.1	2,991	USGS
(B-21-17) 34DDB	2/13/53	62.6	2,990	USGS
(B-21-17) 34DDB	7/22/53	61.8	2,991	USGS
(B-21-17) 34DDB	10/5/54	61.3	2,991	USGS
(B-21-17) 34DDB	6/1/55	61.3	2,991	USGS
(B-21-17) 34DDB	11/9/55	61.2	2,991	USGS
(B-21-17) 34DDB	6/18/56	61.1	2,992	USGS
(B-21-17) 34DDB	10/24/56	60.7	2,992	USGS
(B-21-17) 34DDB	5/31/57	61.5	2,991	USGS
(B-21-17) 34DDB	2/18/58	59.5	2,993	USGS
(B-21-17) 34DDB	1/29/59	60.4	2,992	USGS
(B-21-17) 34DDB	3/9/60	60.5	2,992	USGS
(B-21-17) 34DDB	4/18/61	60.9	2,992	USGS
(B-21-17) 34DDB	4/4/62	59.9	2,993	USGS
(B-21-17) 34DDB	2/12/63	60.0	2,993	USGS
(B-21-17) 34DDB	1/29/64	59.4	2,993	USGS

(B-21-17) 34DDB	3/2/65	59.6	2,993	USGS
(B-21-17) 34DDB	3/31/66	58.5	2,994	USGS
(B-21-17) 34DDB	2/16/67	60.2	2,992	USGS
(B-21-17) 34DDB	2/14/68	59.3	2,993	USGS
(B-21-17) 34DDB	1/30/69	58.9	2,994	USGS
(B-21-17) 34DDB	1/27/70	60.3	2,992	USGS
(B-21-17) 34DDB	1/21/71	60.8	2,992	USGS
(B-21-17) 34DDB	1/27/72	58.7	2,994	USGS
(B-21-17) 34DDB	1/18/73	57.9	2,995	USGS
(B-21-17) 34DDB	1/22/74	59.6	2,993	USGS
(B-21-17) 34DDB	1/23/75	59.7	2,993	USGS
(B-21-17) 34DDB	1/15/76	59.1	2,993	USGS
(B-21-17) 34DDB	1/21/77	59.4	2,993	USGS
(B-21-17) 34DDB	2/21/78	60.4	2,992	USGS
(B-21-17) 34DDB	2/10/83	58.2	2,994	USGS
(B-21-17) 34DDB	1/17/84	57.4	2,995	USGS
(B-21-17) 34DDB	1/16/85	57.7	2,995	USGS
(B-21-17) 34DDB	1/29/86	58.4	2,994	USGS
(B-21-17) 34DDB	1/14/87	59.1	2,993	USGS
(B-21-17) 34DDB	1/12/88	58.7	2,994	USGS
(B-21-17) 34DDB	1/11/89	58.6	2,994	USGS
(B-21-17) 34DDB	2/1/90	59.1	2,993	USGS
(B-21-17) 34DDB	8/29/90	56.8	2,996	USGS
(B-21-17) 34DDB	11/7/90	56.7	2,996	USGS
(B-21-17) 34DDB	10/28/91	58.8	2,994	USGS
(B-21-17) 34DDB	10/28/92	58.0	2,995	USGS
(B-21-17) 34DDB	10/26/93	56.6	2,996	USGS
(B-21-17) 34DDB	11/1/94	58.4	2,994	ADWR
(B-21-17) 34DDB	11/7/95	58.8	2,994	ADWR
(B-21-17) 34DDB	2/3/97	58.6	2,994	ADWR
(B-21-17) 34DDB	10/14/97	59.0	2,994	ADWR
(B-21-17) 34DDB	10/14/97	59.0	2,994	USGS
(B-21-17) 34DDB	10/22/98	59.2	2,993	ADWR
(B-21-17) 34DDB	10/20/99	59.8	2,993	ADWR
(B-21-17) 34DDB	10/26/00	60.2	2,992	ADWR
(B-21-17) 34DDB	11/13/01	60.8	2,992	ADWR
(B-21-17) 34DDB	10/23/02	60.6	2,992	ADWR
(B-21-17) 34DDB	10/22/03	59.6	2,993	ADWR
(B-21-17) 34DDB	10/20/04	61.2	2,991	ADWR
(B-21-17) 34DDB	10/26/05	57.5	2,995	ADWR
(B-21-17) 34DDB	1/26/06	56.4	2,996	ADWR
(B-21-17S) 03CDA2	5/20/43	45.2	3,882	USGS
(B-21-17S) 03CDA2	6/5/43	46.2	3,881	USGS
(B-21-17S) 03CDA2	7/18/43	46.6	3,881	USGS
(B-21-17S) 03CDA2	9/29/43	57.8	3,870	USGS
(B-21-17S) 03CDA2	10/30/43	58.8	3,869	USGS
(B-21-17S) 03CDA2	11/17/43	59.9	3,867	USGS
(B-21-17S) 03CDA2	12/3/43	60.9	3,866 S	USGS
(B-21-17S) 03CDA2	12/17/43	61.9	3,865 S	USGS
(B-21-17S) 03CDA2	12/31/43	62.8	3,865 S	USGS
(B-21-17S) 03CDA2	1/14/44	63.5	3,864	USGS
(B-21-17S) 03CDA2	1/29/44	64.2	3,863 S	USGS
(B-21-17S) 03CDA2	2/11/44	65.0	3,862	USGS

(B-21-17S) 03CDA2	2/25/44	66.6	3,861	USGS
(B-21-17S) 03CDA2	3/10/44	67.3	3,860	USGS
(B-21-17S) 03CDA2	3/31/44	68.6	3,859 S	USGS
(B-21-17S) 03CDA2	4/14/44	68.2	3,859 T	USGS
(B-21-17S) 03CDA2	4/28/44	69.8	3,858	USGS
(B-21-17S) 03CDA2	5/15/51	95.2	3,832	USGS
(B-21-17S) 03CDA2	9/18/51	96.0	3,831	USGS
(B-21-17S) 03CDA2	12/10/51	100.4	3,827	USGS
(B-21-17S) 03CDA2	9/18/52	96.0	3,831	USGS
(B-21-17S) 03CDA2	1/23/55	82.3	3,845	USGS
(B-21-17S) 03CDA2	3/21/90	83.0	3,844	USGS
(B-21-17S) 03CDA2	2/2/06	81.0	3,846	ADWR
(B-21-17S) 03DAD	6/4/43	21.2	3,815	USGS
(B-21-17S) 03DAD	8/16/43	20.5	3,816	USGS
(B-21-17S) 03DAD	9/10/43	20.7	3,816	USGS
(B-21-17S) 03DAD	9/29/43	20.9	3,816	USGS
(B-21-17S) 03DAD	10/19/43	21.8	3,815	USGS
(B-21-17S) 03DAD	11/2/43	22.2	3,814	USGS
(B-21-17S) 03DAD	11/17/43	22.9	3,814	USGS
(B-21-17S) 03DAD	12/3/43	24.3	3,812	USGS
(B-21-17S) 03DAD	12/17/43	25.2	3,811	USGS
(B-21-17S) 03DAD	12/31/43	25.7	3,811	USGS
(B-21-17S) 03DAD	1/14/44	26.9	3,810	USGS
(B-21-17S) 03DAD	1/29/44	26.9	3,810	USGS
(B-21-17S) 03DAD	2/11/44	27.2	3,809	USGS
(B-21-17S) 03DAD	2/25/44	27.0	3,810	USGS
(B-21-17S) 03DAD	3/10/44	26.8	3,810	USGS
(B-21-17S) 03DAD	3/31/44	28.1	3,808	USGS
(B-21-17S) 03DAD	4/14/44	27.6	3,809	USGS
(B-21-17S) 03DAD	4/28/44	28.4	3,808	USGS
(B-21-17S) 03DAD	12/10/51	31.0	3,806	USGS
(B-21-17S) 03DAD	2/14/52	30.7	3,806	USGS
(B-21-17S) 03DAD	5/15/52	30.4	3,806	USGS
(B-21-17S) 03DAD	2/13/53	32.0	3,805	USGS
(B-21-17S) 03DAD	6/2/55	32.1	3,804	USGS
(B-21-17S) 03DAD	11/19/55	31.5	3,805	USGS
(B-21-17S) 03DAD	6/19/56	31.4	3,805	USGS
(B-21-17S) 03DAD	10/24/56	31.3	3,805	USGS
(B-21-17S) 03DAD	5/31/57	29.5	3,807	USGS
(B-21-17S) 03DAD	2/18/58	29.4	3,807	USGS
(B-21-17S) 03DAD	1/28/59	28.6	3,808	USGS
(B-21-17S) 03DAD	4/19/61	31.6	3,805	USGS
(B-21-17S) 03DAD	9/19/61	30.6	3,806	USGS
(B-21-17S) 03DAD	4/5/62	30.1	3,807	USGS
(B-21-17S) 03DAD	2/13/63	30.3	3,806	USGS
(B-21-18) 09BBA	4/27/65	1,025.1	1,809	USGS
(B-21-18) 09BBA	8/8/66	1,026.3	1,808	USGS
(B-21-18) 09BBA	2/16/67	1,026.0	1,809	USGS
(B-21-18) 09BBA	2/14/68	1,025.0	1,810	USGS
(B-21-18) 09BBA	1/30/69	1,026.8	1,808	USGS
(B-21-18) 09BBA	1/28/70	1,025.6	1,809	USGS
(B-21-18) 09BBA	1/28/71	1,025.8	1,809	USGS
(B-21-18) 09BBA	1/27/72	1,034.5	1,800	USGS

(B-21-18) 09BBA	1/19/73	1,025.5	1,809	USGS
(B-21-18) 09BBA	1/22/74	1,012.9	1,822	USGS
(B-21-18) 09BBA	1/23/75	1,036.9	1,798	USGS
(B-21-18) 09BBA	1/16/76	1,028.2	1,806	USGS
(B-21-18) 09BBA	1/20/77	1,028.1	1,806	USGS
(B-21-18) 09BBA	2/22/78	1,039.4	1,795	USGS
(B-21-18) 09BBA	3/5/79	1,028.6	1,806	USGS
(B-21-18) 09BBA	11/8/90	1,054.8	1,780	USGS
(B-21-18) 09BBA	10/30/91	1,060.4	1,774 S	USGS
(B-21-18) 09BBA	11/11/91	1,057.7	1,777	USGS
(B-21-18) 09BBA	10/27/92	1,058.3	1,776	USGS
(B-21-18) 09BBA	10/26/93	1,059.7	1,775	USGS
(B-21-18) 09BBA	11/1/94	1,060.8	1,774	USGS
(B-21-18) 09BBA	11/7/95	1,058.7	1,776	USGS
(B-21-18) 09BBA	11/7/96	1,058.6	1,776	USGS
(B-21-18) 09BBA	10/14/97	1,059.7	1,775	USGS
(B-21-18) 09BBA	10/21/99	1,061.1	1,773	USGS
(B-21-18) 09BBA	10/27/00	1,060.1	1,774	USGS
(B-21-18) 09BBA	11/14/01	1,060.5	1,774	USGS
(B-21-18) 09BBA	10/24/02	1,061.5	1,773	ADWR
(B-21-18) 09BBA	10/23/03	1,062.2	1,772	ADWR
(B-21-18) 09BBA	10/21/04	1,060.6	1,774	ADWR
(B-21-18) 09BBA	10/27/05	1,055.2	1,779	ADWR
(B-21-18) 09BBA	1/24/06	1,050.7	1,784	ADWR
(B-21-18) 21BCC	1/16/84	897.0	1,770	USGS
(B-21-18) 21BCC	1/15/85	900.5	1,767	USGS
(B-21-18) 21BCC	1/29/86	899.1	1,768	USGS
(B-21-18) 21BCC	1/14/87	899.5	1,768	USGS
(B-21-18) 21BCC	1/12/88	898.6	1,769	USGS
(B-21-18) 21BCC	1/11/89	898.1	1,769	USGS
(B-21-18) 21BCC	3/9/90	897.7	1,770	USGS
(B-21-18) 21BCC	3/20/90	897.6	1,770	USGS
(B-21-18) 21BCC	11/8/90	897.6	1,770	USGS
(B-21-18) 21BCC	10/29/91	897.4	1,770	USGS
(B-21-18) 21BCC	10/26/92	897.0	1,770	USGS
(B-21-18) 21BCC	10/26/93	896.9	1,771	USGS
(B-21-18) 21BCC	11/7/95	896.1	1,771 *	ADWR
(B-21-18) 21BCC	11/7/96	896.1	1,771 *	ADWR
(B-21-18) 21BCC	10/22/98	895.4	1,772	ADWR
(B-21-18) 21BCC	10/19/99	896.6	1,771	ADWR
(B-21-18) 21BCC	10/25/00	896.2	1,771	ADWR
(B-21-18) 21BCC	11/13/01	895.2	1,772	ADWR
(B-21-18) 32DCC	10/13/64	750.9	1,783	USGS
(B-21-18) 32DCC	11/30/64	749.7	1,784	USGS
(B-21-18) 32DCC	3/31/66	759.0	1,774	USGS
(B-21-18) 32DCC	3/23/72	774.0	1,759	USGS
(B-21-18) 32DCC	1/19/73	762.0	1,771	USGS
(B-21-18) 32DCC	7/1/75	780.0	1,753	USGS
(B-21-18) 32DCC	1/1/79	775.0	1,758	USGS
(B-21-18) 32DCC	2/28/80	775.0	1,758	USGS
(B-21-18) 32DCC	12/29/81	776.0	1,757	USGS
(B-21-18) 32DCC	5/31/90	766.4	1,767	USGS
(B-21-18) 32DCC	11/9/95	763.7	1,770	ADWR

(B-21-18) 32DCC	1/24/06	763.3	1,770	ADWR
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