U.S. DEPARTMENT OF THE INTERIOR
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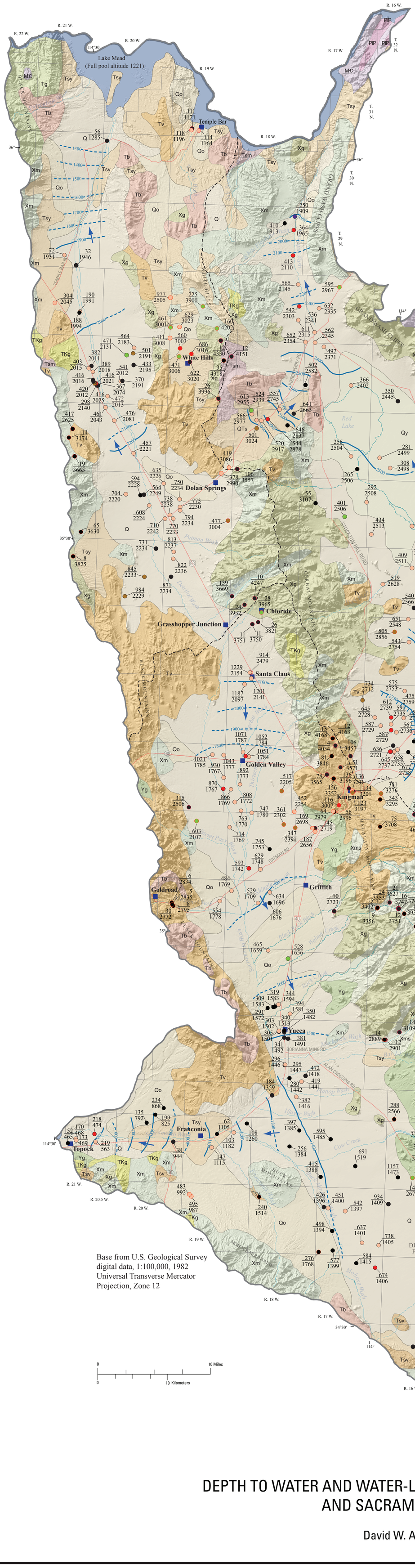
PREPARED IN COOPERATION WITH THE
ARIZONA DEPARTMENT OF WATER RESOURCES

SCIENTIFIC INVESTIGATIONS REPORT 2007-5182

Depth to water and water-level altitude in 2006 for selected wells, Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona—Plate 1

David W. Anning, Margot Truini, Marilyn E. Flynn, and William H. Remick, 2007,
Ground-water occurrence and movement, 2006, and water-level changes in the Detrital, Hualapai, and Sacramento Valley Basins, Mohave County, Arizona



Base from U.S. Geological Survey
digital data, 1:100,000, 1982
Universal Transverse Mercator
Projection, Zone 12

EXPLANATION

YOUNGER ALLUVIUM

- **Qy** SURFICIAL DEPOSITS, HOLOCENE—Unconsolidated playa and stream deposits associated with Red Lake playa. This unit includes: coarse, poorly sorted alluvial-fan and terrace deposits on middle and upper piedmonts and along large drainages; sand, silt and clay on alluvial plains and playas; and wind-blown sand deposits.
- **Q** SURFICIAL DEPOSITS, UNDIVIDED, QUATERNARY—Unconsolidated to strongly consolidated alluvial deposits. Includes Chemehuevi Formation in northern Detrital and Hualapai Valley Basins.

INTERMEDIATE ALLUVIUM

- **Qo** SURFICIAL DEPOSITS, EARLY PLEISTOCENE TO LATEST PLIOCENE—Coarse relict alluvial-fan deposits that form rounded ridges or flat, isolated surfaces that are moderately to deeply incised by streams. These deposits are generally topographically high and have undergone substantial erosion. Deposits are moderately to strongly consolidated, and commonly contain coarser grained sediment than younger deposits in the same area.

OLDER ALLUVIUM

- **QTs** BASIN DEPOSITS, EARLY PLEISTOCENE TO LATE MIOCENE—Poorly sorted, variably consolidated gravel and sand that range widely in age. This unit generally is mapped in areas of deep late Cenozoic stream incision and landscape degradation where thin Quaternary deposits (map units Qy and Qo) discontinuously blanket older deposits (map units Tsy and Tsm) and the two cannot be differentiated at the scale of this map.
- **Tsy** BASIN DEPOSITS, PLIOCENE TO MIDDLE MIOCENE—Moderately to strongly consolidated conglomerate and sandstone deposits in basins during and after late Tertiary faulting. Includes lesser amounts of mudstone, siltstone, limestone, and gypsum. Includes the Muddy Creek Formation in northern Detrital and Hualapai Valley Basins.

- **Tb** BASALTIC ROCKS, LATE TO MIDDLE MIOCENE—Mostly dark basalt deposited as lava flows.
- **Tsv** VOLCANIC AND SEDIMENTARY ROCKS, UNDIVIDED, MIDDLE MIOCENE TO OLIGOCENE—Sequences of diverse volcanic rocks with abundant interbedded sedimentary rocks.
- **Tsm** SEDIMENTARY ROCKS, MIDDLE MIOCENE TO OLIGOCENE—Conglomerate, sandstone, mudstone, limestone, and rock-avalanche breccia (sheet-like deposits of crushed rock) deposited and tilted during widespread normal faulting and basin development.
- **Tv** VOLCANIC ROCKS, MIDDLE MIOCENE TO OLIGOCENE—Lava, tuff, fine-grained intrusive rock, and diverse pyroclastics rocks. These compositionally variable rocks include basalt, andesite, dacite, and rhyolite.
- **Tg** GRANITIC ROCKS, MIDDLE MIOCENE TO OLIGOCENE—Granite to diorite representing solidified magma chambers that were the likely source of overlying and nearby volcanic rocks of map unit Tv. The granitic rocks are typically equigrannular and fine to medium grained.
- **TKg** GRANITIC ROCKS, EARLY TERTIARY TO LATE CRETACEOUS—Porphyritic to equigranular granite to diorite emplaced during the Laramide orogeny. Larger plutons are characteristically medium-grained, biotite +/- hornblend granodiorite to granite.
- **PIP** SEDIMENTARY ROCKS, PERMIAN TO PENNSYLVANIAN—Interbedded sandstone, shale, and limestone usually characterized by ledgy outcrops.
- **MC** SEDIMENTARY ROCKS, MISSISSIPPIAN, DEVONIAN, AND CAMBRIAN—Brown to dark-gray sandstone grades upward into green and gray shale, overlain by light-gray or tan limestone and dolostone. These rocks record intermittent sea-level rise and innudation in early Paleozoic time.
- **Yg** GRANITIC ROCKS, MIDDLE PROTEROZOIC—Mostly porphyritic biotite granite with large microline phenocryst, with local fine-grained border phases and aplite.
- **Xg** GRANITIC ROCKS, EARLY PROTEROZOIC—Wide variety of granitic rocks, including granite, granodiorite, tonalite, quartz diorite, diorite, and gabbro. These rocks commonly are characterized by steep, north-east-striking foliation.
- **Xms** METASEDIMENTARY ROCKS, EARLY PROTEROZOIC—Metasedimentary rocks, mostly derived from sandstone and shale, with minor conglomerate and carbonate rock.
- **Xm** METAMORPHIC ROCKS, EARLY PROTEROZOIC—Undivided metasedimentary, metavolcanic, and gneissic rocks.

2600 ---- POTENTIOMETRIC CONTOUR—Shows altitude at which water-level would have stood in tightly cased wells, 2006. Dashed where approximately located. Contour interval 100 feet in most areas and 50 feet in the southern part of Hualapai Valley Basin. Datum is NAVD 88. Hachures indicate cone of depression.

DIRECTION OF GROUND-WATER MOVEMENT—Arrow indicates direction.

925/2765 WELLS IN WHICH DEPTH TO WATER WAS MEASURED IN 2006—Color fill denotes the lithology of the primary aquifer or water-bearing rocks. Upper number, 925, denotes depth to water in feet below land surface. Lower number, 2765, is the altitude of the water level in feet above mean sea level. Black outline indicates wells used to establish the potentiometric surface contours; red outline indicates well was not used to establish the potentiometric surface. Datum is NAVD 88.

- Basin-fill aquifer and other water-bearing sediments
- Water-bearing limestone rocks
- Water-bearing volcanic rocks
- Water-bearing crystalline rocks
- Multiple aquifer units
- Data unavailable

-------- BASIN BOUNDARY

GEOLOGY MODIFIED FROM:

Richard, S.M., Reynolds, S.J., Spencer, J.E, and Pearthree, P.A., 2000, Geologic Map of Arizona: Arizona Geological Survey, Map 35.

DEPTH TO WATER AND WATER-LEVEL ALTITUDE IN 2006 FOR SELECTED WELLS, DETRITAL, HUALAPAI, AND SACRAMENTO VALLEY BASINS, MOHAVE COUNTY, ARIZONA

By
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