

San Diego River Valley Groundwater Basin

- Groundwater Basin Number: 9-15
- County: San Diego
- Surface Area: 9,890 acres (15.4 square miles)

Basin Boundaries and Hydrology

San Diego River Valley Groundwater Basin consists of alluvium deposited by San Diego River and its tributaries. The basin is surrounded by contacts with semi-permeable rocks of the Eocene Poway Group, impermeable Cretaceous crystalline rock, and impermeable Jurassic to Cretaceous Santiago Peak volcanic rocks. Average annual precipitation ranges from 11 to 15 inches.

Hydrogeologic Information

Water Bearing Formations

Quaternary alluvial deposits forms the principal water-bearing unit within the basin.

Quaternary Alluvium. The most productive portions of the alluvium are the well-sorted sands located in buried river channels, along with a layer of coarse gravel near the base of the aquifer. This gravel is thickest adjacent Moreno Valley. Well logs indicate the alluvium has more silt and clay present west of the town of Santee. In more productive parts of the alluvium, wells yield up to 2,000 gpm. Alluvium thickness exceeds 200 feet near Lakeside but typically is about 70 feet. Specific yields range from 5 to 22 percent in the alluvium (Izbicki 1985).

Restrictive Structures

At the point of San Diego River discharge at Mission Gorge, a bedrock constriction raises groundwater levels (Izbicki 1985).

Recharge Areas

Historically, the primary recharge sources were stream runoff from the San Diego River and San Vicente Creek. The El Capitan and San Vicente dams were completed in 1935 and 1943, respectively, and have altered recharge patterns. At present, recharge occurs from dam releases and underflow past the dams. Other sources of recharge are stream-flow from Forester Creek and other smaller creeks, precipitation falling on the valley floor, and discharges from municipal wastewater-treatment plants (Izbicki 1985).

Groundwater Level Trends

Groundwater levels in the basin on average were mostly within a few feet of land surface prior to 1945. After inception of groundwater development, water levels began to decline, but rose in the 1980s due to a series of wet years (Izbicki 1985).

Groundwater Storage

Groundwater Storage Capacity. Estimates for storage capacities of this basin are variable. Specific yield estimates range from 5 percent for partly

cemented sands to 22 percent for clean sands (DPW 1934). DPW (1934) reports a capacity of 24,000 af, DWR (1975) reports a capacity of 97,000 af.

Groundwater in Storage.

Groundwater Budget (Type C)

Information is not available to construct a budget.

Groundwater Quality

Characterization. Water in the alluvial aquifer varies in character. The eastern portion of the basin contains water of a bicarbonate character, while the western portion contains water of a chloride character. TDS content ranges from 260 to 2,870 mg/L, with higher values to the west and lower values to the east (Izbicki 1985). The Department of Health Services data for 2 wells show the TDS concentration ranging from 591 to 870 mg/L.

Impairments.

Water Quality in Public Supply Wells

Constituent Group ¹	Number of wells sampled ²	Number of wells with a concentration above an MCL ³
Inorganics – Primary	1	0
Radiological	1	0
Nitrates	1	0
Pesticides	1	0
VOCs and SVOCs	1	0
Inorganics – Secondary	1	1

¹ A description of each member in the constituent groups and a generalized discussion of the relevance of these groups are included in *California's Groundwater – Bulletin 118* by DWR (2003).

² Represents distinct number of wells sampled as required under DHS Title 22 program from 1994 through 2000.

³ Each well reported with a concentration above an MCL was confirmed with a second detection above an MCL. This information is intended as an indicator of the types of activities that cause contamination in a given basin. It represents the water quality at the sample location. It does not indicate the water quality delivered to the consumer. More detailed drinking water quality information can be obtained from the local water purveyor and its annual Consumer Confidence Report.

Well Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: to 2,000 gal/min	Average:
Total depths (ft)		
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
Department of Health Services and cooperators	Groundwater levels	5
	Miscellaneous water quality	
	Title 22 water quality	

Basin Management

Groundwater management:

Water agencies

Public San Diego County Water Authority

Private

References Cited

- Izbicki, J. A. 1985. Evaluation of the Mission, Santee, and Tijuana Hydrologic Subareas for Reclaimed-Water Use, San Diego County, California. U.S. Geological Survey Water-Resources Investigations Report 85-4032. 99 p.
- California Department of Public Works, Division of Water Resources (DPW). 1934. Estimate of Storage Capacity, Mission Valley and Upper San Diego River Groundwater Basins. Unnumbered report. 16 p.
- California Department of Water Resources (DWR). 1975. California's ground water. Bulletin 118. 135 p.

Additional References

- California Department of Public Works, Division of Water Resources (DPW). 1935. *San Diego County Investigation*. Bulletin No. 48. 252 p.
- Kennedy, M.P., and G.W. Moore. 1971. *Stratigraphic Relations of Upper Cretaceous and Eocene Formations, San Diego Coastal Area, California*. American Association of Petroleum Geologists Bulletin. Volume 55. pp. 709-722.
- Evanson, K.D. 1989. *Water Resources of Soledad, Poway, and Moosa Basins, San Diego County, California*. U.S. Geological Survey. Water-Resources Investigations Report 88-4030. 87 p.
- California Department of Water Resources (DWR). 1959. *Ground Water Geology, San Diego River Valley*. Memorandum Report. 35 p.
- _____. 1967. *Ground Water Occurrence and Quality, San Diego Region*. Bulletin 106-2. 233 p.
- _____. 1986. *San Diego Region Ground Water Studies, Phase III*. Memorandum Report. 213 p.

Errata

Substantive changes made to the basin description will be noted here.