

Poway Valley Groundwater Basin

- Groundwater Basin Number: 9-13
- County: San Diego
- Surface Area: 2,470 acres (3.8 square miles)

Basin Boundaries and Hydrology

This groundwater basin underlies a portion of Poway Valley in westcentral San Diego County. The basin is bounded by impermeable rocks of the Peninsular Ranges. Average annual precipitation ranges from 11 to 15 inches. Poway Valley is drained by Poway and Los Penasquitos Creeks to the Pacific Ocean.

Hydrogeologic Information

Water Bearing Formations

The principal water-bearing units within this basin include alluvium and residuum; groundwater is also produced from the Poway Group. Average specific yield for these materials is about 10 percent (Evenson 1989).

Alluvium and Residuum. The alluvium consists of unconsolidated silt, sand, and cobbles derived from local sources (Kennedy and Peterson 1975). Thickness ranges from 10 to 75 feet, with an average of 40 feet (Evenson 1989). Residuum is produced by in-place weathering of crystalline basement rocks. Residuum reaches about 70 feet in thickness (DWR 1967).

Poway Group. The Eocene Poway Group is composed of the Stadium Conglomerate overlain by the Mission Valley Formation, followed by the Pomerado Conglomerate (Kennedy and Peterson 1985). The Stadium and Pomerado Conglomerates, which are lithologically similar, consist of a cobble conglomerate with a coarse-grained sandstone matrix. Sandstone lenses may constitute as much as 50 percent of the units (Evenson 1989). The Mission Valley Formation is composed of marine, lagoonal, and non-marine sandstone. The sandstone is loosely consolidated, with some carbonate-cemented beds (Kennedy and Peterson 1985).

Restrictive Structures

A ridge of impermeable Santiago Peak Volcanics is found along the western boundary of the basin. This ridge inhibits the flow of groundwater to the west and raises the water level in the western portion of the basin (Evenson 1989) such that, in the past, a spring was present (Ellis and Lee 1919).

Recharge Areas

Natural recharge of the basin is from direct precipitation on the valley floor and infiltration along Poway Creek, which flows into the basin from the east. Septic tank effluent and irrigation waters also provide some recharge. The use of septic tanks is limited in the basin and, therefore, is only a minor contributor. The general groundwater flow is to the west, towards Los Penasquitos Canyon in the Soledad basin.

Groundwater Level Trends

Groundwater levels fluctuate seasonally (Evenson 1989).

Groundwater Storage

Groundwater Storage Capacity. The total storage capacity of this basin is not known; however, the capacity should be more than the 2,330 af estimated to have been in storage in 1984.

Groundwater in Storage. Available stored groundwater for October 1984 was estimated to be 2,330 af (Evenson 1989).

Groundwater Budget (Type C)

Information is not available to construct a budget.

Groundwater Quality

Characterization. Groundwater in this basin is mainly sodium chloride in character and ranges in TDS content from about 750 to 1,500 mg/L (DWR 1967). Calcium bicarbonate character water is found in wells near Beeler Creek (Evenson 1989). Water from one public supply well has a TDS content of 610 mg/L.

Impairments. High chloride content results in marginal to inferior ratings for irrigation use in some parts of the basin (DWR 1967). A marginal rating for domestic use in some parts of the basin is given because of high TDS content (DWR 1967).

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	0	0
Nitrates	1	0
Pesticides	1	0
VOCs and SVOCs	1	0
Inorganics – Secondary	1	0

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 200 gal/min	Average: 100 gal/min (DWR 1975) 2-30 gal/min (Poway Group; Evenson 1989)
Total depths (ft)		
Domestic	Range:	Average:
Municipal/Irrigation	Range: 100-200 ft (Poway Group; Evenson 1989)	

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
	Groundwater levels	
	Miscellaneous water quality	
Department of Health Services and cooperators	Title 22 water quality	1

Basin Management

Groundwater management:

Water agencies

Public San Diego County Water Authority, City of Poway Department of Public Works

Private

References Cited

- California Department of Water Resources (DWR). 1967. *Ground Water Occurrence and Quality: San Diego Region*. Bulletin No. 106-2. 235 p.
- _____. 1975. *California's Ground Water*. Bulletin No. 118. 135 p.
- Ellis, A. J., and Lee, C. H. 1919. *Geology and Groundwater of the Western Part of San Diego County, California*. U. S. Geological Survey Water-supply Paper 446. 321 p.
- Evenson, Kristen D. 1989. *Water Resources of Soledad, Poway, and Moosa Basins, San Diego County, California*. U.S. Geological Survey Water-Resources Investigation Report 88-4030
- Kennedy, M. P., and Peterson, G. L. 1975. *Geology of the San Diego Metropolitan Area, California*. California Division of Mines and Geology Bulletin 200. 17 p.

Errata

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