Yosemite Valley Groundwater Basin

- Groundwater Basin Number: 5-69
- County: Mariposa
- Surface Area: 7,500 acres (12 square miles)

Basin Boundaries and Hydrology

The Yosemite Valley basin lies beneath the floor of Yosemite Valley at an approximate elevation of 4,000 feet in the central Sierra Nevada. Steep walls carved from the surrounding granitic rock by glacial activity surround the valley. Many smaller streams from the surrounding plateau enter the valley, some in the form of spectacular waterfalls. These tributaries flow into the Merced River, which drains the valley to the west. Average precipitation values range from 32 to 44 inches.

Hydrogeologic Information

Water Bearing Formations

During episodic retreats of a Pliocene-Pleistocene glacier in Yosemite Valley, a series of lakes formed behind glacial moraines. Up to 2,000 feet of lake sediments underlie the valley floor (Norris and Webb 1990). A review of well completion reports show typical glacial and fluvial-derived sediments consisting of interbedded boulders, gravel, sand, silt and clay.

Three municipal supply wells are installed to a depth of 620 to 1,200 feet. Well completion reports for the wells show first water at a depth of approximately 10 feet below the valley floor. The logs indicate the presence of a 200-300 foot thick layer of glacial flour or silt below a depth of approximately 100 feet. Two of the logs for these wells recorded artesian conditions after completion. Piezometers installed in the shallow zone around one of the supply wells were not affected by pumping from the lower zones suggesting these zones are not hydraulically connected (DHS 1989).

Recharge Areas

Recharge to the shallow aquifer occurs through percolation of direct precipitation and from the Merced River. Deeper zone recharge beneath the confining layers may occur from infiltration through coarse material along the valley margins.

Groundwater Budget (Type C)

No groundwater budget for the basin has been done.

Groundwater Quality

Groundwater is of very high quality with TDS ranging from 43 to 73 mg/L. The groundwater is suitable for all uses and no impairments are known (DHS 1989)

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	3	0
Radiological	3	0
Nitrates	3	0
Pesticides	3	0
VOCs and SVOCs	3	0
Inorganics – Secondary	3	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: 650 – 1,200	Average: 900 (3 Well completion reports)
	Total depths (ft)	
Domestic	NKD	
Municipal/Irrigation	Range: 870 – 1,015	Average: 950 (3 Well completion reports)

NKD – No Known Data

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
Department of Health Services	Title 22 water quality	3 Varies

Basin Management

Groundwater management:	No known groundwater management plans
Water agencies	
Public	Yosemite National Park, Yosemite Valley Water System
Private	None

References Cited

California Department of Health Services, Drinking Water Division (DHS). 1989. *Engineering Report. Yosemite National Park, Yosemite Valley District, Water Permit No. 03-89-102*. Central Valley Region. 9 p.

California Department of Water Resources, San Joaquin District. Well completion report files.

Norris, Robert M and Robert W. Webb. 1990. *Geology of California*. 2nd ed. New York: John Wiley & Sons, Inc.

Errata

Changes made to the basin description will be noted here.