Warner Valley Groundwater Basin

- Groundwater Basin Number: 9-08
- County: San Diego
- Surface Area: 24,000 acres (37.5 square miles)

Basin Boundaries and Hydrology

This groundwater basin underlies Warner Valley and Valle de San Jose, the upper drainage of the San Luis Rey River in northeastern San Diego County. The basin is bounded on the west by Lake Henshaw and the Elsinore fault and on all other sides by impermeable crystalline rocks of the Peninsular Ranges (Rogers 1965; DWR 1967, 1971).

Average annual precipitation ranges from 15 to 21 inches. The valleys are drained by Agua Caliente and Buena Vista Creeks and the San Luis Rey River, which flows westward to Lake Henshaw (DWR 1971).

Hydrogeologic Information

Water Bearing Formations

The principal water bearing deposits are alluvium, and residuum (DWR 1967). Sediments reach at least 900 feet thick in the basin (DWR 1971), and well yields range to 1,800 gpm and average about 800 gpm (DWR 1975).

Holocene Alluvium. The Holocene age alluvium is composed of boulders, gravel, sand, silt and clay (DWR 1971). These deposits are generally thin and unsaturated (DWR 1971).

Pleistocene Alluvium. Pleistocene age alluvium underlies the Holocene alluvium and is the most important water-bearing unit in the basin (DWR 1971). This alluvium consists of poorly sorted arkosic gravel, sand, silt, and clay. It is generally unconsolidated, but locally is cemented. This unit includes the Temecula Arkose, which is at least 900 feet thick in this basin (DWR 1971).

Residuum. Residuum is bedrock that has weathered in place. This material is found throughout San Diego County and generally considered Quaternary in age, although in places it underlies Tertiary deposits (DWR 1967). In this basin, the material is found along the eastern flank of the basin and likely underlies the Quaternary deposits. Well yield in this material is generally low, but locally water derived from it is important (DWR 1967).

Restrictive Structures

This basin lies between the Elsinore and San Jacinto fault zones. Many faults are found between these two major zones. The Elsinore fault zone forms part of the western boundary of the basin and the Agua Caliente fault cuts the eastern edge of the basin. Water moving up the Agua Caliente fault forms Warner Springs, demonstrating that the fault affects subsurface flow at this location. The Aguanga and Earthquake faults, along with other unnamed faults, cut through this basin, but have an unknown effect on groundwater.

Groundwater Level Trends

In the southeast part of the basin, the water level in one well declined only about 3 feet during 1912 through 1967; however, in the central part of the basin, groundwater levels in wells declined 30 to 138 feet during the 1950s and 1960s (DWR 1971).

Groundwater Storage

Groundwater Storage Capacity. The total storage capacity is estimated to be about 550,000 af (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (Type C)

Not enough information is available to construct a budget.

Groundwater Quality

Characterization. Groundwater in this basin is dominantly sodium bicarbonate in character, though some calcium bicarbonate water is found in the southern part of the basin (DWR 1967). Some sulfate and chloride rich water is found near Warner Hot Springs in the eastern part of the basin (DWR 1967). Analyses of water sampled in the 1960s show a range in TDS content from 168 to 638 mg/L and an average about 304 mg/L (DWR 1967). Water from one public supply well has a TDS content of 263 mg/L.

Impairments. Groundwater is generally rated suitable for irrigation and domestic uses except near Warner Hot Springs, where it is rated inferior for irrigation use because of sodium content and for domestic use because of high fluoride concentrations (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	2	0
Radiological	1	1
Nitrates	2	0
Pesticides	1	0
VOCs and SVOCs	1	0
Inorganics – Secondary	2	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 1,800 gal/min	Average: 800 gal/min (DWR 1975)
	Total depths (ft)	
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
	Groundwater levels	
Department of Health Services and cooperators	Title 22 water quality	4

Basin Management

Groundwater management:

Water agencies

Public	San Diego County Water Authority
Private	

References Cited

California Department of Water Resources (DWR). 1967. *Ground Water Occurrence and Quality: San Diego Region.* Bulletin No. 106-2. 235 p.

_____. 1971. *Water Wells in the San Luis Rey River Valley Area, San Diego County, California.* Bulletin 91-18. 347 p.

_____. 1975. *California's Ground Water.* Bulletin 118. 135 p.

Rogers, T. H. 1965. *Geologic Map of California, Santa Ana Sheet.* Olaf P. Jenkins Edition. California Department of Conservation, Division of Mines and Geology. Scale 1:250,000.

Additional References

California Department of Public Works, Division of Water Resources. 1934. *Study of Subsurface Water Supply Available in Warner Valley, San Diego County, California.* Unnumbered report. 7 p.

Ellis, A. J., and C. H. Lee. 1919. *Geology and ground waters of the western part of San Diego County, California.* U.S. Geological Survey Water Supply Paper 446. 321 p.

Errata

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