

## Upper Santa Ana Valley Groundwater Basin, Cajon Subbasin

- Groundwater Basin Number: 8-2.05
- County: San Bernardino
- Surface Area: 23,200 acres (36.3 square miles)

### **Basin Boundaries and Hydrology**

The Cajon Subbasin underlies Cajon Valley and Lone Pine Canyon, mostly in Cajon Pass, which is the boundary between the San Gabriel and San Bernardino Mountains. This subbasin is bound by the Upper Mojave River Valley Groundwater Basin on the north along a surface drainage divide and the Bunker Hill Subbasin of the Upper Santa Ana Valley Groundwater Basin on the south. The subbasin is bound by impermeable rocks of the San Gabriel Mountains on the west and the San Bernardino Mountains on the east. Cajon and Lone Pine Creeks drain the valley southward as tributaries to the Santa Ana River. Annual precipitation throughout the subbasin ranges from 23 inches to 33 inches.

### **Hydrogeologic Information**

#### ***Water Bearing Formations***

The chief water-bearing material in the Cajon Subbasin is alluvium. Holocene age alluvium consists of relatively unweathered sand, silt, and gravel deposited in active creek beds (DWR1970). Older Pleistocene age alluvium is found as alluvial fan deposits derived from the bordering mountains.

#### ***Restrictive Structures***

The San Andreas fault zone crosses the southern part of the subbasin and cuts up Lone Pine Canyon. Springs are found along the trace of the fault zone indicating it is a barrier to groundwater. Lost Lake is a spring fed sag pond formed in older alluvium where there is a step in the fault trace.

#### ***Recharge Areas***

Recharge is derived from percolation of precipitation, return irrigation water, and stream flow.

#### ***Groundwater Level Trends***

No information is available.

#### ***Groundwater Storage***

**Groundwater Storage Capacity.** No information is available.

**Groundwater in Storage.** No information is available.

#### ***Groundwater Budget (Type C)***

No information is available.

### Groundwater Quality

**Characterization.** Water sampled from 2 public supply wells has an average TDS content of approximately 127 mg/L with a range of 99 to 155 mg/L.

**Impairments.** No information is available.

### Water Quality in Public Supply Wells

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

<sup>1</sup> 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).

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

<sup>3</sup> 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: 8 – 200 gal/min	Average: 60 gal/min (5 Well Completion Reports)
	Total depths (ft)	
Domestic	Range: 56 - 816 ft	Average: 365 ft (60 Well Completion Reports)
Municipal/Irrigation	Range: 120 – 500 ft	Average: 121 ft (8 Well Completion Reports)

### 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	5

## Basin Management

---

Groundwater management:

Water agencies

Public

Private

---

## References Cited

California Department of Water Resources (DWR). 1970. *Meeting Water Demands in the Chino-Riverside Area, Appendix A, Water Supply*. Bulletin 104-3, Appendix A.

## Additional References

California Department of Public Works (DPW). 1933. *South Coastal Basin Investigation, Quality of Irrigation Waters*. Bulletin 40. 95 p.

California Department of Water Resources (DWR). 1934. *South Coastal Basin Investigation, Ground Water Storage Capacity of Valley Fill*. Bulletin 45. 279 p.

\_\_\_\_\_. 1970. *Meeting Water Demands in the Bunker Hill-San Timoteo Area*. Bulletin 104-5.

\_\_\_\_\_. 1971a. *Meeting Water Demands in the Chino-Riverside Area*. Bulletin 104-3.

\_\_\_\_\_. 1971b. *Meeting Water Demands in Bunker Hill-San Timoteo Area. Geology, Hydrology, and Operation-Economics Studies*. Unnumbered Report.

\_\_\_\_\_. 1971c. *Meeting Water Demands in the Chino-Riverside Area, Appendix B, Operation-Economics*. Unnumbered Memorandum Report.

\_\_\_\_\_. 1975. *California's Ground Water*. Bulletin 118.

Durbin, T. J., and Morgan, C. O. 1978. *Well-Response Model of the Confined Area, Bunker Hill Ground-Water Basin*. U.S. Geological Survey Water Resources Investigations 77-129.

Dutcher, L.C., and others. 1958. *Geologic and Hydrologic Features of the San Bernardino Area, California, With Special Reference to Underflow Across the San Jacinto Fault*. U. S. Geological Survey Open-File Report.

\_\_\_\_\_. 1959. *Geology and Ground-Water Hydrology of the Mill Creek Area, San Bernardino County, California*. U. S. Geological Survey Open-File Report.

\_\_\_\_\_. 1963. *Geologic and Hydrologic Features of the San Bernardino Area, California*. U. S. Geological Survey Water Supply Paper 1419.

\_\_\_\_\_. 1972. *Ground-Water Outflow, San Timoteo-Smiley Heights Area, Upper Santa Ana valley, Southern California, 1972 through 1968*. U. S. Geological Survey Open-File Report.

French, J. J. 1972. *Ground Water Outflow from Chino Basin, Upper Santa Ana Valley, Southern California*. U.S. Geological Survey Water Supply Paper 1999-C.

Santa Ana River Water Master. 1972. *First Annual Report of the Santa Ana River Water Master, 1970-71*.

Wildermuth Environmental, Inc. (Wildermuth). 2000. *TIN/TDS Study - Phase 2A of the Santa Ana Watershed; Final Technical Memorandum*. San Clemente, California, July 2000.

## Errata

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