Upper Santa Ana Valley Groundwater Basin, Cucamonga Subbasin

- Groundwater Basin Number: 8-2.02
- County: San Bernardino
- Surface Area: 9,530 acres (15 square miles)

Basin Boundaries and Hydrology

The Cucamonga Subbasin underlies the northern part of upper Santa Ana Valley. It is bounded on the north by contact of alluvium with the San Gabriel Mountains and on the west, east, and south by the Red Hill fault (LeRoy Crandall 1981). This portion of the upper Santa Ana Valley is drained by Cucamonga and Deer Creeks to the Santa Ana River, and receives an average precipitation ranging from 18 to 32 inches.

Hydrogeologic Information

Water Bearing Formations

Groundwater in the subbasin is found in alluvial deposits.

Alluvial Deposits. Quaternary age alluvium consists of unconsolidated to loosely consolidated sand, gravel, and silt with a few beds of compacted clay deposit by streams draining the San Gabriel Mountains. The gravels of Cucamonga Subbasin are relatively coarse throughout. The highest specific yield assigned to unweathered gravel is 14 percent along the southeast margin of the subbasin. The maximum specific yield of 10 percent in the southwest part of the subbasin decreases to about 5 percent at the southeast and east, and to 4 percent along the north margin of the subbasin (DPW 1934).

Restrictive Structures

The Cucamonga fault is a major, active fault zone, and is in part responsible for uplift of the San Gabriel Mountains, which are composed of impermeable metamorphic and igneous rocks. The fault places impermeable bedrock against water-bearing alluvium. Red Hill fault is a barrier to groundwater flow (LeRoy Crandall 1981), with groundwater levels 225 to 375 feet higher on the north side of the fault (Wildermuth 2000).

Recharge Areas

Recharge to the subbasin is provided by infiltration of stream flow, percolation of rainfall to the valley floor, underflow from the San Gabriel Mountains, and return irrigation flow. Additional recharge to the subbasin is from storm flow at spreading grounds along Cucamonga Creek and near Red Hill and Alta Loma, (Wildermuth 2000).

Groundwater Level Trends

Groundwater flow generally is southward from areas of recharge in the north towards the Red Hill fault in the south (Wildermuth 2000). Seasonal fluctuation of water levels is usually more than 20 feet (DPW 1934).

Groundwater Storage

Groundwater Storage Capacity. The total storage capacity is estimated to be 53,600 af (DPW 1934).

Groundwater in Storage. No information is available.

Groundwater Budget (Type C)

No information is available.

Groundwater Quality

Characterization. Water within the subbasin is predominantly calcium-sodium bicarbonate in character. Water sampled from 23 public supply wells show an average TDS content of 261 mg/L with a range of 163 mg/L to 446 mg/L.

Impairments. No information is available.

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	24	0
Radiological	23	0
Nitrates	24	14
Pesticides	24	10
VOCs and SVOCs	24	0
Inorganics – Secondary	24	4

[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: 325–4,400 gal/min	Average: 2,115 gal/min (12 Well Completion Reports)
	Total depths (ft)	
Domestic	Range: 210	Average:
Municipal/Irrigation	Range: 400-1,475 ft	Average: 810 ft (52 Well Completion Reports)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
US Geological Survey	Groundwater levels	1
US Geological Survey	Miscellaneous water quality	1
Department of Health Services and cooperators	Title 22 water quality	21

Basin Management

Groundwater management:

Water agencies

Public	Cucamonga County Water District, City of Upland
Private	San Antonio Water Company, Sunset Water Company, Alta Loma Mutual Water Company, Foothill Irrigation Company

References Cited

California Department of Public Works (DPW). 1934. South Coastal Basin Investigation, Ground Water Storage Capacity of Valley Fill. Bulletin 45. 279 p.

California Department of Water Resources (DWR). 1970. Meeting Water Demands in the Chino-Riverside Area. Bulletin 104-3, Appendix A: Water Supply. 108 p.

LeRoy Crandall and Associates. 1981. Report of Hydrogeologic Findings Phase I Geology and Hydrology Tasks Feasibility Study of the Chino Ground Water Basin Storage Program (Draft). March 17, 1981. Los Angeles California. 19 p.

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

Additional References

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

Errata

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