Acton Valley Groundwater Basin

- Groundwater Basin Number: 4-5
- County: Los Angeles
- Surface Area: 8,270 acres (12.9 square miles)

Basin Boundaries and Hydrology

The Acton Valley Groundwater Basin is bounded by the Sierra Pelona on the north and the San Gabriel Mountains on the south, east, and west. The valley is drained by the Santa Clara River. Average annual precipitation ranges from 10 to 16 inches.

Hydrogeologic Information

Water Bearing Formations

Groundwater in the basin is unconfined and found in alluvium and stream terrace deposits.

Alluvium. Holocene age alluvium consists of unconsolidated, poorly bedded, poorly sorted to sorted sand, gravel, silt, and clay with some cobbles and boulders. It is thickest in the channel of the Santa Clara River, thinning both east and west of the community of Acton. It attains a maximum thickness of 225 feet near Acton (Slade 1990; DWR 1993). Specific yield ranges from 10 to 19 percent in the alluvium (Slade 1990).

Terrace Deposits. Pleistocene age terrace deposits consist of crudely stratified, poorly consolidated, only locally cemented, angular to subangular detritus of local origin. They can be found on the low-lying flanks of the foothills and upper reaches of the Santa Clara River tributaries. Terrace deposits attain a maximum thickness of 210 feet north of Acton (Slade 1990). Specific yield ranges from 3 to 5 percent in the stream terrace deposits (Slade 1990).

Restrictive Structures

The principal geologic structures in the basin are the northwest-trending Kashmere Valley and Acton faults and the northeast-trending Soledad fault system. However, these faults are not barriers to flow in the alluvium (DWR 1993).

Recharge Areas

The basin is recharged from deep percolation of precipitation on the valley floor and runoff in the Santa Clara River and its tributaries. The basin is also recharged by subsurface inflow (Slade 1990; DWR 1993).

Groundwater Level Trends

Hydrographs show a general decline in groundwater levels during the 1950s through the mid 1970s (Slade 1990). Water levels generally rose during the late 1970s through the mid 1980s, but then began declining after that (Slade 1990). Groundwater flows toward the channel of the Santa Clara River and then westward.

Groundwater Storage

Groundwater Storage Capacity. The total storage capacity is estimated at 40,000 af (DWR 1975).

Groundwater in Storage. The estimated amount of groundwater in storage ranges from a low of 14,900 af during November 1964 through December 1965 to a high of 34,400 af during November 1983 through May 1984 (Slade 1990).

Groundwater Budget (Type A)

Natural recharge is estimated at 650 af/yr (DWR 1975). The total average annual natural recharge was estimated to be about 5,600 to 7,200 af for a watershed of 55,600 acres (Slade 1990). The average annual natural recharge has also been estimated at 11,100 af (Geraghty & Miller, Inc. in Slade 1990). A previous report considered subsurface outflow to be minimal or nonexistent (DWR 1968). However another report estimated subsurface outflow from the alluvium to range between 2,800 af/yr for a relatively wet period to about 1,200 af/yr for a relatively dry period (Slade 1990). Groundwater extractions by major producers for municipal use in 1989 are assumed to total about 1,520 af and an additional 20 af were pumped for irrigation (Slade 1990).

Groundwater Quality

Characterization. Groundwater in the basin is generally calcium bicarbonate in character. However, in the broad valley north of Acton, 2 wells have calcium-magnesium sulfate character and 9 wells have calcium-magnesium bicarbonate character (Slade 1990). Water sampled from 5 public supply wells in the basin show an average TDS content of approximately 579 mg/L and a range of 424 to 712 mg/L. TDS content ranged from 279 to 480 mg/L during June 1988 through July 1989 (Slade 1990).

Impairments. Water sampled from 75 wells measured during 1989 show high concentrations of TDS, sulfate, and chloride in the northern part of the basin with some of these concentrations exceeding drinking water standards (Slade 1990; DWR 1993). Twater from two wells in the basin have nitrate concentrations that exceed drinking water standards (DWR 1968).

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	7	0
Radiological	0	0
Nitrates	14	1
Pesticides	4	0
VOCs and SVOCs	4	0
Inorganics – Secondary	7	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 1,000 gal/min max	Average: 140 gal/min (DWR 1975)
	Total depths (ft)	
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

Active Monitoring Data

Agency	**Parameter**	**Number of wells /measurement frequency**
Department of Health Services and cooperators	Title 22 water quality	7

Basin Management

Groundwater management:

Water agencies

Public	Los Angeles County Waterworks District No. 37-Acton
Private	Acton Camp, Big Dipper Water Delivery, Caron Brothers

References Cited

California Department of Water Resources (DWR). 1968. *Santa Clara River Valley Water Quality Study*. California Department of Water Resources, unnumbered Report.

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

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Slade, R. C. 1990. *Assessment of Hydrogeologic Conditions Within Alluviual and Stream Terrace Deposits, Acton Area, Los Angeles County: Prepared for County of Los Angeles, Department of Public Works and ASL Consulting Engineers.*

Additional References

Bloyd, R. M., Jr. 1967. *Water Resources of the Antelope Valley-East Kern Water Agency Area, California.* U.S. Dept. of the Interior, Geological Survey, Water Resources Division: Open-File Report. 73 p.

California Department of Water Resources (DWR). 1971. *Preliminary Evaluation of the Ground Water Quality Sampling Network in the Upper Santa Clara River Valley (Eastern and Acton Hydrologic Subareas).* Technical information record study code no. 1408-5.

Errata

Changes made to the basin description will be noted here.