Los Osos Valley Groundwater Basin

- Groundwater Basin Number: 3-8
- County: San Luis Obispo
- Surface Area: 6,990 acres (10.9 square miles)

Basin Boundaries and Hydrology

The Los Osos Valley Groundwater Basin is bounded on the north by Park Ridge, on the south by the Irish Hills, and on the west by Morro Bay. The eastern boundary is a drainage divide separating Los Osos Valley from San Luis Valley. The valley is drained by Los Osos Creek, which flows into Morro Bay. Annual precipitation ranges from 15 to 21 inches.

Hydrogeologic Information

Water Bearing Formations

Groundwater is found in alluvium of Holocene age, dune sand and the Paso Robles Formation of Pleistocene age, and the Careaga Sand of Pliocene age. The specific yield is estimated at 20 percent (DWR 1958). The average specific yield for the basin is 10 percent (USDA 1984; USGS 1988).

Holocene Deposits. This alluvium consists of clayey gravel and sand. The thickness of the alluvium ranges from 20 to 65 feet under the Los Osos Creek floodplain (Yates and Wiese 1988).

Pleistocene Deposits. Dune sand is composed of unconsolidated, fine to medium-grained arkosic sand with thin clay, silt, and gravel interlayers. The Paso Robles Formation, which is the main water-producing unit in the basin, typically consists of unconsolidated, interbedded clay and clayey, pebbly sand in discontinuous beds and lenses. It has a thickness of about 300 feet (DWR 1989). Clay layers found in the Paso Robles Formation impede the vertical movement of groundwater (DWR 1989).

Pliocene Deposits. The Careaga Sand is described as a massive, fine-grained, micaceous quartz sandstone (Yates and Wiese 1988), and as unconsolidated deposits of white to yellowish-brown fine- to medium-grained, marine sand with some silt (Worts 1951). This unit has a total thickness up to about 1,000 feet (Yates and Wiese 1988).

Restrictive Structures

The east-trending Los Osos fault traverses the valley and is exposed along southeastern Los Osos Valley. The western end of the Edna fault zone terminates in two parallel, unnamed north-trending faults, which extend into the Los Osos Groundwater Basin west of the point where Los Osos Creek enters the valley. Of those two faults, the easternmost fault is a barrier to groundwater flow (Yates and Wiese 1988).

Recharge Areas

Deep percolation of rainfall accounts for a large portion of recharge to the groundwater basin. Recharge into the alluvium is through underflow and infiltration of surface water in drainage channels (DWR 1973). Recharge

into the dune sand is through underflow along the lower elevations of the Irish Hills and infiltration of surface water, primarily from Los Osos Creek (DWR 1973). Groundwater in the Paso Robles Formation is replenished in areas where it is in hydraulic continuity with alluvium, dune sand, and along the basin margins at depths where it intercepts seepage from bedrock (DWR 1973).

Groundwater Level Trends

Groundwater flow is generally northward and westward toward the Pacific Ocean. Water-table elevations ranged from 1 foot to about 73 feet above sea level during the 1950s through the 1970s (DWR 1973).

Groundwater Storage

Groundwater Storage Capacity. The total storage capacity has been reported as 112,200 af (DWR 1975a) and 95,000 af (DWR 1975b). However, DWR (1989) calculated the groundwater in storage (below) as 270,000 af. Thus, a minimum value for total storage would be 270,000 af.

Groundwater in Storage. The amount of groundwater in storage in 1989 was calculated to be 270,000 af, of which 14,000 af was above sea level (DWR 1989).

Groundwater Budget (Type A)

A groundwater budget for 1986 conditions was estimated by Yates and Wiese (1988). Groundwater underflow was 420 af and net seepage from Los Osos Creek was 50 af. Recharge from rainfall was 2,530 af. Net municipal pumpage was 550 af, and net agricultural pumpage was 570 af. The total inflow was 5,000 af and the total outflow was 6,000 af.

Groundwater Quality

Characterization. Analyses of groundwater from 77 wells in this basin taken during 1957 through 1994 show TDS content ranging from 78 to 33,700 mg/L. Analyses of water from 10 public supply wells show an average TDS content of 354 mg/L in the basin with a range from 122 to 605 mg/L.

Impairments. An increase in chloride concentrations in groundwater along the coast between 1977 and 1986 indicates that sea water has intruded the basin (DWR 1989). In 1983, nitrate content in shallow groundwater throughout the central and northern parts of Los Osos Valley exceeded the MCL allowed for public water supplies (Brown and Caldwell, Inc. 1983).

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	11	0
Radiological	10	0
Nitrates	11	2
Pesticides	10	0

VOCs and SOCs	10	0
Inorganics – Secondary	11	5

[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 Production characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: up to 396 gal/min	Average: 200 gal/min (DWR 1958)
	Range: up to 700 gal/min	Average: 230 gal/min (DWR 1975a)
	Total depths (ft)	
Domestic	Range:	Average:
Municipal/Irrigation	Range: to 212 ft	Average: 60 ft (DWR 1958)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
Department of Health Services and cooperators	Groundwater levels	
	Miscellaneous water quality	
	Title 22 water quality	10

Basin Management

Groundwater management:

Water agencies

Public	San Luis Obispo County-Department of Public Works
Private	Southern California Water Company, S & T Mutual Water Company

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Brown and Caldwell, Inc. 1974. *Preliminary Groundwater Basin Management Study: San Luis Obispo County Service Area 9*. Pasadena, California: Brown and Caldwell, Inc., Consulting Engineers. 32 p. Quoted in DWR (1989). *Geohydrology and Management of Los Osos Valley Ground Water Basin, San Luis Obispo County: District Report.* 65 p.

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Additional References

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Errata

Changes made to the basin description will be noted here.