Vallecito-Carrizo Valley Groundwater Basin

- Groundwater Basin Number: 7-28
- County: San Diego
- Surface Area: 122,000 acres (191 square miles)

Basin Boundaries and Hydrology

The Vallecito-Carrizo Valley Groundwater Basin underlies a southeast-trending valley in southeast San Diego and southwest Imperial Counties. Elevation of the valley floor ranges from 1,700 feet above sea level at the northwest end to about 250 feet at the southeast end. The basin is bounded by nonwater-bearing rocks of the Laguna Mountains on the west, of the Vallecito and Fish Creek Mountains on the north and northeast, and of the Tierra Blanca and Coyote Mountains on the south and southeast. Elevation of the surrounding mountains range from about 2,500 to 5,665 feet at Garnet Mountain in the Laguna Mountains. Most of the basin within San Diego County lies within the Anza-Borrego Desert State Park (Strand 1962; Rogers 1965).

Annual average precipitation ranges from about 1 to 14 inches. The valley is drained by Vallecito and Carrizo Creeks, which join near the eastern portion of the valley and discharge to the east into the Ocotillo-Clark Valley Groundwater Basin (Brown 1923, DWR 1954, Strand 1962).

Hydrogeologic Information

Water Bearing Formations

Water-bearing material n the basin includes unconsolidated younger Quaternary alluvial deposits and the underlying unconsolidated to semi-consolidated older Tertiary to Quaternary alluvial deposits. Maximum depth of the valley fill is estimated at about 300 feet (DWR 1954).

Recharge and Discharge Areas

Recharge to the basin is from surface and subsurface inflow from Mason Valley Groundwater Basin, infiltration of runoff through course alluvial deposits at the base of the surrounding mountains, infiltration of surface flow from Vallecito and Carrizo Creeks, and the percolation of precipitation that falls to the valley floor. Groundwater moves eastward and discharges as underflow of Carrizo Creek into Ocotillo-Clark Valley Groundwater Basin (Brown 1923, DWR 1954).

Groundwater Level Trends

Records of historical groundwater levels intermittently span 1954 through 1994. In the western Vallecito Valley portion of the basin, records show that groundwater levels rose about 13 feet from 1960 through 1994. Depth to water ranged from about 60 to 78 feet below the surface. In the basin beneath eastern Carrizo Valley, water levels rose about 22 feet during 1966 through 1987, with water levels ranging from about 40 to 70 feet below the surface.

Groundwater Storage

Groundwater Storage Capacity. Total storage capacity is estimated to be about 2,500,000 af (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (C)

Groundwater budget information is not available.

Groundwater Quality

Characterization. The character of the groundwater tends to be either sodium bicarbonate or sodium-calcium bicarbonate.

Impairments. Mineral analyses of the groundwater indicate the quality is marginal for domestic use because of elevated levels of fluoride. Levels range from 0.1 to 5.5 mg/L, and average about 1.2 mg/L. TDS content ranges from about 250 to 1,270 mg/L, with an average concentration of about 680 mg/L.

Well Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: 260– 2,500	Average: 260 (DWR 1975)
	Total depths (ft)	
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

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	1

Basin Management

Groundwater management:

Water agencies

Public

Private

References Cited

Brown, J.S., 1923. *The Salton Sea Region, California.* U. S. Geological Survey Water-Supply Paper 497. 292 p.

California Department of Public Works. 1954. *Ground Water Occurrence and Quality, Colorado River Basin Region.* Water Quality Investigations Report No. 4. 59 p.

_____. 1975. *California's Groundwater*. Bulletin No. 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.

Strand, R. G. 1962. *Geologic Map of California: San Diego-El Centro Sheet.* Olaf P. Jenkins Edition. California Department of Conservation, Division of Mines and Geology. Scale 1: 250,000.

Errata

Changes made to the basin description will be noted here.