

Lanfair Valley Groundwater Basin

- Groundwater Basin Number: 7-1
- County: San Bernardino
- Surface Area: 157,000 acres (245 square miles)

Basin Boundaries and Hydrology

This basin underlies Lanfair Valley in eastern San Bernardino County. The valley slopes southeasterly with valley floor elevations ranging from 3,500 to 5,000 feet above sea level. The basin is bounded by impermeable rocks of the New York and Castle Mountains on the north, of the Piute Range on the east, of the Hackberry Mountain on the south, and of the Providence Mountains and Mid Hills on the west. Caruthers Creek flows intermittently southeastward during periods of heavy precipitation. Piute Spring discharges groundwater from Lanfair Valley to an adjacent valley and other smaller springs are found throughout the valley. Average annual precipitation ranges from 7 to 10 inches.

Hydrogeologic Description

Water Bearing Formations

The primary water-bearing formations are Quaternary and Tertiary age unconsolidated deposits that include highly indurated sand, silt, clay and gravel. The maximum thickness of these deposits is not known; however, a boring log indicates a thickness of at least 550 feet locally. Wells in these deposits yield about 3 to 70 gpm (Friewald 1984).

Restrictive Structures

The Cedar Canyon fault crosses the northwest portion of the basin; however, it is unknown whether or not this fault is a barrier to groundwater.

Recharge Areas

The principal sources of recharge are likely percolation of runoff from surrounding mountains, percolation of precipitation to the valley floor, and subsurface inflow from adjacent basins.

Groundwater Level Trends

Water levels are about 340 feet below land surface in northern Lanfair Valley and more than 500 feet below land surface in the central part of the valley. Hydrologic records indicate these water levels were at or near their historical levels in the early 1980s and had not been affected by groundwater pumping (Friewald 1984).

Groundwater Storage

Groundwater Storage Capacity. Total storage capacity was estimated at 3,000,000 af (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (Type C)

Natural recharge is estimated at 1,800 af/yr (DWR 1975). Annual extractions are estimated at 90 af (DPW 1954).

Groundwater Quality

Characterization. Groundwater in the basin is primarily of calcium bicarbonate character near the western mountain ranges and of a sodium bicarbonate character near the center of the basin. TDS content ranges from 173 to 2,260 mg/L and averages 515 mg/L (Friewald 1984).

Impairments. Virtually all of the groundwater sampled in 1981 was suitable for domestic and livestock use; however, water from two wells exceeded recommended limits of sulfate, and some wells contained high concentrations of TDS and fluoride (Friewald 1984). A comparison with water samples analyzed before 1981 indicates no significant change in water quality with time (Friewald 1984).

Well Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: to 35 gal/min	Average: 16 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	Groundwater levels	9
	Miscellaneous water quality	
	Title 22 water quality	

Basin Management

Groundwater management:

Water agencies

Public

Private

References Cited

- California Department of Public Works (DPW). 1954. *Ground Water Occurrence and Quality, Colorado River Basin Region*. Water Quality Investigations Report No. 4. 59 p.
- California Department of Water Resources (DWR). 1975. *California's Ground Water*. Bulletin 118. 135 p.
- Friewald, David, A. 1984. *Ground-Water Resources of Lanfair and Fenner Valleys and Vicinity, San Bernardino County, California*. U.S. Geological

Survey Water- Resources Investigations Report 83-4082. 60 p.

Additional References

California Department of Public Works. 1956. Office Report on Water Well and Groundwater Data in Pahrump, Mesquite, Ivanpah, Lanfair, Fenner, Chuckwalla and Jacumba Valleys. 58 p.

California Department of Water Resources (DWR). 1963. Desert Areas of Southeastern California Land and Water Use Survey, 1958. Bulletin 101. 72 p.

Errata

Changes made to the basin description will be noted here.