

Ogilby Valley Groundwater Basin

- Groundwater Basin Number: 7-35
- County: Imperial
- Surface Area: 134,000 acres (209 square miles)

Basin Boundaries and Hydrology

This groundwater basin underlies Ogilby Valley, Pilot Knob Mesa, and part of the Sand Hills in southeastern Imperial County. The basin is bounded by nonwater-bearing rocks of the Peter Kane Mountains on the north, and of the Cargo Muchacho Mountains and Pilot Knob on the east, and by the San Andreas fault on the southwest. The northwest boundary and parts of the eastern boundary are drainage divides (Strand 1962; Jennings 1967). The surface is drained by the Tumco, American Girl, and several unnamed washes (Strand 1962; Jennings 1967). Average annual precipitation ranges to 6 inches.

Hydrogeologic Information

Water Bearing Formations

Groundwater in the basin is found in Quaternary age alluvium which is predominantly unconsolidated gravel, sand, silt, and clay (DWR 1954) derived from the surrounding mountainous areas and deposited in a system of coalescing alluvial fans (Strand 1962; Jennings 1967). Wells in the basin indicate that this alluvium is at least 521 feet depth (DPW 1954).

Restrictive Structures

The southeast-trending Algodones fault of the San Andreas fault zone is the southwestern boundary of the basin and is a barrier to groundwater movement (McDonald and Loeltz 1976).

Recharge Areas

The principal source of recharge to the basin is likely percolation of runoff from surrounding mountains, with a minor contribution from percolation of precipitation to the valley floor.

Groundwater Level Trends

Hydrographs in the southern part of the basin show a rise of as much as 20 feet of groundwater levels between 1961 and 1999. Most hydrographs for wells in the rest of the basin show a steady increase in water levels in 1996 through 1999. Groundwater in the basin flows northwest toward the Salton Sea, which is outside of the basin (McDonald and Loeltz 1976).

Groundwater Storage

Groundwater Storage Capacity. The estimated total storage capacity is 2,900,000 (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (Type C)

Natural recharge is estimated at about 250 af/yr (DWR 1975). Groundwater extractions in 1952 were approximately 9 af (DWR 1975).

Groundwater Quality

Characterization. Groundwater from deep aquifers in the central and southwestern parts of the basin is sodium chloride in character; whereas groundwater from the southeastern part of the basin is calcium bicarbonate in character (DPW 1954). The TDS content ranges to 1,600 mg/L in the central part of the basin, 600 to 700 mg/L in the southwest, and 400 to 1,000 mg/L in the southeast (DPW 1954). Chloride concentration ranges to 670 mg/L in the central part of the basin, 135 to 160 mg/L in the southwest, and 160 to 200 mg/L in the southeast (DPW 1954).

Impairments. Unknown.

Well Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: to 100 gal/min	Average: 50 gal/min (DWR 1975) to 4,000 gal/min (Well Completion Report)
Total depths (ft)		
Domestic	Range: 120 – 344 ft	Average: 284 ft (10 Well Completion Reports)
Municipal/Irrigation	Range: 310 – 510 ft	Average: 431 (6 Well Completion Reports)

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
USGS	Groundwater levels	27
USGS	Miscellaneous water quality	1
Department of Health Services and cooperators	Title 22 water quality	3

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.
- California Department of Water Resources (DWR). 1975. *California's Ground Water*. Bulletin 118. 135 p.

- Jennings, C. W. 1967. *Geologic Map of California: Salton Sea Sheet*. Olaf P. Jenkins Edition. California Department of Conservation, Division of Mines and Geology. Scale 1:250,000.
- McDonald, C. C. and O. J. Loeltz. 1976. *Water Resources of Lower Colorado River-Salton Sea Area as of 1971, Summary Report*. United States Geological Survey. Professional Paper 486-A. 34 p.
- Strand, R.G. 1962. *Geologic map of California: Sand 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.