

Amos Valley Groundwater Basin

- Groundwater Basin Number: 7-34
- County: Imperial
- Surface Area: 130,000 acres (203 square miles)

Basin Boundaries and Hydrology

The Amos Valley Groundwater Basin underlies a southeast trending valley in southeastern Imperial County. Elevation of the valley floor ranges from about 250 to 800 feet above sea level. The basin is bounded by nonwater-bearing rocks of the Chocolate Mountains on the north and northeast and by the San Andreas fault zone on the south and southeast. Low-lying alluvial drainage divides define the eastern and western boundaries. Elevations in the Chocolate Mountains average about 2,700 feet. Much of the northern portion of the basin lies within the Chocolate Mountains Gunnery Range (Strand 1962).

Annual average precipitation ranges from about 1 to 4 inches. Surface drainage is towards the west and southwest (Strand 1962).

Hydrogeologic Information

Water Bearing Formations

The water-bearing material within the basin is alluvium, which includes unconsolidated younger Quaternary deposits and the underlying unconsolidated to semi-consolidated older Tertiary to Quaternary deposits. Maximum depth of the valley fill is estimated at about 550 feet (DWR 1954).

Restrictive Structures

The San Andreas fault zone may act as a barrier to the movement of groundwater.

Recharge and Discharge Areas

Recharge to the basin is derived primarily from the infiltration of surface runoff through alluvial deposits at the base of the Chocolate Mountains. DWR (1954) reports the movement of groundwater is towards the southeast, however, more recent investigations indicate the movement of groundwater is towards the northwest into the East Salton Sea Groundwater Basin (Moyle 1974, Tetra Tech 1999).

Groundwater Level Trends

Records of historic groundwater levels are sparse and encompass 1979 through 2000. In the northwest portion of the basin, records show that from 1979 through 2000, water levels declined by about 19 feet, with a depth to water ranging from about 126 to 145 feet below the surface. Similarly, in the south-central part of the basin, water levels declined by about 29 feet over the same period. Depth to water fluctuated between 193 and 228 feet below the surface. Water levels rose by about 6 feet during 1986 through 1988 in the southeast part of the basin, but declined by about 4 feet at another nearby

location from 1986 through 1998. Water levels ranged between 465 to 480 feet below the surface.

Groundwater Storage

Groundwater Storage Capacity. Total storage capacity is estimated to be about 2,900,000 af (DWR 1975).

Groundwater in Storage. Unknown.

Groundwater Budget (Type C)

Natural recharge is estimated to be about 250 af/yr (DWR 1975)

Groundwater Quality

Characterization. The character of the groundwater in general varies between sodium chloride and sodium sulfate.

Impairments. The quality of the groundwater is marginal to poor for domestic use because of elevated concentrations of fluoride, chloride, sulfate, and TDS. Fluoride content ranges from 1.0 to 3.9 mg/L and averages about 2.5 mg/L. TDS content ranges from about 750 to 3,100 mg/L, with an average of about 1,500 mg/L. In addition, the groundwater may be marginal to poor for irrigation because of boron, which in one well was reported to contain 4.3 mg/L.

Well Characteristics

Well yields (gal/min)		
Municipal/Irrigation	Range: 50 – 100	Average: 50 (DWR 1975)
Total depths (ft)		
Domestic	Range:	Average:
Municipal/Irrigation	Range:	Average:

Active Monitoring Data

Agency	Parameter	Number of wells /measurement frequency
U. S. Geological Survey	Groundwater levels	3
Department of Health Services and cooperators	Miscellaneous water quality Title 22 water quality	1

Basin Management

Groundwater management:

Water agencies

Public

Private

References Cited

- 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.
- Moyle, W. R. 1974. *Geohydrologic Map of Southern California*. U. S. Geologic Survey, Water-Resources Investigations 48-73 Open File.
- 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.
- Tetra Tech, Inc. 1999. *Final Report, A Study on Seepage and Subsurface Inflows to Salton Sea and Adjacent Wetlands*.

Errata

Changes made to the basin description will be noted here.