Long Valley Groundwater Basin

- Groundwater Basin Number: 6-11
- County: Mono
- Surface Area: 71,800 acres (112 square miles)

Basin Boundaries and Hydrology

This groundwater basin underlies Long Valley in southern Mono County. The basin is bounded by nonwater-bearing rocks of Bald and Glass Mountains on the north, of Round Mountain on the east, of the Sierra Nevada on the south, and of volcanic highlands on the west (DWR 1964; Strand 1967). Long Valley is drained by the Owens River to Lake Crowley near the southern end of the valley. Deadman, Mammoth, Convict, McGee, and Hilton Creeks are major tributaries to the Owens River in this valley. Average annual precipitation ranges from about 10 to 20 inches.

Hydrogeologic Information

Water Bearing Formations

The water-bearing units in this basin include Holocene alluvium and underlying Pleistocene alluvial and lacustrine deposits (DWR 1964). Holocene alluvium reaches at least 80 feet in depth. Pleistocene alluvium and interbedded lacustrine deposits that underlie the Holocene alluvium throughout the basin also bear water. Groundwater in the Holocene alluvium is generally unconfined; whereas; groundwater in the Pleistocene alluvium is locally confined in the northern and western parts of the basin (DWR 1964, Bader 1969).

Restrictive Structures

Several faults cut through or displace basement rocks beneath the basin (Strand 1967; Bailey and others 1976); however, it is not known whether or not these faults impede groundwater movement in the basin.

Recharge Areas

Recharge to the basin is chiefly from percolation of streamflow and precipitation on the valley floor (DWR 1964). Many cold and hot springs discharge groundwater within the valley (Farrar and others 1985, 1987).

Groundwater Level Trends

The water table in the Holocene alluvium shows fluctuations from patterns of seasonal recharge of groundwater (Farrar and others 1987). Water levels in wells throughout the basin were generally stable during 1990 through 1996, showing fluctuations of as much as two feet. Groundwater moves generally toward Lake Crowley in the southern part of the basin (DWR 1964, Farrar and others 1985).

Groundwater Storage

Groundwater Storage Capacity. Total storage capacity is estimated to be 160,000 af (DWR 1975).

Groundwater in Storage. **Unknown.**

Groundwater Budget (Type A)

The estimated evapotranspiration from the basin is about 16,000 af/yr (DWR 1964). Water for irrigation and municipal use totaled about 7,000 af/yr in 1950s (DWR 1964).

Groundwater Quality

Characterization. Most groundwater is calcium bicarbonate or sodium bicarbonate character with TDS concentrations of less than 300 mg/L (Farrar and others 1985, 1987). Thermal waters are of sodium chloride character with low calcium and magnesium concentrations and TDS concentrations ranging from 1,000 to 1,500 mg/L (Farrar 1985). Relatively high concentrations of sodium, potassium, chloride, fluoride, silica, arsenic, boron, and lithium are detected in some thermal wells and springs. Water from 20 pubic supply wells shows an average TDS content of 345 mg/L and a range of 250 to 500 mg/L. Overall, water quality is suitable for domestic and irrigation purposes, except along Hot Creek where water quality is inferior (DWR 1964)

Impairments. Boron concentrations of 10.4 mg/L and fluoride concentrations of 4 mg/L were found in thermal water samples in Hot Creek (DWR 1964). These values exceed recommended standards for irrigation and domestic uses.

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	4	0
Radiological	6	2
Nitrates	4	0
Pesticides	4	0
VOCs and VSOCs	4	0
Inorganics – Secondary	4	4

[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 Characteristics

	Well yields (gal/min)	
Municipal/Irrigation	Range: to 250 gal/min	Average: 90 gal/min (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	20 wells
Department of Health Services and cooperators	Title 22 water quality	5 wells

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Additional References

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Errata

Changes made to the basin description will be noted here.