

Williams Valley Groundwater Basin

- Groundwater Basin Number: 1-43
- County: Mendocino
- Surface Area: 1,640 acres (2.5 square miles)

Basin Boundaries and Hydrology

Williams Valley is an irregularly shaped, northwest-trending structural basin located within the Coast Ranges of northeastern Mendocino County. This valley is about 4 miles long and has a variable width of 0.25 to one mile. The Williams Valley Groundwater Basin is defined by the areal extent of Quaternary formations (alluvium and terrace deposits), which are bounded on all sides by bedrock of the Franciscan Formation. The Williams Valley Groundwater Basin is separated from the Round Valley Groundwater Basin by a narrow constriction in Franciscan Formation bedrock formed by the passage of Short Creek.

The northern portion of Williams Valley is drained to the southeast by Short Creek. Towards the southern end of the valley, Short Creek flows to the south and then exits the valley towards the southwest into Round Valley. Precipitation in Williams Valley ranges from approximately 43 inches in the south to 51 inches per year on the northwest side of the valley.

Hydrogeologic Information

Water-Bearing Formations

Significant water-bearing formations that occur in Williams Valley include Alluvium, Terrace Deposits, and probably Continental Deposits. Bedrock of the Franciscan Complex surrounds and underlies Williams Valley but due to its consolidated nature, it is essentially non-water bearing except for areas with significant fracture porosity. Information on water-bearing formations and groundwater occurrence was taken from primarily from DWR (1958).

Alluvium and River Channel Deposits. These deposits are Holocene in age and consist largely of unconsolidated silts, gravels, clays, and sands. These deposits are exposed along the length of Short Creek. The maximum thickness of these deposits is not known. No published well yield data was identified for wells in Williams Valley. Groundwater in the alluvial deposits is typically unconfined but may be semi-confined locally. No published specific yield data for alluvium in McDowell Valley are available.

Terrace Deposits. These deposits are Pleistocene to Holocene in age and are composed of unconsolidated gravels, sands, silts, and clays. These deposits are exposed along the flanks of the valley in the northeast, west to southwest, and southeast. The maximum thickness of these deposits is unknown. No published information on well yields, groundwater occurrence, or specific yield of this unit was identified.

Continental Deposits. Old Continental Basin Deposits classified as Pliocene to Pleistocene in age are not exposed at the surface in Williams Valley but may be inferred to exist in the subsurface. For information purposes, a well-exposed section of this unit occurs along a road cut in the south end of Round Valley. At this location in Round Valley, about 75 feet of reddish-stained silty gravel, sand, sandy silt, silty clay, and siltstone are exposed (Cardwell 1965). Due to the predominantly fine-grained nature of this unit, wells that tap into this deposit are generally expected to have low yields.

Groundwater Level Trends

No groundwater level data for wells in Williams Valley are available and therefore, groundwater levels trends could not be determined.

Groundwater Storage

Groundwater Storage Capacity. No published values for groundwater storage capacity were identified.

Groundwater in Storage. No published values for the amount of groundwater in storage were identified.

Groundwater Budget (Type C)

No data available.

Groundwater Quality

Characterization. No published groundwater quality data is available for wells in Williams Valley however, groundwater in the neighboring Round Valley is, in general, a calcium bicarbonate type and is generally suitable for irrigation and domestic uses (Muir and Webster 1977).

Impairments. No data available.

Well Characteristics

| | Well yields (gal/min) |
|----------------------|------------------------------|
| Municipal/Irrigation | No data is available. |
| | Total depths (ft) |
| Domestic | No data is available |
| Municipal/Irrigation | No data is available. |

Active Monitoring Data

| Agency | Parameter | Number of wells /measurement frequency |
|-------------------------------|---|--|
| DWR (incl. Cooperators) | Groundwater levels | None |
| DWR (incl. Cooperators) | Mineral, nutrient, & minor element. | None |
| Department of Health Services | Coliform, nitrates, mineral, organic chemicals, and radiological. | None |

Basin Management

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|-------------------------|---|
| Groundwater management: | No groundwater management plans were identified |
| Water agencies | |
| Public | Mendocino County Water Agency |
| Private | |

Selected Bibliography

- California Department of Water Resources (DWR) 1958. Recommended Water Well Construction and Sealing Standards, Mendocino County. Bulletin No. 62 – November.
- Cardwell, G.T. 1965. Geology and Ground Water in Russian River Valley Areas and in Round, Laytonville and Little Lake Valleys, Sonoma and Mendocino Counties, California. USGS Water Supply Paper 1548.
- Muir K.S. and D.A. Webster 1977. Geohydrology of Part of the Round Valley Indian Reservation, Mendocino County, California. USGS Water-Resources Investigations 77-22. July.

Errata

Changes made to the basin description will be noted here.