

CONCEPTUAL MODEL

Figure 9 is a diagrammatic sketch of one possible configuration of the potentiometric surface extending through the project area from Fremont Valley in the southwest to north of West Bowman Road in the northeast. Significant elements are the ground water divide, approximately at Sage Canyon, and a barrier to ground water flow beginning near Freeman Canyon and extending to the northeast.

As indicated in this sketch, ground water may flow southwest from the divide toward Fremont Valley and northeast from the divide toward China Lake.

The barrier, inferred from warmer temperatures, may consist of a fault zone, buried volcanics, a fault-bounded upraised segment of bedrock (horst), a buried bedrock spur, or tight sediments. Its effect would be to steepen the potentiometric surface toward China Lake.

We considered the possibility that the warmer temperatures in the northeast could result from a topographic effect caused by the Freeman Canyon alluvial fan. However, because the thermal configuration does not conform to the topography of the fan, we do not think this is the explanation.

No records are available to prove whether the ground water is confined. We think that it is not significantly confined because of the generally coarse nature of the alluvium exposed in the project area. Therefore, the potentiometric surface should reasonably represent the ground water table.

It is important to note that, though we prefer this model based on all the currently available data, this is just one of several possible models of the potentiometric surface that can be derived from the combination of water level data and the results of the temperature survey.