

SUBSURFACE GEOLOGIC CONDITIONS NEAR PASAJERO AND POLVADERO GAPS

The possible easterly movement of groundwater from Pleasant Valley through two gaps in the Guijarral Hills has been of interest. The north gap is termed the Pasajero Gap, through which Arroyo Pasajero flows. The south gap is termed the Polvadero Gap, through which Zapato Chino Creek flows. Besides groundwater elevations on both sides of each gap, an important issue is the depth to the base of the unconsolidated alluvium (the top of consolidated sedimentary rocks) beneath each gap. In order to evaluate groundwater conditions near the gaps, two previously prepared subsurface geologic cross sections by KDSA were extended. Cross Section A-A' extended along Los Gatos Creek west of the Pasajero Gap. Cross Section B-B' extended along Zapato Chino Creek, and the north end was near Polvadero Gap.

Cross Section A-A' was extended to the northeast and east through three additional wells, so as to extend east of the Pasajero Gap and into the San Joaquin Valley (Figure 2). Along the extension of Cross Section A-A', the logs for the three additional wells extend from 1,240 to 1,885 feet in depth. The Pasajero Gap is essentially in the area near Well 21Q1. The unconsolidated alluvial deposits at Wells 28D and 21Q1 extend to a depth of at least 1,200 feet, and the cross section indicates that the alluvial deposits are thick beneath the gap. In addition, the Spring 2019 water levels are plotted along this section. These water-level elevations are higher to the southwest and lower to the northeast, indicating that groundwater flows from Pleasant Valley, through the Pasajero Gap, and into the San Joaquin Valley. West of the gap in Pleasant Valley, water-level elevations ranged from about 210 feet above MSL to the southwest to about 80 feet near the gap. East of the gap, water-level elevations decreased to less than 30 feet above MSL in the San Joaquin Valley.

Cross Section B-B' was extended to the northeast through two wells and a test hole to also extend into the San Joaquin Valley (Figure 3). For the extension of Cross Section B-B', the depths of the two wells and test hole extend from 1,530 to more than 1,800 feet. Unconsolidated alluvial deposits extend to a depth of at least 1,240 feet near Polvadero Gap and to depths exceeding 1,500 feet to the northeast in the San Joaquin Valley. Water-level elevations along Cross Section B-B' (extended) indicate a cone of depression in Pleasant Valley and a groundwater divide near Polvadero Gap. Therefore no groundwater flow is indicated

through the gap. The reason for this is attributed to little pumping near the gap and heavy pumping on both sides of it, in Pleasant Valley and in the San Joaquin Valley.

