

# **Exhibit 50**

Opinions of Thomas Harder for the November 4, 2014 Trial - Antelope Valley Adjudication Case:

1. Phelan Pinion Hills Community Services District's (Phelan's) Well 14, which is located in Los Angeles County and within the Antelope Valley Adjudication Area (AVAA), is a critical water supply source for Phelan.
2. The distribution and supply of water produced by Phelan's Well 14, which is almost exclusively for municipal use in the Phelan service area, is consistent with my observations and experience working for other public water suppliers.
3. The Buttes Subunit of the Antelope Valley Groundwater Basin, in which Phelan's Well 14 is located, is hydrogeologically distinct from other subunits in the Antelope Valley Groundwater Basin.
4. The unnamed fault that separates the Buttes Subunit from the Lancaster Subunit is a groundwater flow barrier that limits the hydrologic connectivity between the two subunits and results in different hydrogeologic conditions in the Buttes Subunit.
5. Groundwater levels within the Buttes Subunit have been relatively stable and did not change significantly from 1951 through 2006, when Well 14 started production.
6. Groundwater levels in Phelan's Well 14 have been relatively stable since the well went into service during 2006.
7. More likely than not, impacts associated with Well 14 pumping on groundwater levels in the neighboring Lancaster Subunit are negligible due to the limited hydrologic connectivity between the Buttes and Lancaster subunits and the significant distance between Well 14 and the Lancaster Subunit.
8. The United States Geological Survey (USGS) groundwater flow model used to assess the impact of Phelan's pumping on groundwater flow in the Antelope Valley Adjudication Area is not sufficient, in its current form, to perform this analysis and the results are not reliable.
9. I have not changed any of my opinions as they relate to return flow in the portion of PPHCSD's service area lying over the Antelope Valley Groundwater Basin, as offered in Phase V deposition testimony.
10. Given the location of Phelan's Well 14 downgradient of the developed portion of Phelan's service area that lies over the Antelope Valley Groundwater Basin, and the groundwater depression caused by Phelan pumping from this well, more likely than not, most of the return flow that occurs in this area is captured by Well 14.