


Central Valley Nitrate Contamination



Nitrate contamination of groundwater in agricultural areas of the United States, and throughout the world, is a common problem. Most of the contamination is the result of widespread application of nitrate fertilizers to stimulate crop growth. Thus, most of the contamination is the result of non-point sources. However, these fertilizers were manufactured at discreet locations, and stored/distributed from numerous facilities across the country. Given their volume of use, the fertilizers were stored in large above-ground tanks at these facilities. While in storage, or during transfer from rail cars to the tanks or from the tanks to bags or trucks, accidental releases to the ground and subsurface were known to occur.

These releases constitute a point source for nitrate contamination. In certain locations, given a sufficient release, this point source contamination is discernable above “background” regional contamination from surface application of fertilizers on crops.

Aquilologic was retained by one City in the Central Valley of California. Nitrate concentrations indicative of regional contamination were evident in many of the City’s water supply wells. However, in a group of wells within the urbanized City boundaries, nitrate concentrations were higher than in the other wells and in the surrounding agricultural wells. This pattern suggested a possible point-source proximate to these impacted wells.

Aquilologic reviewed information on potential source sites in vicinity of the wells, the regional hydrogeologic system, well field operations, and available groundwater testing data. Based upon this review, an agricultural chemical distribution facility in the vicinity of the wells was identified as the likely source site. A conceptual model of groundwater flow and contaminant transport from the source site to the wells was developed.

The City initiated legal action against the owner of the facility, and based upon legal arguments and the technical evaluation, an attractive settlement was reached with this responsible party.