

# **RETROSPECTIVE ANALYSIS OF HISTORICAL WATER-QUALITY DATA FOR THE HIGH PLAINS REGIONAL AQUIFER, 1950-97**

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## **ABSTRACT**

As part of the High Plains Regional Ground-Water Study, more than 1 million water-quality observations collected by 43 agencies were compiled into a data base in order to evaluate historical water-quality conditions in the aquifer. The historical data are useful for simple water-quality summaries but cannot be used for detailed analysis because critical well information such as screened interval are usually missing. The historical data indicate that nitrate concentrations in ground water have increased throughout the High Plains from the 1960s to the present. Increased nitrate concentrations are present not only in shallow alluvial wells, but also in deep Ogallala Formation wells. The areal extent of the High Plains aquifer having dissolved-solids concentrations exceeding 500 milligrams per liter also has increased over the same time period. Small concentrations of pesticide compounds have been detected in the High Plains aquifer in wells where depth to water is as much as 100 feet; however, pesticide data are lacking for much of the aquifer. The retrospective analysis indicates that water quality should be considered when evaluating the sustainability of the water resources of the High Plains aquifer.