

UNCOMPAHGRE ALLUVIAL AQUIFER GEOPHYSICAL AND AQUIFER YIELD EVALUATION

Allan Foster, LRE Water, Denver, CO, USA

Jacob Bauer, LRE Water, Denver, CO, USA

In support of a municipal water supply evaluation, LRE Water subcontracted a geophysical investigation to determine optimum well placement on an alluvial parcel (“Site”) along the Uncompahgre River in western Colorado, USA. The primary goal of this investigation was to evaluate groundwater well yields and evaluate whether the principle of Riverbank Filtration (RBF) will provide water quality benefits at the Site. The stepwise investigation consisted of 1) a geophysical investigation including seven seismic refraction tomography (SRT) surveys and seven electrical resistivity tomography (ERT) surveys, 2) monitoring and test-production well installation informed by the geophysical investigation, 3) aquifer testing and construction of a groundwater model utilizing the results of the ground- truthed geophysical investigation. This case study provides insights into the costs and benefits of geophysical investigations to aid in the design of alluvial well fields.