

CASE HISTORY

Irrigation Well Exploration Using Geophysical Methods

Challenge:

Successfully placing irrigation wells on large properties without spending tens of thousands of dollars in drilling costs can be a challenging task, especially in portions of the country characterized by silty/clayey soils. Recently, MUNDELL was approached with a task to locate the best potential water bearing zones across a ~325 acre agricultural property in northern Indiana.

Action:

An initial desktop study consisting of a published records search for local geologic/hydrogeologic information and adjacent water well logs was conducted for the property, as was a photo-lineament analysis. This preliminary desktop study helped to pinpoint the portions of the site that were most likely to contain water bearing units. The best potential drilling targets were then further examined using 2-D electrical resistivity imaging. Two resistivity profiles were collected to characterize the upper 200 feet of subsurface.

Results:

The two (2) resistivity profiles collected indicated the presence of several channels of water bearing sand and gravel located within the surrounding clayey soils. Preliminary pumping tests within these channels yielded more than 700 gallons of water per minute.

