

Dog Leg Alluvial Aquifer

Field Report 1: Initial Geophysical Exploration of the Aquifer Structure with Electrical Resistivity

Background

We have discussed the ideas for the structure of the Dog Leg Alluvial aquifer such as layered structure, layer thicknesses, composition of layers/materials, composition of bedrock, potential 2D/lateral variation and what those might be, etc.

Ultimately our goal is to constrain all of these parameters using our geologic observations and geophysical data to cite locations for groundwater wells (that may or may not work out).

The Consulting Project

Imagine you (NOPAL Geophysical¹) were hired by Kevin Piper, the Cal Poly Ag Lands manager to cite groundwater well location(s) to support some small-scale student farm projects at the Dog Leg.

- You initially asked for funding to carry out two VES data collections.
- After the analysis of the VES data you felt justified to ask for more funding to carry out 2D ERT surveys along the same profile as the VES.

Using the data provided with this Field Report assignment, create a report addressed to Kevin Piper that outlines the whole project including background and what conclusions you can make, i.e. which aquifer parameters you can constrain and which are still unknown.

Odds & Ends

I am purposely leaving the format of your report open and up to you. I want to see how each of you goes about writing this up so that I can make comments and suggestions while you retain your own writing “voice”.

Use Overleaf to create a PDF of your work that you email to me. Make the filename of your PDF follow this template²:

NPG_”your last name”_DOGLEG_FR1_2026-09-30.pdf , (NPG = NOPAL GEOPHYSICAL), e.g.

NPG_Jasbinsek_DOGLEG_FR1_2026-09-30.pdf

¹ This is your consulting company name this term.

² Yes, it’s kind of a long name string but that is not important here. The idea is that a consulting company (or similar) you work for will have some conventions as to how they name data files, reports, etc. So one should get used to this practice.