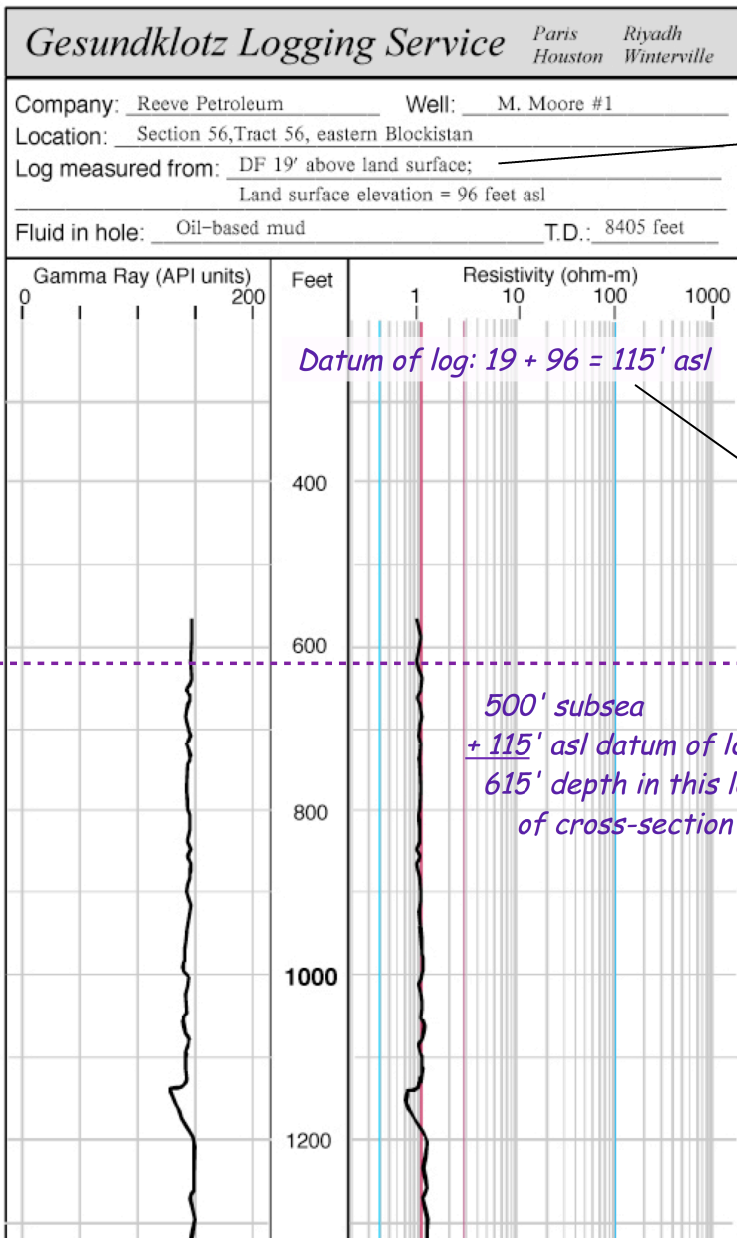


Making a structural cross section I: datum correction



This page and three that follow it will show the hanging and initial construction of a structural cross-section.

For each log, one's first task is to determine the elevation of the log's datum, the vertical elevation against which all depths on the log were measured. On wells where a Kelly bushing was used, the datum is commonly the Kelly bushing (KB). Another option is the drilling floor (DF).

Note that the word "datum" is used in two senses here. The first is the datum of the log: the vertical elevation against which all depths on that particular log were measured. The second is the datum for the cross section: the horizontal line onto which all logs will be matched. On a structural cross section, that datum is just some convenient but necessarily consistent elevation.

Many loggers just show the elevation of the log's datum relative to sea level. Gesundklotz is less kind and requires us to add the elevation of the datum above the land surface and the elevation of the land surface relative to sea level to get the elevation of the log's datum above sea level.

-500' datum Datum for cross section (Meaning #2 above)

On this log, 500 feet below sea level is at a depth in the well of 615 feet, because the well's datum is 115 feet above sea level.

For the algebraically inclined:

$$\begin{aligned} \text{depth in well} &= \text{elevation of log datum} + \text{elevation subsea} \\ \text{or} \\ \text{elevation subsea} &= \text{depth in well} - \text{elevation of log datum} \\ \text{or} \\ \text{elevation of log datum} &= \text{depth in well} - \text{elevation subsea} \end{aligned}$$

(The relationship used here to determine the depth in the well for the cross-section's datum)

(The relationship used in Part II of this series to determine a "top", the elevation of the top of a stratigraphic unit)

(A useless relationship shown only to complete our algebraic trifecta)

In Part II of this series, we will add a second log to our cross section, and in Parts III and IV we will make geological inferences.