

Case Study: Plato

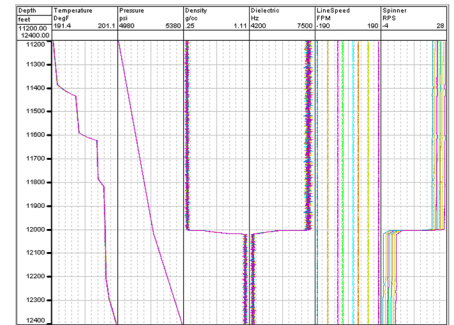
Use of Temperature as Opposed to Spinner Data

All logs, except the temperature log, follow the same tendency: they are approximately constant above 12003 ft. At this depth they show a dramatic change to eventually become constant again below 12003 ft.

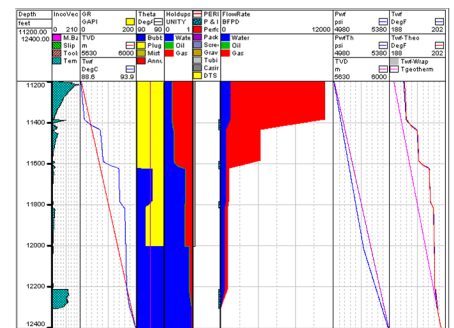
The temperature log shows a totally different behavior: nothing happens at 12003 ft, while above 12003 ft there are 3 intervals in which the temperature clearly decreases. Something must be wrong with this data set; the temperature logs appear to correspond to another well. Things become clearer, however, when we look at the completion information. The tubing starts from 12003 ft and therefore there are three producing zones behind the tubing. This explains why the temperature log looks so different from the other logs. The temperature measured in the tubing shows the temperature changes within the annulus because there is heat transfer through the tubing wall. This is not the case for the other tools, which cannot detect anything in the annulus.

In the analysis we assumed that the tubing wall is a perfect conductor and we consider that the temperatures in the annulus and tubing are the same.

Under these conditions the total heat flow (Joule/second) in the well is the difference between the heat flow in the tubing and the annulus.



The tubing was run too low and blocked production information for all tools except temperature.



The temperature was used to calculate the production profile.