

## Sonic logging exercices

### Exercise 1

On a sonic log, the travel time observed in sandstone was 568 ms over a source–receiver distance of 2.5 m. Given that the seismic velocities of quartz and pore fluid are  $5.95$  and  $1.46 \text{ km s}^{-1}$ , respectively, calculate the porosity of the sandstone. What would be the effect on the observed travel time and velocity of the sandstone if the pore fluid were methane with a velocity of  $0.49 \text{ km s}^{-1}$ ?

## Exercise 2

Figure 1 shows the sonic, calliper and gamma logs of a borehole in a sequence of shale and sandstone. Interpret the logs as fully as possible.

