



SURE-SHOT™ FLUID LEVEL

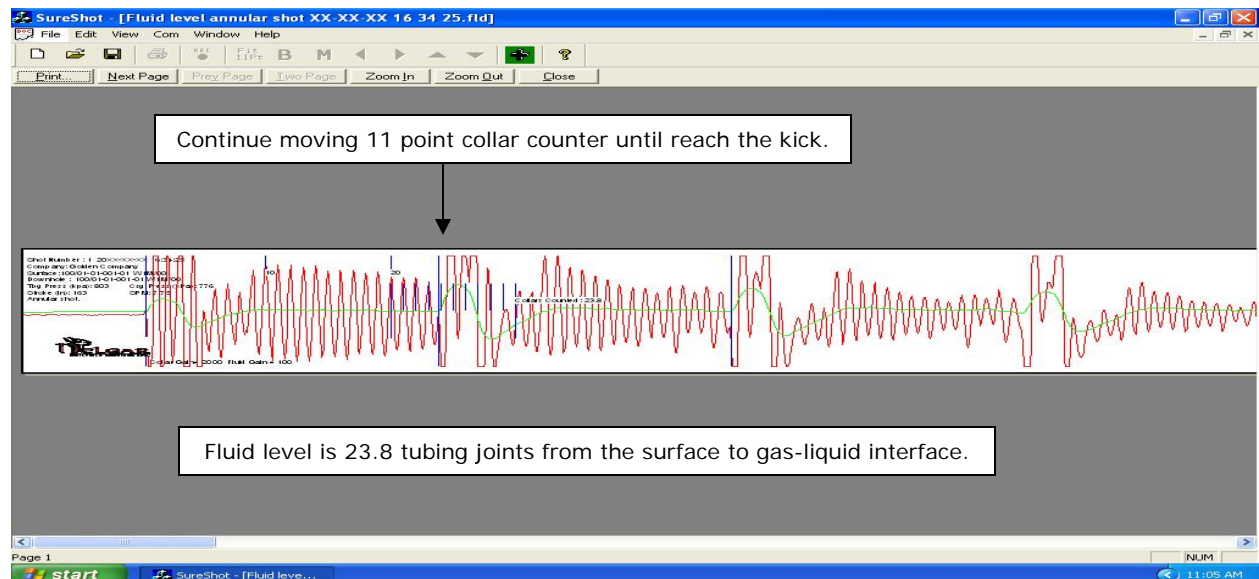
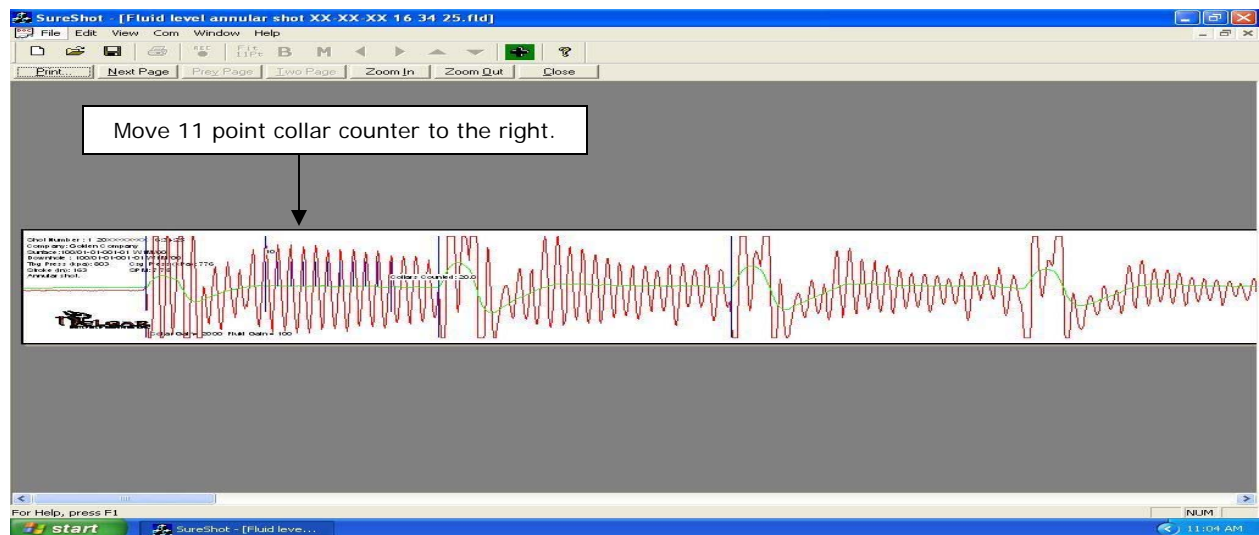
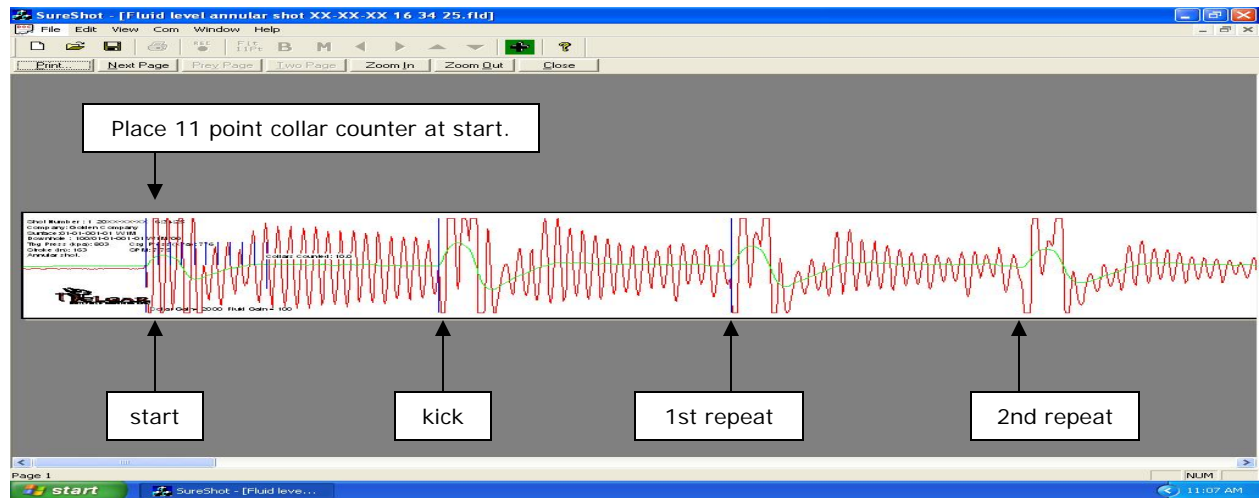
Fluid level is a distance from surface (wellhead) to gas-liquid interface in a wellbore. Accurate fluid levels are used for the following purposes.

- estimate bottom-hole pressure
- assess production potential
- evaluate pump performance
- assess operation changes

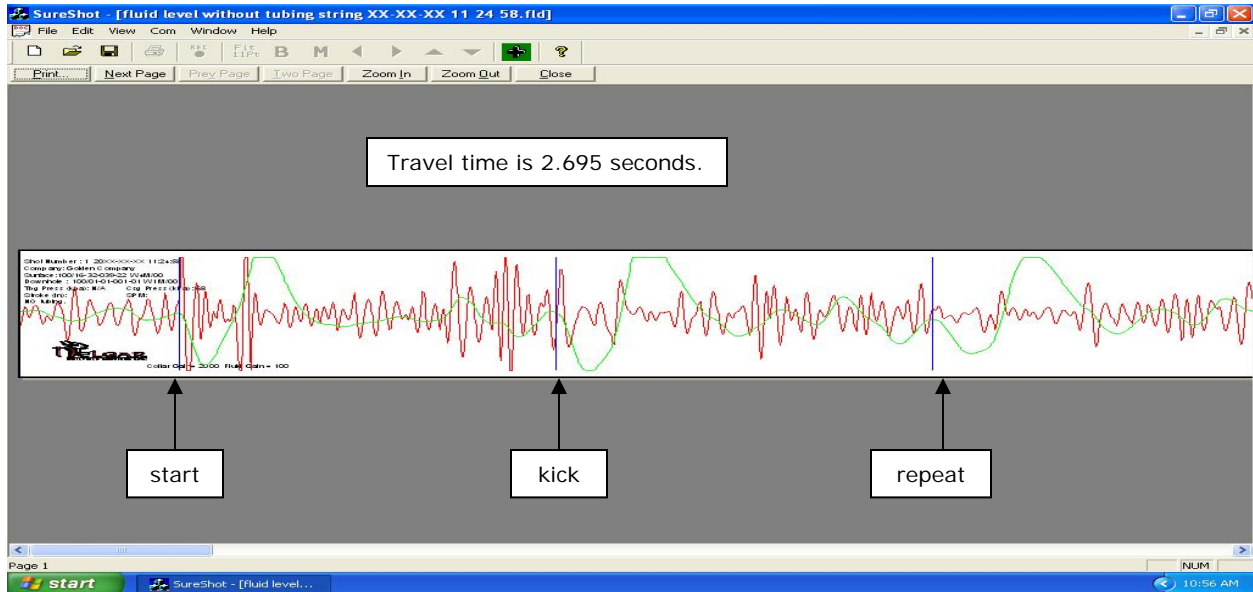
When a fluid level is taken down the casing-tubing annulus, the fluid level depth is often referred to as the number of tubing joints from surface to gas-liquid interference. When a fluid level is taken down a tubing, down a well without tubing installation, or with a coil tubing installation, the fluid level depth is usually calculated using acoustic velocity and travel time.

Through extensive research and comprehensive field testing, Nelgar Oilfield Services Ltd. has developed technologically advanced **Sure-Shot™ Acoustic Fluid Level Systems**. These systems are used in all fluid level applications and tests.

The following illustrates the process of determining a fluid level depth by reference to the common wellbore obstructions, such as tubing collars, anchor, liner and/or perforations when a fluid level is taken down the casing-tubing annulus.



The following presents a technique utilizing acoustic velocity for calculations of the fluid level depth when a fluid level is taken down a tubing, down a well without tubing installation, or with a coil tubing installation. Due to the smoothness nature of the strings involved, the common obstructions normally seen in a regular tubing installation are not present.



$$L = 0.5 (V \times T)$$

- L fluid level depth (meters)
- V acoustic velocity of sound wave in annular gas (meters/second)
- T travel time of sound wave from the surface to gas-liquid interface and back to surface (seconds)