



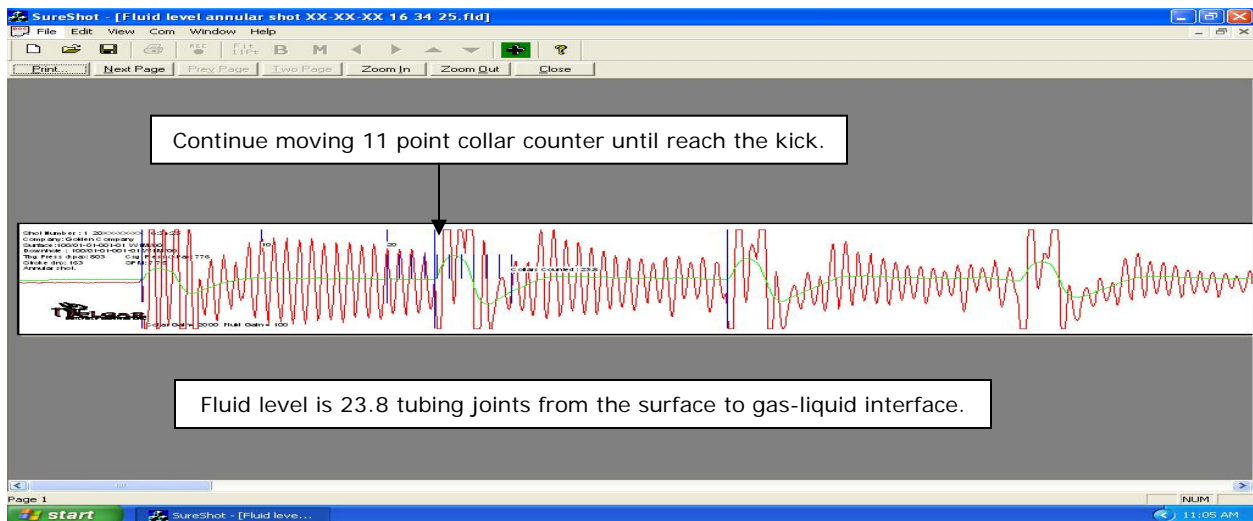
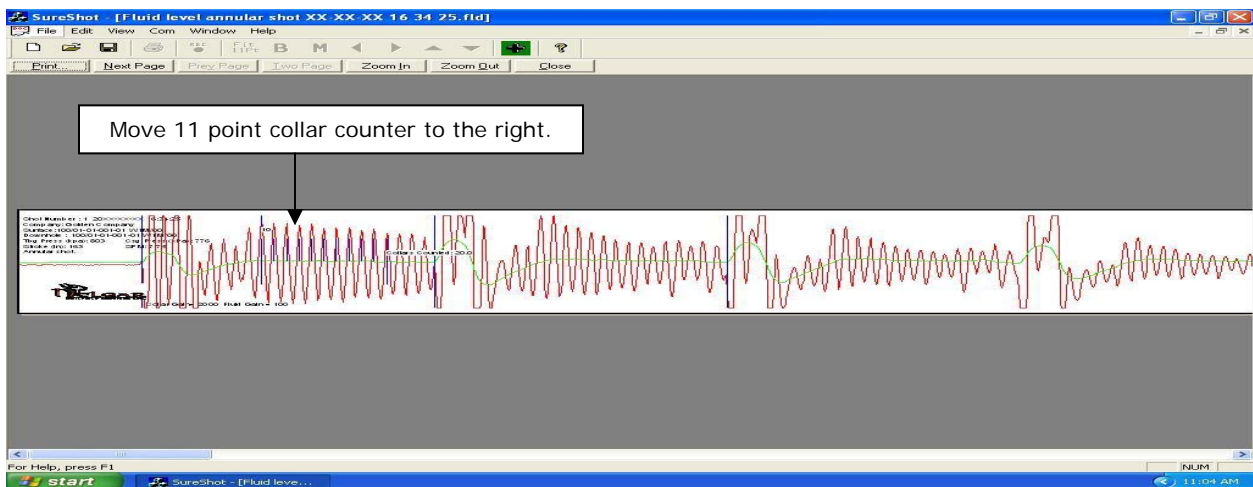
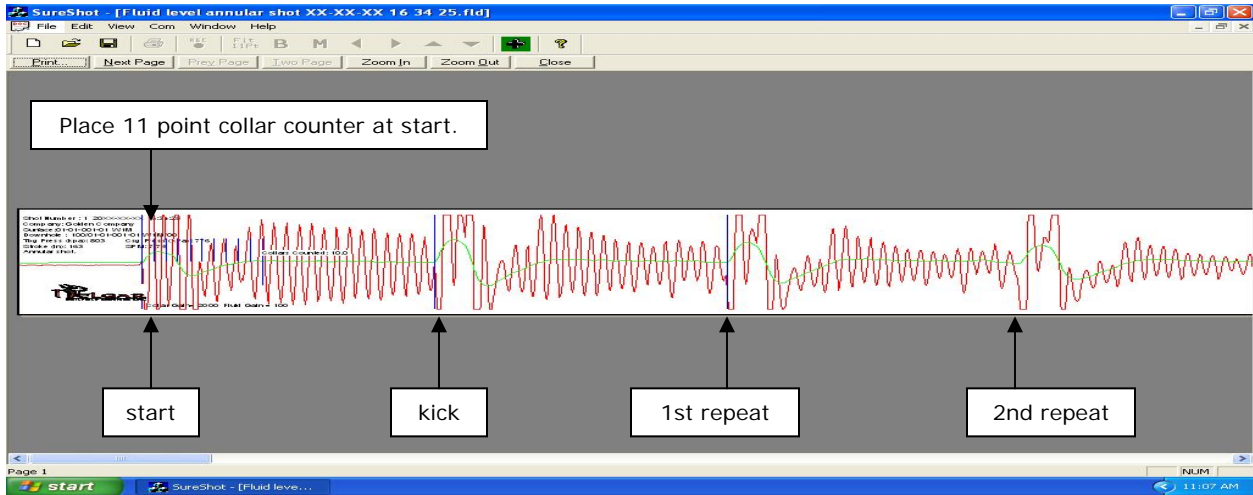
## SURE-SHOT™ FLUID LEVEL

Fluid level is the 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 downhole pump performance
- assess operational changes

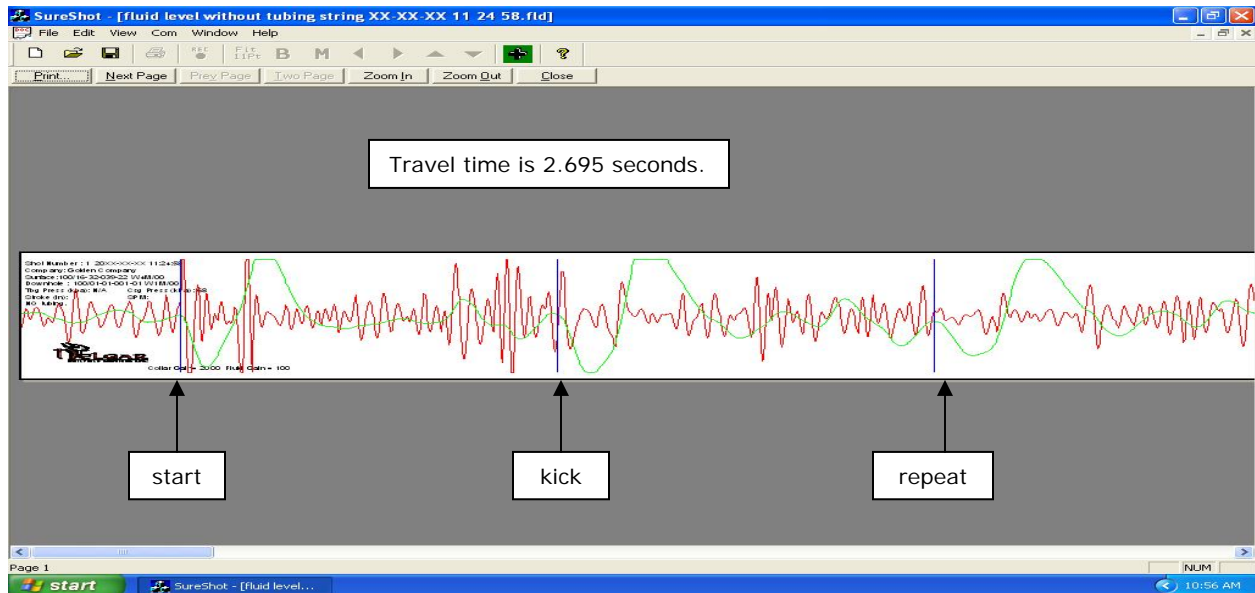
Through extensive research and comprehensive field testing, Nelgar Oilfield Services Ltd. has developed technologically advanced **Sure-Shot™ Acoustic Fluid Level Systems**. These systems are used in all fluid level applications and tests.

A fluid level depth is often referred to as the number of tubing joints from surface to gas-liquid interference. The following illustrates the process of determining a fluid level by reference to the common wellbore obstructions, such as tubing collars, anchor, liner and/or perforations when a fluid level is taken down the tubing-casing annulus of a well with a regular tubing installation.



However, fluid levels are sometimes taken down the tubing of a well with packer installation, down a well without tubing installation, or with a coil tubing installation. Due to the smoothness nature of the strings involved, the above mentioned common obstructions are not present. Instead of counting the tubing joints, the fluid level depth is calculated utilizing acoustic velocity technique.

The following illustrates the process of calculating a fluid level depth using acoustic velocity.



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

- L fluid level depth (meters)
- V acoustic velocity of sound wave in wellbore gas (determined by gas gravity, pressure and temperature) (meters/second)
- T travel time of sound wave from the surface to gas-liquid interface and back to surface (seconds)