

String Shots

A string shot is shooting a detonating cord on E-line in a section of the pipe to “rattle” the pipe to remove scale, free stuck equipment, or can be used with other operations in pipe back-off techniques.

Typical string shots are done with 1 to 4 strings of 90 grain (nominal wt) detonation cord, 3 to 4 ft long, suspended with E-line, across a section of the pipe, a valve or a coupling. The detonation cord is initiated high order with a standard, resistor detonating cap. Although the operation can be repeated in a section of the pipe if necessary, 2 strings are considered as maximum for old pipe and 4 strings are considered maximum for new tubulars. Larger pipe can use near the maximum while heavily corroded or damaged small diameter pipe is considered risky for the process.

In heavily scaled tubing, a junk basket below the shot area is recommended. In areas where scale is to be removed from the perfs, flowing the well at a low rate when firing the string shot may be useful. A weight bar stem should be considered to keep the line from being blown up-hole. There is a slight risk that shooting a string shot in a perforated zone will increase the chances of opening a mud channel if the cement job is poor. The risk increases with the number of strings used. The risk is similar to re-perforating a zone.

Work with string shots to clean slotted liners has been mentioned in California wells. String shots have been used prior to channel repairs involving cement squeezing. No reliability data is available on these uses.

If used in a backoff operation, tension and reverse torque should be worked into the pipe before shooting the string shot across the coupling to be backed-off.