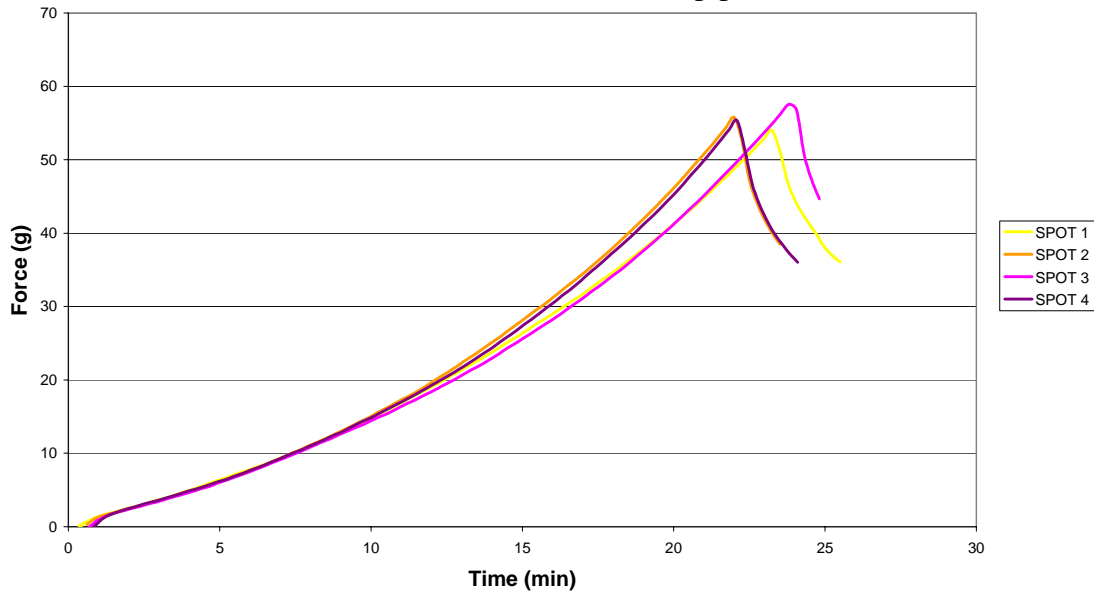
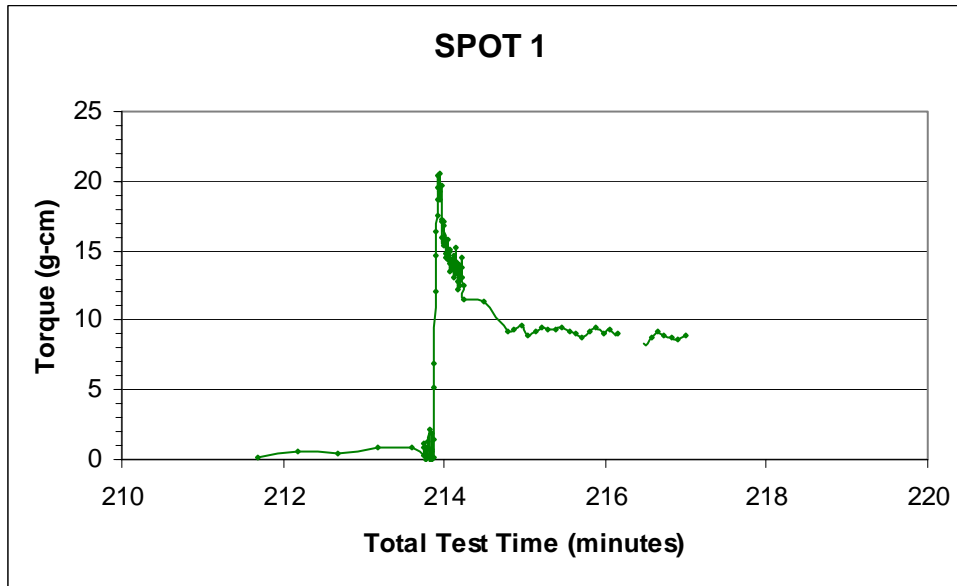


Eliminating stuck-pipe problems by better muds and spotting fluids

Drillstring sticking is one of the major downhole drilling complications, when the string can not be raised, lowered and rotated. The pipe must be dislodged as quickly as possible to avoid rig delays and substantial cost. Also the string failure by sticking problem requires expensive fishing operation before resumption of drilling; otherwise, the well will often need to be plugged and abandoned. In collaboration with CSIRO, this project aims to investigate performance characteristics of drilling fluids to prevent the stuck-pipe problem during drilling operations, and that of spotting fluids to dissolve the bond between the pipe and the mudcake on the wellbore wall, and thus to free the pipe in case it is stuck.



Force required to embedment (5 mm) into mudcake.



Torque required to free stuck-pipe by spotting fluid, SPOT1.