STRESS CHANGE MONITORING

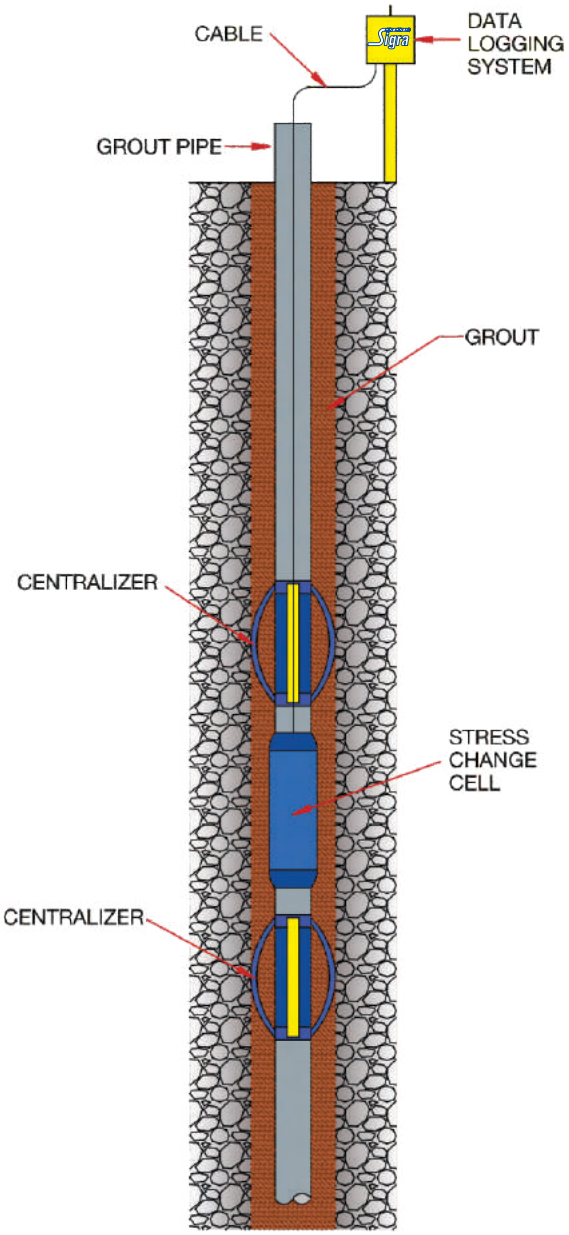
Sigra manufactures and installs stress change cells for long term stress change monitoring. This may be undertaken for monitoring stress changes during underground excavation or for confirmation of stress redistribution after the completion of excavations. A combination of stress change monitoring and fluid pressure monitoring provides a powerful tool for determining what is really going on in the ground.

Sigra's installation process involves permanently grouting a stress change cell into a borehole.

Where only the vertical stress change is required, the stress change cell is fitted with axial vibrating wire strain gauges and requires no orientation. Its installation is relatively low cost.

Where full three dimensional stress changes are required, the stress change cell is hollow and strain gauged. The on-board electronics sample from the strain gauges, magnetometers and accelerometers. The tool communicates via an umbilical wire to a Sigra logger at surface. A grout of special design is required in order to pre-load the cell. Pre-loading of the stress change cell is vital for accurately monitoring tensile stress changes. These stress change cells are costly and therefore great care must be exercised to ensure they are installed correctly.

Sigra also supplies an economical stress change cell in place of the fully triaxial strain gauge cell described above. The economical version is composed of 4 transversely orientated vibrating wire strain gauges which measure the biaxial stress changes perpendicular to the borehole wall, and a single axially orientated vibrating wire strain gauge which measures the axial stress changes. The stress change cell may be orientated downhole before grouting by lowering a survey tool onto a muleshoe arrangement above the stress change cell.



Grouted-in stress change cell for ground monitoring

Sigra Pty Ltd
93 Colebard St West, Acacia Ridge, QLD, Australia,
+61 7 3216 6344 info@sigra.com.au