AUTOMATED WELL CONTROL METHOD AND APPARATUS

Abstract:

A drilling control system monitors and compares drilling and completion operation sensor values and autonomously acts in response to conditions such as a kick or surge. Sensors in various combinations may monitor return fluid flow rate, fluid inflow rate, wellhead bore pressure, temperature of returning fluid, torque, rate of penetration and string weight change. The control system has corresponding control logic to monitor, warn and act based on the sensor inputs. The actions may include the warning of support personnel, closing an annular blowout preventer, shearing drill pipe using a ram shear, pumping heavier fluid down choke and kill lines, disconnecting the riser or various other actions.

Figure 1