

OVER PRESSURE SURVEY CAPE SORELL # 1

The D exponent was computed continuously from 300ft. and calculated every foot using the following equation:

$$DCS = (\log(a_p * ROP) / (60 * RPM)) / (\log(12 * WOB) / (10.6 * BS)) * H / ECD$$

Where a_p = equation of bit wear as a function of the footage drilled and the final tooth wear.

p = P exponent (as a function of the bit type and is related to the IADC code).

a_p = Bit wear correction.

ROP = Rate of Penetration.

RPM = Rotation (Revolutions per minute).

WOB = Weight on Bit.

BS = Bit size.

H = formation normal hydrostatic gradient in equivalent mud weight

ECD = Equivalent circulating density.

The extreme softness of the top formations and high ROP values attained rendered the D exponent practically invalid to 4000ft. A lack of argillaceous sediments resulted in difficulties establishing a compaction trend. The on-line system was set to compute the compaction trend by regression, however an almost total absence of argillaceous sediments throughout the well meant that invalid results were obtained. A manually determined trend using argillaceous beds at 3100ft. and 4100ft was therefore set. A regular drift to the left of this trend