

Well Intervention Pressure Control

Abbreviations Used in this Document

| | | |
|----------|---|----------------------------|
| bar | = | Bar (pressure) |
| bar/m | = | Bar per metre |
| BHP | = | Bottom Hole Pressure |
| kg/l | = | Kilograms per litre |
| l/m | = | Litre per metre |
| l/min | = | Litre per minute |
| l/stroke | = | Litre per stroke |
| m | = | Metre |
| MD | = | Measured Depth |
| SIWHP | = | Shut in Well Head Pressure |
| TVD | = | True Vertical Depth |
| 10.2 | = | Constant factor |

1. PRESSURE GRADIENT (bar/m)

$$\frac{\text{Fluid Density (kg/l)}}{10.2}$$

2. FLUID DENSITY (kg/l)

$$\frac{\text{Hydrostatic Pressure (bar)} \times 10.2}{\text{TVD (m)}}$$

3. HYDROSTATIC PRESSURE (bar)

$$\frac{\text{Fluid Density (kg/l)} \times \text{TVD (m)}}{10.2}$$

or

$$\text{Pressure Gradient (bar/m)} \times \text{TVD (m)}$$

4. FORMATION PRESSURE (bar)

$$\text{Pressure Gradient (bar/m)} \times \text{TVD (m)}$$

**5. TOTAL PRESSURE AT A GIVEN DEPTH IN A SHUT IN WELLBORE (bar)
(Where BHP = Formation Pressure)**

$$\text{Hydrostatic pressure of Gas (bar)} + \text{Hydrostatic Pressure of Oil (bar)} + \text{SIWHP (bar)}$$

6. TIME TO PUMP (minutes)

a. Tubing
$$\frac{\text{Tubing Capacity (l/m)} \times \text{MD (m)}}{\text{Pump Rate (l/min)}}$$

b. Annulus
$$\frac{\text{Annulus Capacity (l/m)} \times \text{MD (m)}}{\text{Pump Rate (l/min)}}$$

7. STROKES TO DISPLACE (Strokes)

a. Tubing
$$\frac{\text{Tubing Capacity (l/m)} \times \text{MD (m)}}{\text{Pump Displacement (l/stroke)}}$$

b. Annulus
$$\frac{\text{Annulus Capacity (l/m)} \times \text{MD (m)}}{\text{Pump Displacement (l/stroke)}}$$

International Well Control Forum

Inchbroach House
South Quay
Montrose
Angus DD10 9UA, Scotland,

Tel: 44-1674-678120
Fax: 44-1674-678125

Email: admin@iwcf.org

Internet site URL; <http://www.iwcf.org>

Chief Executive Officer: David Price

The International Well Control Forum is a legally constituted non-profit making organisation whose articles of association are bound by the laws of the Netherlands. The Forum is registered at The Dutch Chamber of Commerce in The Hague, Netherlands, Reg. No. 41157732