



# Slickline Connect Training

Slickline – Wireline – Well Services

## Training Presentation – Slickline Pressure Calculations



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# Slickline Connect Training – Slickline Pressure Calculations

## Hydrostatic Pressure (HP) Calculations

Using Fluid Density (ppg)

Pressure Gradient = Density (fluid) x Constant (Constant = 0.052)

Using SG

Pressure Gradient = SG Fluid x SG Water (SG water = 0.433psi/ft)

Using API Gravity

Specific Gravity =  $141.5 / (\text{API Gravity} + 131.5)$

To convert API to SG use: - Specific Gravity =  $141.5 / (\text{API Gravity} + 131.5)$

To convert SG to API use: - API Gravity =  $(141.15 / \text{SG}) - 131.5$

Hydrostatic Pressure (HP) = Pressure Gradient x True Vertical Depth

# Slickline Connect Training – Slickline Pressure Calculations

## Useful Conversions

1 Kg/cm<sup>2</sup> = 14.223 psi

1 Bar = 14.50 psi

1 psi = 0.068 Bars

1 Atmosphere = 14.70 psi

1 Kg/cm<sup>2</sup> = 0.980 Bars

1 Barrel(Bbl) = 0.158 m<sup>3</sup>

1 m<sup>3</sup> = 6.289 Barrels (Bbl)

1 ft = 12"

1Kg = 2.204 lbs

Fresh water gradient

Fresh water Specific Gravity

Fresh water weight per 1ft<sup>3</sup>

Fresh Water API gravity

Area =

Force =

1 psi = 0.070 Kg/cm<sup>2</sup>

1 psi = 0.068 Bars

1 Bar = 0.986 Atmospheres

1 Atmosphere = 1.033 Kg/cm<sup>2</sup>

1 Bar = 1.019 Kg/cm<sup>2</sup>

1 Barrel (Bbl) = 158.98 lt

1 inch = 25.4 mm (2.54 cm)

1 ft = 30.48 cm (0.304 mts)

1 lb = 0.453 Kg

0.433

1

62.4 Lbs

10

$\frac{1}{4} \times \pi \times (D)^2$  or  $\pi \times r^2$

Pressure x Area

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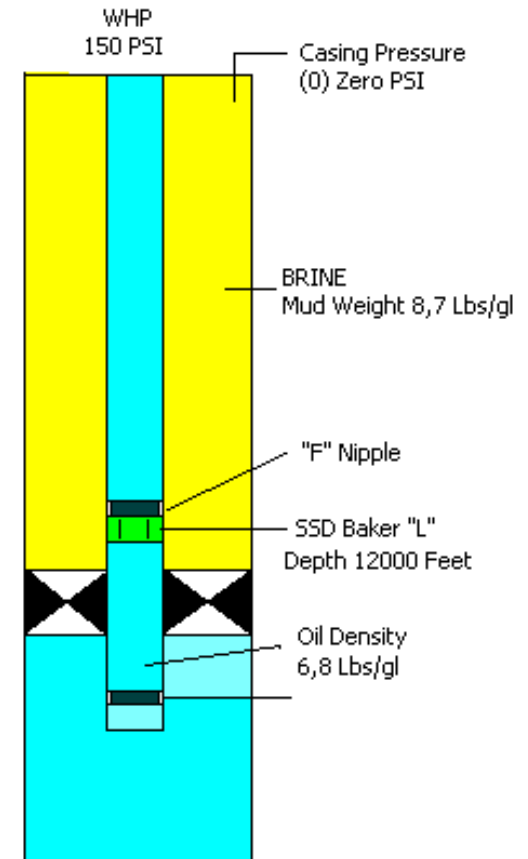
## Pressure Question 1

a) What is the hydrostatic pressure in the tubing

b) What is the total pressure in the tubing

Note: - Depth of the SSD = 12,000ft TVD

Note: 0.8gr/cc = 6.676ppg



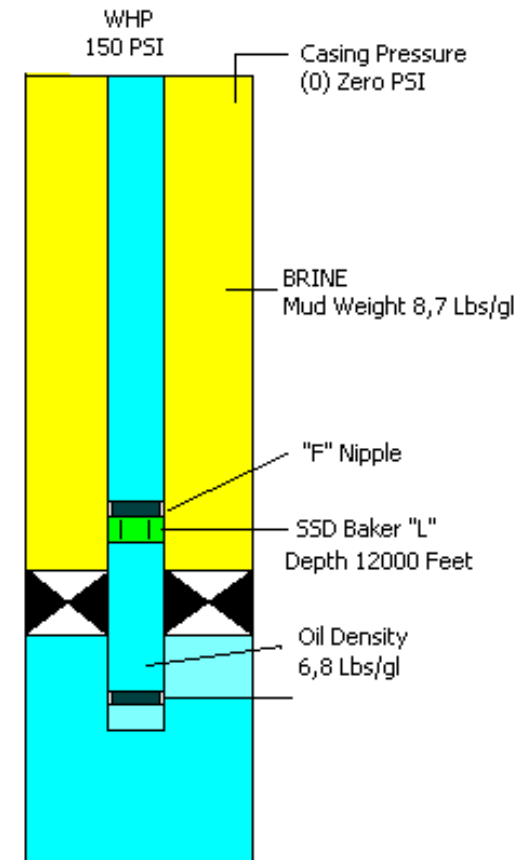
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## Pressure Question 2

a) What is the hydrostatic pressure in the casing

b) What is the total pressure in the casing

Note: - Depth of the SSD = 12,000ft TVD



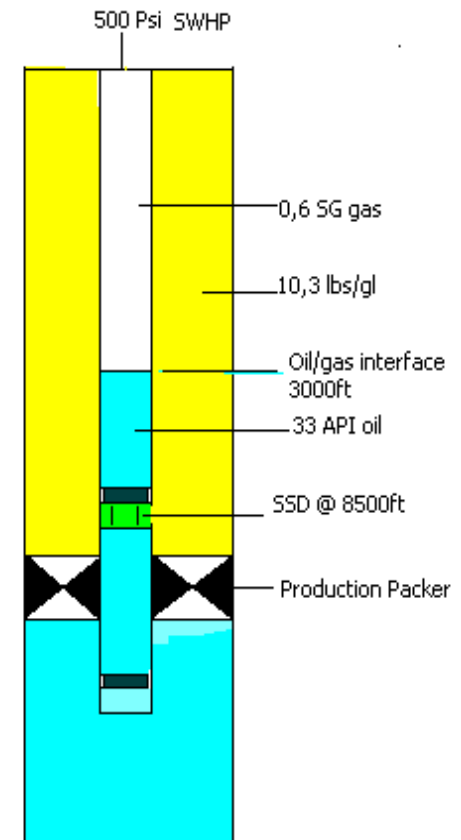
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## Pressure Question 3

a) What is the hydrostatic pressure in the tubing

b) What is the total pressure in the tubing

Note: Gas correction factor for 0.6 SG gas at 3000ft = 1.064



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## Pressure Question 5

a) If the Hydrostatic pressure at 12,407ft TVD is 3820 psi, what is the density of the fluid in ppg