Oil and Gas in Place by the Volumetric Method

Stock-tank oil or standard gas initially in place from drainage area, net pay, porosity, water saturation and formation volume factor, and recoverable volume.

Input parameters

Unit system: SI

Parameter	Value	Unit
Reservoir fluid	Oil	
Drainage area	259.00	ha
Net pay thickness	9.1440	m
Porosity	20.000	%
Initial water saturation	25.000	%
Initial formation volume factor (B_oi, or B_gi in reservoir m³ per standard m³)	1.3000	
Recovery factor	30.000	%

Calculated results

Parameter	Value	Unit
Hydrocarbon pore volume	3,552,428	m³
Volume in place at surface (stock-tank oil or standard gas)	2,732,637	m³
Recoverable volume	819,791	m³

Notes for this case

- Oil: the result is stock-tank m³ (1 m³ = 6.29 bbl).

Formula and method

$$V_p = Ah\phi(1 - S_{wi}), \quad N = \frac{V_p}{B_i}, \quad N_r = N \cdot RF$$

Variables

fluid	Reservoir fluid	-
A	Drainage area	m²
h	Net pay thickness	m
ϕ	Porosity	-
S_{wi}	Initial water saturation	-
B_i	Initial formation volume factor (B_oi, or B_gi in reservoir m³ per standard m³)	-
RF	Recovery factor	-
V_p	Hydrocarbon pore volume	m³
N	Volume in place at surface (stock-tank oil or standard gas)	m³
N_r	Recoverable volume	m³

Method and standards

Volumetric balance.

Assumptions and limits

- Uniform average properties.

Report details

Report reference	FCC-JAT0-K96S (the same inputs always give the same reference)
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Calculator	Oil and Gas in Place by the Volumetric Method
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Release checks	2 reference cases of this calculator, computed independently, are checked on every release

Results are for engineering estimation. Verify critical designs against the referenced standards and your own data.

This calculator online

https://calc.firecad.com/chemical/reservoir-engineering/oil-gas-in-place-volumetric

Open this case on calc.firecad.com →

Reopens the calculator with the inputs of this report.