



OXY USA INC.

Mud Pit Emissions Calculations

GLADE DRILLING PIT #1

NESE Section 2, T3N R66W, 6th PM.

Weld County, Colorado

April 2024

Derivation of EPA 1977 [1] and ERG 2014 [2] emission factors

Description	Value Units	<u>Gas Composition (API 2009 [3] page 5-75, Table 5-17, note b.)</u>			
Emission factor ¹	0.36 lb/1,000 gal				
Estimated Mud Use	10,000 bbl/well				
Mass of gas emitted per well	0.0756 tons/well	MW (lb/lb-mol)	mol%	wt%	
CH ₄ content of gas ²	65.13% wt%	CH ₄	16.0425	83.85%	65.13%
Mass of CH ₄ per well ³	0.0492 tons/well	C ₂ H ₆	30.069	5.41%	7.88%
Mass of C ₂ H ₆ per well	0.005954682 tons/well	C ₃ H ₈	44.0956	6.12%	13.07%
VOC per well	0.020405388 tons/well	C ₄ H ₁₀	58.1222	3.21%	9.03%
Total gas emissions	1,700 scf/well				

Total Number of Wells	2
Rig flare control %	0.95
SCF/yr	3,401
Pollutant	Total Uncontrolled Emissions (tpy)
VOCs	0.040811

Data Source

EPA 1997 [1] page 89. EF obtained through "personal communications" with the Western Oil and Gas Association. Unclear on EF basis.

API 2009 [3] uses the wellbore gas composition to speciate CH₄ emissions. However, if these emissions are occurring due to the processing of the oil from the oil-based mud in surface equipment, a lower CH₄ vapor wt% can likely be used.

Matches API 2009 [3] page 5-75, Table 5-17 EFs for oil-based and synthetic-based muds