

Total life cycle of hydraulic fracturing fluids.



Simple calculator tool.

Water-based fluid		Total barrels
# of stages		
barrels/stage		
Incremental water		bbl
Acquisition		method (source, recycle, reclaim...)
		\$/bbl water
		\$/ton CO ₂
Management		
		months, flowback
		% flowback (over same months)
		days/month
		# storage tanks
		\$/day/storage tank
		hrs setup/tank
		hrs monthly maintenance/tank
		\$/hr labor for maintenance & setup
Disposal		
		method (source, recycle, reclaim...)
		\$/bbl
CO ₂ foam quality		
0		# of stages
		foam volume improvement factor*
-		barrels of foam
-		barrels of water for foam
5.41		CO ₂ bbls/ton
-		CO ₂ tons

Input
 Calculated, can change value manually
 Feed, can change value manually

*Use "Quality vs. Leak-off Values" for estimates. Barrels of foam estimated adjustment based upon leak-off, fluid clean up, embedment...(if targeting equal fracture volume).

Fracturing fluid cost comparison

	Unit	# Units	Unit costs	Incremental water Total costs	CO ₂ Total costs
Acquisition					
Water - purchase	bbl	-	\$	\$	
CO ₂ - purchase	ton	-	\$		\$
Management (post-frac) storage at wellhead					
Incremental tanks (24)	mths	-	\$	\$	NA
Set-up / tank	hrs	-	\$	\$	NA
Labor monthly	hrs	-	\$	\$	NA
Disposal					
Injection Wells	bbl	-	\$	\$	
Total				\$	\$
Delta cost of water to CO₂				\$	
Cost/bbl equivalent				Water	CO ₂
Acquisition, management & disposal				\$	\$

"While initial CO₂ or N₂ acquisition costs may exceed water costs, in well-designed fracturing processes energized solutions can reduce other costs and improve well performance to yield a lower total operating cost or unit cost of production."

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