

VRGE™ vs. Other Fracturing Technologies

	Hydraulic Fracturing (Water + Chemicals)	CO2 Foam	Nitrogen Foam	Gelled Propane	VRGE (CNG Foam)
Requires "Importing" Fracturing Fluids to Well Site	Yes	Yes	Yes	Yes	No
Significant Truck Traffic/Costs	Yes	Yes	Yes	Yes	No
Cost for Consumption of Fracturing Fluid	\$\$	\$\$	\$\$	\$\$\$	\$
Water Consumption	High	Low	Low	None	None (or Low)
Requires Waste Fluid Disposal	High	Medium	Medium	Medium	None (or Low)
Viable Where Water is Scarce	No	Somewhat	Somewhat	Yes	Yes
Liquid Used for Foaming	N/A	Water	Water	Gel	Safe, Non-Aqueous Liquid or Water
Recycling of Foaming Liquid	N/A	No	No	N/A	Yes
"Contamination" of Produced Hydrocarbons	Yes	Yes	Yes	Yes	No
Chemicals Needed to Mitigate Effects of Water	High	Low	Low	No	No (or Low)
Viscosity Control	Chemicals	Chemicals	Chemicals	Chemicals	Temperature & Physical State
On-Site LNG Production + Separation of NGLs	No	No	No	No	Yes
Requires Pipeline to Get Natural Gas to Market	Yes	Yes	Yes	Yes	No

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VRGE -- Waterless Fracturing Technology