

Hydraulic Fracturing Fluid Product Component Information Disclosure

Fracture Date	8/1/2011
State:	CO
County:	Weld
API Number:	05-123-22280
Operator Name:	Noble Energy Inc
Well Name and Number:	Guttersen State CC 20-03
Longitude:	-104.46346
Latitude:	40.30247
Long/Lat Projection:	NAD83
Production Type:	Gas
True Vertical Depth (TVD):	7,390
Total Water Volume (gal)*:	119,070

Hydraulic Fracturing Fluid Composition:

Trade Name	Supplier	Purpose	Ingredients	Chemical Abstract Service Number (CAS #)	Maximum Ingredient Concentration in Additive (% by mass)**	Maximum Ingredient Concentration in HF Fluid (% by mass)**	Comments
Water	Operator	Carrier	Water	7732-18-5	100.00%	79.11440%	
Frac Sand (All Meshes) [CWT]	BHI	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	19.22796%	
Ferrotrol 300L	BHI	Iron Control	Citric Acid	77-92-9	70.00%	0.00293%	
GBW-5	BHI	Breaker	Ammonium Persulfate	7727-54-0	100.00%	0.00120%	
GS-1A	BHI	Gel Stabilizer	Non-hazardous	-	100.00%	0.01196%	
XLW-14	BHI	Crosslinker	1-Propanol	71-23-8	22.00%	0.01856%	
			Triethanolamine	102-71-6	65.00%	0.05483%	
			n-Propyl Zirconate	23519-77-9	18.00%	0.01518%	
Hydrochloric Acid, 10.1-15%	BHI	Acidizing	Hydrochloric Acid	7647-01-0	15.00%	0.11570%	
			Water	7732-18-5	85.00%	0.65562%	
Frac-Cide 1000	BHI	Biocide	2,2-Dibromo-3-Nitrilopropionamide	10222-01-2	100.00%	0.00144%	
			Water	7732-18-5	5.00%	0.00007%	
GW-45LF/GVSP-1	BHI	Gellant	Hydrotreated Light Distillate	CBI	70.00%	0.31232%	
			Carboxymethyl Guar Gum, Sodium Salt	39346-76-4	40.00%	0.17847%	
High Perm CRB	BHI	Breaker	Ammonium Persulphate	7727-54-0	100.00%	0.00877%	
			Crystalline Silica Quartz	14808-60-7	15.00%	0.00132%	
BF-9L	BHI	Buffer	Potassium Hydroxide	1310-58-3	15.00%	0.00370%	
High Perm CRB-LT	BHI	Breaker	Ammonium Persulphate	7727-54-0	100.00%	0.00160%	
			Crystalline Silica	7631-86-9	10.00%	0.00016%	
NE-940	BHI	Non-emulsifier	Methanol	67-56-1	60.00%	0.02108%	
			Isopropanol	67-63-0	10.00%	0.00351%	
			2-Ethyl Hexanol	104-76-7	10.00%	0.00351%	
			Polyoxyethylene Glycols	25322-68-3	5.00%	0.00176%	
			Solvent naphtha (Petroleum)^ Heavy Arom.	64742-94-5	5.00%	0.00176%	
			Ethoxylated Alcohol^ Branched	78330-19-5	5.00%	0.00176%	

			Ethoxylated Alcohol^ Branched	78330-20-8	5.00%	0.00176%	
			Naphthalene	91-20-3	1.00%	0.00035%	
			1^2^4-Trimethyl Benzene	95-63-6	1.00%	0.00035%	
CI-31	BHI	Corrosion Inhibitor	Methanol	67-56-1	5.00%	0.00015%	
			Isopropanol	67-63-0	5.00%	0.00015%	
			Formic Acid	64-18-6	60.00%	0.00176%	
			Organic Sulfur Compound	CBI	5.00%	0.00015%	
			Quaternary Ammonium Compound	CBI	5.00%	0.00015%	
			Haloalkyl Heteropolycycle Salt	CBI	30.00%	0.00088%	
			Aromatic Aldehyde	CBI	30.00%	0.00088%	
			Oxyalkylated Fatty Acid	CBI	30.00%	0.00088%	
			Benzyl Chloride	100-44-7	1.00%	0.00003%	
Inflo 250W	BHI	Surfactant	Surfactants	CBI	80.00%	0.08996%	
			2-Butoxyethanol	111-76-2	20.00%	0.02249%	
			Methanol	67-56-1	30.00%	0.03373%	
ClayCare	BHI	Clay Control	Choline Chloride	67-48-1	75.00%	0.06199%	
			Water	7732-18-5	30.00%	0.02480%	

\* Total Water Volume sources may include fresh water, produced water, and/or recycled water

\*\* Information is based on the maximum potential for concentration and thus the total may be over 100%

All component information listed was obtained from the supplier' s Material Safety Data Sheets (MSDS). As such, the Operator is not responsible for inaccurate and/or incomplete information. Any questions regarding the content of the MSDS should be directed to the supplier who provided it. The Occupational Safety and Health Administration' s (OSHA) regulations govern the criteria for the disclosure of this information. Please note that Federal Law protects "proprietary", "trade secret", and "confidential business information" and the criteria for how this information is reported on an MSDS is subject to 29 CFR 1910.1200(i) and Appendix D.