

# Hydraulic Fracturing Fluid Product Component Information Disclosure

Job Start Date:	1/20/2014
Job End Date:	1/20/2014
State:	Oklahoma
County:	Woods
API Number:	35-151-23993-00-00
Operator Name:	Chesapeake Operating, Inc.
Well Name and Number:	ROSEMARY TRUST 26-28-14 1H
Longitude:	-98.66847000
Latitude:	36.86897502
Datum:	NAD27
Federal/Tribal Well:	NO
True Vertical Depth:	5,343
Total Base Water Volume (gal):	1,720,152
Total Base Non Water Volume:	40,306



## 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
Fresh Water	CHESAPEAKE ENERGY	Carrier/Base Fluid					
			Water	007732-18-5	100.00000	95.35976	
Northern White Sand	BASIC ENERGY	Proppant - Natural					
			Crystalline Silica (Quartz Sand, Silicon Dioxide)	014808-60-7	100.00000	3.32503	
15% HCl Acid	BASIC ENERGY	Acid					
			Water	007732-18-5	85.00000	0.81625	
			Hydrochloric Acid	007647-01-0	15.00000	0.14404	
Recycled Produced Water	CHESAPEAKE ENERGY	Carrier/Base Fluid					
			Water	007732-18-5	100.00000	0.25619	
FR-7	BASIC ENERGY	Friction Reducer					
			Petroleum Distillate	064742-47-8	35.00000	0.01648	
			Hydrotreated Light				
			Ammonium Acetate	000631-61-8	6.00000	0.00283	
SC30	X CHEM	Scale Inhibitor					
			Sodium Polyacrylate	009003-04-7	100.00000	0.00999	
B84	X CHEM	Anti-Bacterial Agent					
			Glutaraldehyde (Pentanediol)	000111-30-8	27.00000	0.00555	
			Didecyl Dimethyl Ammonium Chloride	007173-51-5	8.00000	0.00164	

			Quaternary Ammonium Compound	068424-85-1	6.00000	0.00113	
			Ethanol	000064-17-5	4.00000	0.00082	
AGA-3	BASIC ENERGY	Gelling Agent					
			Methanol (Methyl Alcohol)	000067-56-1	50.00000	0.00391	
			Proprietary Alkoxylated Amine	TRADE SECRET	40.00000	0.00313	
I-6L	BASIC ENERGY	Iron Control Agent					
			Acetic acid	000064-19-7	85.00000	0.00481	
			Methanol (Methyl Alcohol)	000067-56-1	5.00000	0.00028	
CIA- LT166	BASIC ENERGY	Corrosion Inhibitor					
			Methanol (Methyl Alcohol)	000067-56-1	50.00000	0.00295	
			Propargyl Alcohol (2-Propynol)	000107-19-7	4.00000	0.00024	
S-10	BASIC ENERGY	Surfactant					
			2-Butoxyethanol (Ethylene Glycol Monobutyl Ether)	000111-76-2	100.00000	0.00087	
			Methanol (Methyl Alcohol)	000067-56-1	100.00000	0.00087	
NE - 140	BASIC ENERGY	Non-Emulsifier					
			Methanol (Methyl Alcohol)	000067-56-1	30.00000	0.00025	
Ingredients shown above are subject to 29 CFR 1910.1200(i) and appear on Material Safety Data Sheets (MSDS). Ingredients shown below are Non-MSDS.							
AGA-3, CIA- LT166, FR-7, I-6L, NE - 140, S-10	BASIC ENERGY	Corrosion Inhibitor, Friction Reducer, Gelling Agent, Iron Control Agent, Non-Emulsifier, Surfactant					
			Water	007732-18-5		0.04231	
			Proprietary Surfactant	TRADE SECRET		0.03984	
			Alcohol ethoxylate C-10/16 with 6.5 EO	068002-97-1		0.03898	
			Ethoxylated Oleylamine	026635-93-8		0.03898	
			Alcohols ethoxylated C12-16	068551-12-2		0.03898	
			Sorbitan Monooleate	001338-43-8		0.03898	
			Polypropenamide	910644-97-2		0.03898	
			Ethoxylated Alcohol	068439-50-9		0.03898	
			Proprietary Alcohol Ethoxylate Surfactants	TRADE SECRET		0.00689	
			Proprietary n-Olefin	TRADE SECRET		0.00598	
			Acetic acid	000064-19-7		0.00162	
			Diethanolamine	000111-42-2		0.00087	
			Cinnamaldehyde	000104-55-2		0.00024	
			Modified Thiourea Polymer	068527-49-1		0.00006	
B84, SC30	X CHEM	Anti-Bacterial Agent, Scale Inhibitor					
			Water	007732-18-5		0.03159	

\* 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%

Note: For Field Development Products (products that begin with FDP), MSDS level only information has been provided.

Ingredient information for chemicals subject to 29 CFR 1910.1200(i) and Appendix D are obtained from suppliers Material Safety Data Sheets (MSDS)

