

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	04/10/2013
State:	California
County:	Kern
API Number:	04-030-49543
Operator Name:	Aera Energy Llc
Well Name and Number:	Section 8 2-3A
Longitude:	-119.5328712
Latitude:	35.1633222
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	1,090
Total Water Volume (gal)*:	80,514

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%	64.98506%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00012%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00023%	
			Crystalline Silica: Cristobalite	14464-46-1	1.00%	0.00002%	
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00002%	
			Diatomaceous Earth, Calcined	91053-39-3	60.00%	0.00139%	
			Magnesium Chloride	7786-30-3	5.00%	0.00012%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00023%	
GBW-5	Baker Hughes	Breaker	Ammonium Phosphate	7727-54-0	100.00%	0.00678%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00194%	SmartCare Product
			Water	7732-18-5	97.00%	0.06263%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.06658%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00111%	
			Water	7732-18-5	60.00%	0.06658%	
Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.05028%	
CorrSorb 3600, 25 lb pail	Baker Hughes	Corrosion Inhibitor	Acid Phosphate Ester	9046-01-9	5.47%	0.00106%	
			Crystalline Silica Quartz	14808-60-7	1.00%	0.00019%	

			Diatomaceous Earth, Calcined	91053-39-3	80.00%	0.01549%	
			Quaternary Ammonium Chloride	61789-71	15.06%	0.00292%	
XLW-32, 260 gal tote	Baker Hughes	Crosslinker	Boric Acid (H3BO3)	10043-35-3	30.00%	0.01403%	
			Methanol	67-56-1	60.00%	0.02807%	
			Methyl Borate	121-43-7	30.00%	0.01403%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.01542%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.01542%	
			Guar Gum	9000-30-0	60.00%	0.18510%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.01542%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.09255%	
			Petroleum Distillates	64742-47-8	30.00%	0.09255%	
ScaleSorb 3, (25# pail)	Baker Hughes	Scale Inhibitor	Amino Alkyl Phosphonic Acid	Trade Secret	30.00%	0.00581%	SmartCare Product
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00019%	
			Diatomaceous Earth, Calcined	91053-39-3	100.00%	0.01936%	
			Phosphonic Acid	13598-36-2	1.00%	0.00019%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.02133%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.04267%	
			Water	7732-18-5	50.00%	0.03556%	

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.

			2-Butoxy-1-Propanol	15821-83-7		0.0002467952%	
			Crystalline Quartz (silica)	14808-60-7		34.1386879900%	
			Ethylene Glycol	107-21-1		0.0001819904%	
			Phosphoric Acid	7664-38-2		0.0000212967%	
			Polyoxyalkylenes	78330-21-9		0.0000696984%	
			Thioglycolic Acid	68-11-1		0.0000290410%	
			Water	7732-18-5		0.0002981545%	

* 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%.

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