

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	04/10/2013
State:	California
County:	Kern
API Number:	04-030-48749
Operator Name:	Aera Energy Llc
Well Name and Number:	Section 8 4-3
Longitude:	-119.5309416
Latitude:	35.1629753
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	1,160
Total Water Volume (gal)*:	43,176

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%	63.64525%	
X-Cide 207	Baker Hughes	Biocide	2-Methyl-4-Isothiazolin-3-One	2682-20-4	5.00%	0.00011%	
			5-Chloro-2-Methyl-4-Isothiazolin-3-One	26172-55-4	10.00%	0.00021%	
			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%	0.00127%	
			Magnesium Chloride	7786-30-3	5.00%	0.00011%	
			Magnesium Nitrate	10377-60-3	10.00%	0.00021%	
GBW-5	Baker Hughes	Breaker	Ammonium Phosphate	7727-54-0	100.00%	0.00619%	SmartCare Product
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00177%	SmartCare Product
			Water	7732-18-5	97.00%	0.05719%	
BF-7L	Baker Hughes	Buffer	Potassium Carbonate	584-08-7	60.00%	0.05948%	SmartCare Product
			Potassium Hydroxide	1310-58-3	1.00%	0.00099%	
			Water	7732-18-5	60.00%	0.05948%	
Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.04592%	
CorrSorb 3600, 25 lb pail	Baker Hughes	Corrosion Inhibitor	Acid Phosphate Ester	9046-01-9	5.47%	0.00097%	
			Crystalline Silica Quartz	14808-60-7	1.00%	0.00018%	

			Diatomaceous Earth, Calcined	91053-39-3	80.00%	0.01414%	
			Quaternary Ammonium Chloride	61789-71	15.06%	0.00266%	
XLW-32, 260 gal tote	Baker Hughes	Crosslinker	Boric Acid (H3BO3)	10043-35-3	30.00%	0.01201%	
			Methanol	67-56-1	60.00%	0.02403%	
			Methyl Borate	121-43-7	30.00%	0.01201%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.01320%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.01320%	
			Guar Gum	9000-30-0	60.00%	0.15837%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.01320%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.07918%	
			Petroleum Distillates	64742-47-8	30.00%	0.07918%	
ScaleSorb 3, (25# pail)	Baker Hughes	Scale Inhibitor	Amino Alkyl Phosphonic Acid	Trade Secret	30.00%	0.00530%	SmartCare Product
			Crystalline Silica: Quartz (SiO2)	14808-60-7	1.00%	0.00018%	
			Diatomaceous Earth, Calcined	91053-39-3	100.00%	0.01768%	
			Phosphonic Acid	13598-36-2	1.00%	0.00018%	
GasFlo G, 330 gal tote	Baker Hughes	Surfactant	Methanol	67-56-1	30.00%	0.01926%	SmartCare Product
			Mixture of Surfactants	Trade Secret	60.00%	0.03853%	
			Water	7732-18-5	50.00%	0.03211%	

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		0.0002111537%	
		Crystalline Quartz (silica)	14808-60-7		35.5854711273%	
		Ethylene Glycol	107-21-1		0.0001661881%	
		Phosphoric Acid	7664-38-2		0.0000194475%	
		Polyoxyalkylenes	78330-21-9		0.0000636465%	
		Thioglycolic Acid	68-11-1		0.0000265194%	
		Water	7732-18-5		0.0002722656%	

* 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)