

Hydraulic Fracturing Fluid Product Component Information Disclosure

Last Fracture Date	09/22/2012
State:	California
County:	Kern
API Number:	04-030-47754
Operator Name:	Aera Energy Llc
Well Name and Number:	731DU-29
Longitude:	-119.7367171
Latitude:	35.4686067
Long/Lat Projection:	NAD83
Production Type:	Oil
True Vertical Depth (TVD):	1,498
Total Water Volume (gal)*:	20,412

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%	76.57717%	
Enzyme G-I	Baker Hughes	Breaker	Hemicellulase Enzyme Concentrate	9025-56-3	3.00%	0.00270%	SmartCare Product
			Water	7732-18-5	97.00%	0.08734%	
Clay Master-5C (Tote)	Baker Hughes	Clay Control	Oxyakylated Amine Quat	138879-94-4	60.00%	0.06905%	
XLW-10A	Baker Hughes	Crosslinker	Ethylene Glycol	107-21-1	30.00%	0.03969%	SmartCare Product
			Sodium Hydroxide	1310-73-2	10.00%	0.01323%	
			Sodium Tetraborate	1330-43-4	30.00%	0.03969%	
GW-3LDF	Baker Hughes	Gelling Agent	1-Butoxy-2-Propanol	5131-66-8	5.00%	0.02196%	SmartCare Product
			Cyrstalline Silica, Quartz (SiO2)	14808-60-7	5.00%	0.02196%	
			Guar Gum	9000-30-0	60.00%	0.26353%	
			Isotridecanol, ethoxylated	9043-30-5	5.00%	0.02196%	
			Paraffinic Petroleum Distillate	64742-55-8	30.00%	0.13176%	
			Petroleum Distillates	64742-47-8	30.00%	0.13176%	
Sand, White, 20/40	Baker Hughes	Proppant	Crystalline Silica (Quartz)	14808-60-7	100.00%	22.55139%	
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		0.0003513698%	
			Water	7732-18-5		0.0264569412%	

* 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)